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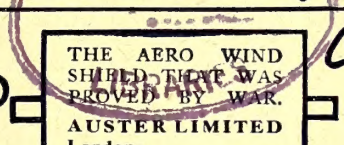

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ON PEACE.

For nearly five years our Press and our politicians have been proclaiming to the world at large and to the people of this country in particular that the signature of any German on a scrap of paper is worthless.

On Saturday, June 28th, the representatives of the German people signed a scrap of paper, and forthwith threw the Allied Nations and the United States into paroxysms of joy—if the newspapers of the world are to be believed.

One is not and never has been a believer in Universal Peace, whether produced by treaty, or by an upsetting of the balance of power by a League of Nations, or by the regeneration of the human race. Nor is one a believer in peace between temporary Allies any more than eternal enmity between temporary enemies.

We are but little nearer, in the passing of eternity, to permanent or universal peace now than we were in 1914, or in 1814, or in 1014, or in the year 14 B.C.

The soundest policy as a preservative of peace is to obey the motto "In time of peace prepare for war." Only by readiness for war can peace be maintained.

In the recent war we saw the beginning of aerial warfare and realised a little the value of Air Power. In the next war we shall see aerial warfare properly developed, and aircraft put to their logical uses.

This nation and this Empire is more vulnerable to attack by aircraft than by any other weapon, it is better fitted to use aircraft as a weapon of offence than any other weapon, and it must rely more than any other nation in future wars on the efficiency of its anti-aircraft defences.

Thus it behoves us as a people to prepare forthwith to set up such an Air Force and such a system of defence against aircraft as will insure us for all time against invasion, and against interference in our communications with the British Dominions Overseas, and such as will enable us to strike at once by way of the air against any nation which has the presumption to disturb our peace.

Our politicians will hamper the setting up of such an Air Force, and the people will not heed the lesson of this war. For this reason those who have eyes to see and minds to understand have upon them henceforth the burden of working for a big Air Force as those of an earlier generation had the task of working for a big Navy.

Let us, therefore, to whom aircraft and all that the word implies are the first of our interests, dedicate ourselves to the task of maintaining the Air Power of this Kingdom.—C. G. G.

ON A TERRITORIAL AIR FORCE.

Speaking at the Independent Force, R.A.F., dinner recently General Trenchard stated that a Territorial Force scheme for the R.A.F. is under consideration. He gave no indication whatever of the lines on which the scheme is to be worked, but the natural assumption is that it will be more or less based on the Territorial Force scheme of the Army as organised by the Viscount Haldane.

Whatever may be the popular opinion of Lord Haldane, as gathered from the common news-sheets, the indisputable fact remains that his Territorial scheme was remarkably good, and that it played a very important part in such success as the British Army achieved in this war. Lord Haldane is recognised by experienced officers of the General Staff as one of the best War Ministers whom this country has had for several generations. It is true that he was weak in his faith in aviation and that the R.F.C. owed him no thanks for anything, but it is none the less a fact that he did much for the British Army, and that it was largely due to him that the little British Expeditionary Force at the beginning of the war was the most efficient army in the world.

The Chief Problem.

Lord Haldane's task before the war was very similar to that which confronts Sir Hugh Trenchard after the war. When one regards the situations side by side one finds that in each case there is the primary obstacle of a Government whose first consideration is to maintain itself in office by pandering to the mob. The people must be placated by the old bribes of *panem et circenses*. They must have cheap food and cheap amusements (one can hardly call the entertainment tax a hindrance). There is very little money to spare for the defence of the country. With the exception of a few intelligent people, the population of the country believes that it is in for a prolonged period of the deepest peace.

There is, then, the choice between a very small permanent force of the very highest efficiency, plus as large a volunteer force as can be raised, and a badly-paid, badly-equipped professional force of larger size, without any volunteer backing. The problem to be faced is simply how to spend to the best advantage the small amount of money which can be extracted from a Government which is much more concerned about its own immediate present than about the future of the Empire.

Lord Haldane chose to spend the bulk of his money on building the B.E.F., and his policy was wholly justified in the first six weeks of the war. His Territorial scheme was equally well justified in the next six months, when the semi-trained Territorial battalions were pitchforked into the line to hold up the German advance until the first of the Kitchener Armies began to arrive.

The End of the Parallel.

But when one comes to consider the relative difficulties of the two tasks of raising a Territorial Army and of raising a Territorial Air Force—given equal official support and equally good staff work in each case—the parallel ends abruptly. In fact there can be no comparison.

Consider, for example, what inducement can be offered to join a Territorial infantry battalion. A man must join from one of three motives. Either he must be a whole-souled patriot who thinks it his duty to learn to defend his country—in which case he is qualified for a place in a museum. Or he likes soldiering for soldiering's sake, but cannot afford to be a professional soldier—which probably accounts for the bulk of the Territorial Force. Or he likes the idea of swanking around in a uniform on occasion—which also accounted for a large number of "Terriers" before the war.

All he gets for his trouble is a holiday in the country for a week or so once a year—and generally a very wet and uncomfortable holiday. For it he has to sacrifice his spare time on four or five days every month. He has to tramp down to an ugly drill-hall, generally in a slum. And he has to do uninteresting drills and marches which seem to lead nowhere in particular and back again. After which his friends and acquaintances jeer at him for "playing at soldiers."

Air Force Inducements.

Consider, as against all that, the inducements which can be held out by the Air Ministry to persuade people to join a Territorial Air Force, if it is run on the right lines.

In the first place, pilots who have left the R.A.F. and who cannot afford to fly at their own expense can go on flying at intervals for years. Not only will they keep in training, but they will keep in touch with the latest aeronautical developments.

One knows for certain that this inducement alone would bring dozens of present pilots into the Territorial Air Force, and probably it would bring thousands into it, if there were room for them. Also in years to come it would induce many thousands of youngsters to join, because every boy at school to-day wants to fly, just as the previous generation wanted to drive a motor-car and as the older generation wanted to drive a railway-engine or even a traction-engine.

That craving to be an engine-driver is one of the universal desires of youth which continues from generation to generation and survives into the old age of the individual. And it can be made a very valuable national asset if it is handled the right way.

Territorial or Temporary.

Furthermore, many an ex-pilot of the R.A.F., and many an observer for that matter, would rather join a Territorial Air Force than take a Temporary Commission in the R.A.F. As Captain Barron has pointed out in his article on the reorganisation of the R.A.F., the Temporary Commission scheme may only appeal to a very limited number of people, because many will regard it as a "dead-end occupation." A Territorial Air Force does at any rate afford present-day pilots and observers a chance of keeping in the closest touch with their old Service and of keeping thoroughly up-to-date in aeronautical affairs while continuing to make a decent living at their normal professions.

Inducements to Airmen.

Apart from officers and airmen-pilots, a Territorial Air Force offers strong inducements to ex-airmen of the R.A.F. and to ordinary mechanics all over the country, as well as to youths of the higher social classes who cannot hope to fly owing to physical defects.

One of the greatest harms done to this country in the early days of the war was the calling-up of skilled mechanics who were Territorial soldiers. They went into the line as infantry and were killed in hundreds. Many thousands more joined the Kitchener Armies as privates and were likewise killed, or maimed so as to be unfit for work.

Now, if all the former air-mechanics of the R.A.F., and a number of other skilled mechanics from engineering works, garages, and so forth, all over the country, could be induced to join a Territorial Air Force, not only would the R.A.F. be thoroughly adequately manned in time of war, but these particularly valuable men would be saved for the reconstruction of industry after the war. One believes firmly that if all those thousands of gallant and patriotic mechanics and engineers who were killed during the first year of the war were still alive, the outlook for British Industry would be far brighter than it is to-day, for they would stand none of the Bolshevist nonsense and treason which is talked in our factories by the trench-dodging scum who, unhappily, form so large a proportion of our surviving industrial population.

An additional inducement to mechanics and engineers to join a Territorial Air Force is the fact that they would thus learn a great deal about the construction of aircraft and aero-engines, or—in the case of those who have already worked on aircraft—would keep their knowledge up to date, and so would be ready to take important jobs in the Aircraft Industry when the great boom in Civil Aviation arrives, as it will do some day—though none can say whether it will be in two, five, fifteen, or twenty-five years' time.

Inducements to Youths.

Similarly, youngsters now at school would find it worth their while to join as airmen, because, in case of war, they would automatically drop into their places in the mobilised R.A.F. Those who were fitted for the job would certainly be promoted at once to be technical officers, if they were unfit to become pilots. Many would be taught to fly. All the rest would be kept at a job at which they were already more or less proficient.

An attempt is being made already in a very small way—as already noted in this paper—to induce youngsters between 14 and 20 years of age to join a branch of a London Territorial Battalion and learn something of aeronautical engineering as taught by ex-R.A.F. officers. This is a step in the right direction—or perhaps one should rather describe it as an attempt at toddling in the right direction—but, obviously, although it has had the official blessing of General Trenchard, it is wrong in principle, as the steps of toddlers generally are.

In the first place, if the R.A.F. is to be the R.A.F. and is not to be a part of the Army, it is quite wrong that aeronautics should be taught under the auspices of a T.F. Battalion of the Army. In the second place, any instruction of this sort, if it is to be given at all, should be given at an R.A.F. station of some sort—for preference in an aeroplance shed at an aerodrome among actual aeroplanes. There are plenty to spare at Hendon and Hounslow and elsewhere. Or the classes might be held at the Agricultural Hall or one of the other numerous R.A.F. stores in London itself. However, doubtless this small matter will be put right when a proper cut-and-dried Territorial Scheme is laid down by the Air Ministry.

An Ancient Idea.

So far one has merely indicated roughly how much easier it will be to induce people to join a Territorial Air Force than it can be to get recruits for the Territorial Army. There are many other inducements, but one has neither the time nor the space in which to set them forth. They may be left to the recruiting offices of the R.A.F. (T.F.) whenever they may be established.

Actually the idea of a Territorial Air Force is far from new. In April and May of 1914 Mr. W. E. de B. Whittaker, now Major, General Staff, wrote a series of articles in this paper on "A Reserve for the Royal Flying Corps" and on "Local Training," setting forth with his customary lucidity and peculiar humour the difficulties

and also the great possibilities of a Territorial scheme for the R.F.C. As he rightly argued, in those days pilots were so few and far between that there was little possibilty of raising the personnel of a squadron in any one town, or of establishing an aerodrome, or of raising the money to buy machines—despite the sporting offer of the city of Liverpool to raise and equip a volunteer squadron.

Many points in his article published on May 7th, 1914, might well be of value to-day to those who may be concerned with drafting the new Territorial scheme. And as to the general effect of a Territorial Air Force the end of the said article may well speak for itself :—

"This spreading of aviation (Territorial) into the most curious nooks of the Kingdom, to places where business is the only god, would do much to popularise aviation among the people. Familiarity with flying would teach the populace many lessons both as to the safety of aeroplanes and the instability of aviators. When a man does not understand a thing he invariably dislikes it.

"It (Territorial aviation) might have some strange effect on patriotic feeling. To see a part of the country's defences flying over one's back garden is a noble sight calculated to rouse the finest instincts in man. So long as the local aviator preserved a judicious attitude as to miscellaneous landings, there is no reason why he should not become as popular as the local mayor when he wears his triumphal collar."

VALUE FOR MONEY.

To-day the position is very different in many ways, and a Territorial Air Force would give the Nation very much better value for its money than it could do in the days in which Mr. Whittaker introduced the Territorial idea.

We have now enough trained pilots and mechanics in any really big town to supply the whole personnel of a squadron, and some cities could raise a couple of squadrons. This trained personnel could easily train new people as they might come along in the future. We have aerodromes to spare all over the country, with huts and sheds for more squadrons than any Territorial scheme is likely to raise. Also we have machines, literally as well as figuratively, to burn—if certain "Questions in the House" may be taken as reasonably accurate statements. The country would get better value out of those machines by handing them over to volunteer squadrons than ever it is likely to get by "reduction to produce" for the sake of giving employment to unskilled labour and officials of the Salvage Department.

THE FINANCE QUESTION.

Thus one sees that a vast Territorial Air Force can be raised and equipped practically without asking the Treasury for a penny, merely by using matériel which already exists, and for which the Treasury has already paid, or for which it will have to pay sooner or later.

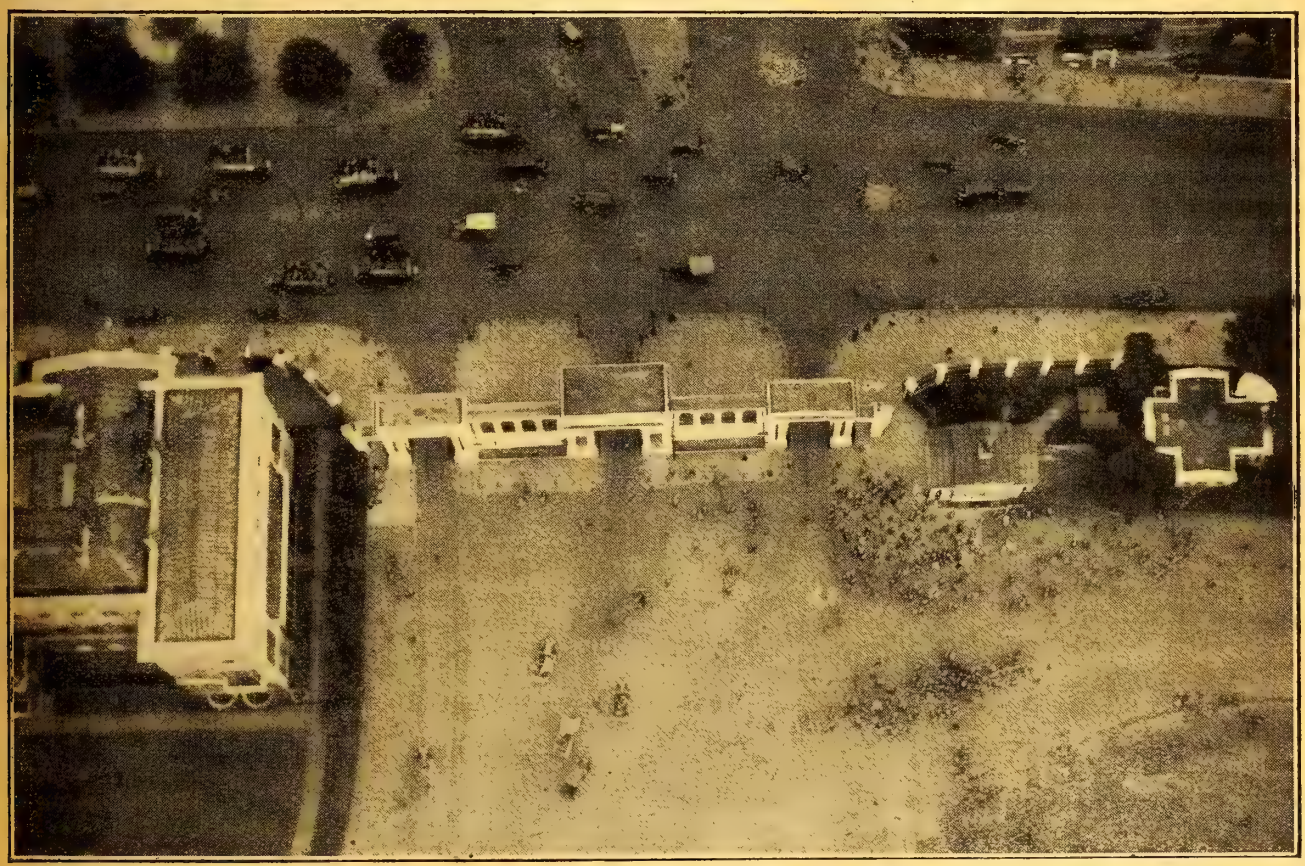
The personnel will cost nothing, except for uniforms—of which there is probably an excess as great as the excess of machines and engines. Only when called out for manœuvres will there be any pay and maintenance to consider, for all the other work of the squadrons will be done locally, in the spare time of the personnel.

So far as one can see, the only regular and constant expenditure would be on petrol and oil, and this, though representing perhaps a fairly large sum in the year, would actually be very small in proportion to the value received, and should be regarded as a National Insurance premium against future aerial invasion. Also, perhaps some of the Petrol Profiteers might help with gifts of fuel.

THE AIR MINISTRY'S CHOICE.

To put the position briefly, the Air Ministry has the choice of two distinct policies. Given that it will have a limited grant from the Treasury, that sum can be spent in either of two ways :—

(A) It can all be spent on a Regular Air Force—consisting of officers with permanent, temporary, and special



HYDE PARK CORNER.—Photographed on Alexandra Rose Day from the red-nosed Handley Page bouquet-dropper.

reserve commissions, and airmen under a permanent engagement, plus a liability to service in the reserve.

(B) It can have a much smaller Regular Air Force, with a very large Territorial Air Force attached.

In the first case most of its Vote will be spent in pay and allowances, and there will be little left for matériel. Which means that when war breaks out again it will find itself precisely where it was when this war began —namely, with a small but highly efficient force, but without aeroplanes or engines, without an Aircraft Industry capable of supplying its war needs, without a large trained personnel, and without means of sudden expansion.

In the second case it will be able to spend most of its money on matériel, because it will be able to get its personnel for nothing or next to nothing. Thus in case of war it would have a fairly healthy Aircraft Industry capable of expanding its output rapidly to equip the Territorial squadrons with the latest machines and engines.

It must be one or the other. The money may be spent mostly on men, or mostly on machines. It is certain that no post-bellum Government will dare to provide enough money to maintain a Regular Air Force adequate to our needs. Therefore it seems fairly self-evident that the only hope of maintaining our position as the leading Power in the air is to spend as much as possible on equipment and as little as possible on personnel.

Permanent Pay.

At the same time it is essential that those people who *are* paid by the Air Ministry—namely, the Regular officers and airmen—should be very highly-paid specialists, for on them will depend the degree of excellence and efficiency attained by the personnel of the Territorial Air Force.

General Trenchard has stated definitely that officers of the R.A.F. will be able to live, and live well, on their pay, so there need be no anxiety on that score. It will be far better to pay a small number of highly efficient people really well, and to have a large number of volunteers who will be paid nothing at all, than to have a medium number of people all badly paid, all without enthusiasm for their work, and all as inefficient at their jobs as was the average Technical Expert during the war.

Inducements to the Authorities.

Thus one sees that just as there is every inducement for the man who is keen on aviation to join the R.A.F. (T.F.), so there is every inducement for the Authorities, whether at the Air Ministry or in the Cabinet, to form an R.A.F. (T.F.). Correspondence, some of which has been published in this paper, shows how keen many people, both those formerly in the R.A.F. and others, are to join a Territorial Air Force. It is a newspaper axiom that for one person who writes a letter to a paper on a given subject there are 100 who intended to do so, or would like to do so, but don't. One only hopes that the Authorities are as keen on forming it, and that they will set forth their scheme, whatever it may be, before people have become bored waiting for it.—C. G. G.

ON THE RE-ORGANISATION OF THE R.A.F.

It has always been the custom in this paper to give all sides of every question a fair hearing, no matter how much the other sides might disagree with the editor's personal opinions. If, on occasion, the editorial opinion has predominated, it has only been because the opposition has not had the pluck or the ability to voice its arguments in print, or, one admits it freely, because the opposition has not thought it worth while. The history of aeronautics, especially of Service aeronautics, in the past six or seven years has proved the folly of the last-mentioned course of inaction, for unfortunately, from the opposition point of view, it has always been shown in the end that this paper has been right. Not that one takes any personal credit for the fact, for the fairly consistent rightness of The Aeroplane has simply been due to backing the opinions of the right people.

Because of this principle of giving all sides a fair hearing one has given full publicity to the letter of one "Audax" last week, and to a more elaborate argument in the form of an article by Captain Barron this week. Both these officers disagree with, or at any rate mistrust, the scheme for the reorganisation of the R.A.F. as disclosed in outline by the Chief of the Air Staff recently.

One's personal opinion is that the scheme will work out quite well in practice, though possibly modifications may be necessary in detail in the light of experience during the next few years. Moreover, it must be remembered that all we know at the moment is simply the outline, or perhaps one should say the skeleton, of the scheme. One could scarcely judge the beauty of Cleopatra or the strength of Milo of Crotona or the genius of Cæsar from a casual glance at their skeletons in a museum.

Those who have served under Sir Hugh Trenchard know his genius for handling the personnel of a fighting force, and those who have not had that privilege, but have merely watched the work of the R.F.C. under his guidance, have the fullest confidence in his ability to make good under difficult circumstances. Therefore there seems no reason to doubt the ultimate success of the R.A.F. scheme, so long as General Trenchard is allowed to work it out in his own way. One believes that the Secretary of State for Air, Mr. Winston Churchill, has that same faith in General Trenchard as have those who have served with him, and Mr. Churchill's own brilliant brain is certain to contribute ideas of great value to the scheme as it develops in practice.

It is an axiom that the ideal form of government is a benevolent despotism, and of all the King's Services the Royal Air Force more than any other has need of a benevolent despot to set it in order. The re-organisation of the R.A.F. is essentially a one-man business. When it has developed into a going concern, then perhaps it may be able to carry on with a Committee or a Board of Directors, or a Soviet, or something equally comic which the passing of time and the demands of the period may call into being. Meantime one is prepared to back the present scheme, of which, as already mentioned, we only know the skeleton.

The Blind-Alley Scare.

Captain Barron seems unintentionally to have given the answer to all critics of the scheme when he says that, like Wagner's music, it must be better than it sounds. If the scheme is as much better than all other schemes as Wagner's music is better than all other music, it will be far better than the R.A.F. deserves. If it is as the "Kaisermarch" is to "Pomp and Circumstance," or as "Parsifal" is to "Gerontius," then the R.A.F. will be the finest thing of its kind in the world—as it is now, for that matter, despite all its faults. Those who curse the R.A.F. and all its works ought to hear a few of the things that the people in the French and Italian and American flying services say about their own shows.

The thing that seems most to scare people about the new scheme is the notion that temporary commissions in the R.A.F. are simply a blind-alley occupation. So is any other occupation, as a matter of fact, if it does not happen to be the particular occupation for which the individual is best fitted. A man may study for the Bar,

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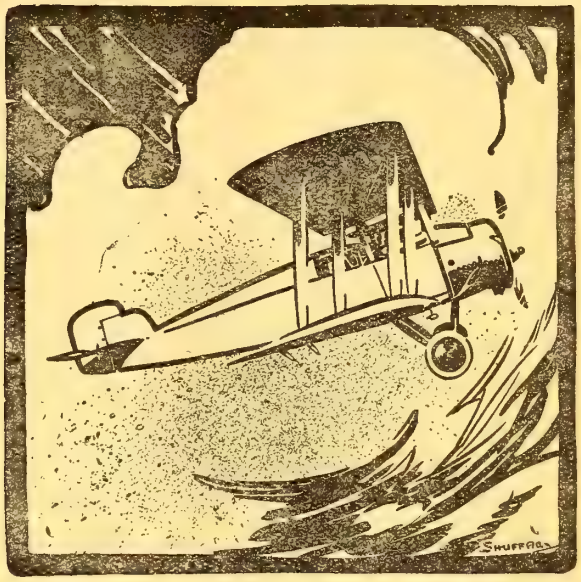

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and never get any further than the long one at the Trocadero. Or he may be articled as a chartered accountant and yet never be of any account whatever. Or he may be articled as a solicitor and end by soliciting alms. Or he may walk the hospitals with intent to become a doctor, and end by walking the streets full of dope. A man can only succeed in a job for which he is fitted by constitution. Education alone can never make him a success. The prizes in any competition are very few in proportion to the competitors, and the majority of the population of any country are the "also rans."

Temporary or Permanent.

Similarly a man's success as an R.A.F. officer will depend on his fitness for success and not on whether he starts with a permanent or a temporary commission. General Trenchard stated quite plainly that each year a certain number of temporary officers will be given permanent commissions. And, though he did not say so, it must be evident in the nature of things that every year a certain number of officers with permanent commissions will resign, or will be compelled to resign under pressure by their brother officers, or will be invalided out, or will be killed. So one class balances up against the other.

Thus one sees that, for a start, the temporary officer, if he is superlatively good all round, has a fair sporting chance of becoming a permanent officer. And, if a man has faith in his own ability, he need not hesitate to take a temporary commission, for if he proves good enough he is certain to get either one of the permanent commissions which are to be reserved for temporary officers or one of those vacated by a permanent officer who has fallen out by the way.

A Means to an End.

Furthermore, a temporary commission in the R.A.F. may well be regarded as a means to an end in civil aviation. Presumably most of us who are concerned with aviation to-day believe that civil aviation has a great future. Otherwise, to put it in the vernacular, we should not be such mugs as to stop in it.

But, civil aviation is still very much in its infancy. In fact, to judge by the way it is squealing at the moment, it is suffering badly from infantile colic, or at any rate from teething troubles. And small blame to it, for candidly one does not think a whole lot of the way its wet-nurses in the Department of Civil Aviation are treating the poor little beast.

Nevertheless, in two or three or at any rate in five years' time Civil Aviation will be a really sound business, and those people who are now quitting aviation in disgust or in despair will be sorry that they did so. Civil aviation is merely suffering to-day from a slump after the unnatural boom caused by the war, but the growth of all industries shows that the base of any slump is higher on the chart than the peak of the last boom but one, so there is no cause for worry, but merely for caution.

As a matter of fact, a slump is a very healthy thing, for it weeds out the unfit. Those who lack faith, or lack ability, get out and leave more room for those who remain. The Air Force and the Aircraft Industry alike are better without them. Those who remain in the R.A.F. with temporary commissions are in fact simply using a means to an end.

Luck and Judgment.

The temporary officer demonstrates his faith in aviation by taking a temporary commission. If he is superlatively good, and if he also has the necessary luck—for luck plays an important part in all successful careers—he will become a permanent officer and will in time rise to a high command. If he has not the luck, but merely has good judgment, he will learn all he can during his years of temporary service and so will leave the R.A.F. full of all the latest knowledge of aeronautical theory and practice and will be fit to take a really good job in civil aviation. Meantime the people who get out now will have drifted into other occupations and will be out of date so far as aviation is concerned. One has said all this before, months and months ago, but it is just as well to say it again, for people who are feeling depressed are apt to forget precisely the things which ought most to cheer them and support their failing faith. Therefore one wants to impress on all present officers of the R.A.F. the fact that if they have the chance of a temporary commission they will do well to take it.

The greatest pity seems to be that so many youngsters of the right class are having their applications for temporary commissions turned down by incompetent wing and group commanders while a certain number of undesirables are being recommended by the same people. That is a matter of bad luck on one side and bad judgment on the other, but it cannot be helped.

Many a good man in the Navy and Army has had his career blasted by a bad mark put against his name in the Service records by a senior officer who has himself been cashiered at a later date. Such a stroke of bad luck is merely a man's fate, like being born blind, or losing a leg in a motor-bus accident. The good man is the man who rises superior to fate and carves a career for himself in a new direction.

"Throw-outs."

One point raised by "Audax" deserves particular notice. He suggests that proved fighting pilots will be thrown out of the R.A.F. to make room for officers trained in an R.A.F. Sandhurst. The idea is entirely that of "Audax" himself. There is nothing in General Trenchard's speech to suggest it.

Personally one thinks that it might be for the good of the future R.A.F. to do so. Some of the best fighting men (in all the Services and not in the R.A.F. alone) are quite the worst officers and some are far from being gentlemen. A man may be a bully and a cad to his inferiors in rank, and yet be a first-class scrapper. Or a man may be a fine lone-hand fighter and yet hopeless as a patrol leader or an administrator. One of the bravest gentlemen whom one knew in the old R.F.C. was constitutionally unable "to command a corporal"—as a brother officer put it.

In the reorganised R.A.F. the permanent officers must combine all the qualities desirable in an officer and a gentleman. They must have bravery, but they must also have brains. And it is possible that some of the youngsters who will come out of an R.A.F. Sandhurst three or four years hence may combine the two qualities better than some of those who have distinguished themselves as fighting pilots. There is no room in a fighting service for Trade Union principles. Payment by results is the only possible method of securing efficiency. And promotion by merit is only piece-work under another name.

Equal opportunity for all is a perfectly sound theory, but a man must be fit to take his opportunity when it offers. If a proved fighting pilot cannot administrate a flight or a squadron properly when he reaches the end of the period of his temporary commission, then he must get out and make way for somebody who can. That is only Nature's law of the survival of the fittest.

Again it is a matter of a man's faith in his own ability. If the proved fighting pilot, with all his war experience of how a squadron ought to be run, and of how men ought to be handled, is not prepared to back himself against the product of an R.A.F. Sandhurst, then the sooner he gets out of the Air Force the better for himself and everybody else.

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To those of faint heart one would merely point out that General Sir William Robertson, G.O.C.-in-C. the Army of the Rhine, lately C.-in-C. Forces in Great Britain, and formerly Chief of the Imperial General Staff, rose to the highest possible posts in the King's Army after having served for eleven years in the ranks before becoming a commissioned officer. Let his career be an example and an encouragement to those who find their prospects in the R.A.F. perhaps a little discouraging. To all such one counsels faith in the King's Service, faith in the Royal Air Force, faith in their Chief, and faith in themselves.—C. G. G.

AERIAL DEFENCE.

It is a time-honoured British custom to delay preparations for war until hostilities have begun. Then it is true that every effort is made to supply the deficiencies in men and material. But the necessary delay is the cause of the initial failures and heavy casualties which have marked the opening of every great war in which the British have been engaged. But there is yet a greater failing in the military policy of the English as laid down by the politicians. Inadequate preparations at the beginning of a war are invariably succeeded at the end by a relaxation of all precautions and a reduction of all systems of defence below a margin which would give adequate insurance against calamity in the future.

There is no indication that a similar policy will not be adopted once again now that official peace has been attained. There is a general impression amongst the public that the great nations of the world are so weary and impoverished that further trouble is impossible for years. It is possible that war may cease to be an amusement for a period of years, but it should not be forgotten that there are forces in national character which are stronger than weariness, and that a general impoverishment of nations does not necessarily prevent hostilities. Bankruptcy of a nation, as of a man, is often provocative of a recklessness which has little regard for consequences and gambles the national fortunes on the riskiest of stakes.

Major-General Ashmore, G.O.C. London Air Defence Area, in a speech delivered on June 23rd at the unveiling of a memorial to children of a Poplar school killed in an air raid in June, 1917, said :—

"For the moment there is no possibility of air raids. But what of the future? Can we say, 'It is peace. We need no more air defences'? With this object-lesson before us in Poplar, I do not think we can ever be content that London should be defenceless again.

"Commercial machines can all carry bombs. We have just seen an exhibition of the long ranges of modern machines. London is a very large, very important, a very easy target to find. The mere threat of an air raid would have a serious effect if there were no efficient defences. Efficient defences are a great deterrent, as we have seen. If they exist we may never be attacked. If they do not exist it is certain that an attack will be successful."

Aerial defence is a new branch in the science of war. It has been born and has grown during the past four years of war, and it is still in its infancy. Until the Armistice removed for a space the threat of enemy aerial action a continual series of notable improvements both in organisation and in the design and employment of the weapons of defence were carried into effect. The increase of experience and the enthusiasm of all ranks accelerated progress in these matters with remarkable effect. Is this all to cease?

Each war in the future will begin with an aerial attack by the aggressive Power on the nerve centres of its selected opponents in the hopes that an initial blow of great severity may give an easily-gained victory, or, if Fortune is not smiling, that the attack will interfere materially with the intricate process of mobilisation. No nation therefore can safely organise its aerial defences in peace-time along the same lines as are adopted in the case of other units in the military forces of the Crown. It will not be possible to wait until mobilisation is completed for the aerial defence services to become effective. It is essential that they should be maintained on a war establishment at all times, if the national safety is to be considered at all.

But there is another reason why it is advisable to maintain an adequate establishment. The importance of aerial defence will increase vastly in the future, and its sphere of action will extend as the capabilities of aircraft grow. Unless the system is kept in a state of vitality the improvements and developments in the future will be small. The Headquarters Staff can organise and can develop systems of control, but it can hardly be expected to devise those detail improvements which mean so much in the production of efficiency. These are as a rule the outcome of experience in the daily routine of station life. Most inventions are labour-saving in origin, and they need the rigour of work for their existence.

During the past war the detail developments in work with guns, searchlights, sound locaters, and balloon aprons have been many, and the greater majority have been designed or produced as a result of the suggestions made by junior officers and the rank and file.

If a drastic reduction is made in the aerial defence establishments (peace) this productiveness will cease and the continuity of training will be broken. Those who did so well in this work during the war will be deflected to other paths and the keenness and enthusiasm which produced such good results will have faded into insignificance.

This country is at the moment subject to democratic rule. If democracy wishes to justify its claims to virtue and wisdom, it should impress on its chosen representatives the necessity of insisting on the importance of aerial defence in the future policy of the Government. If the people lack interest in the matter and prefer present parcimony to future safety, then indeed will it prove that autocracy has many things in its favour and that minorities are often possessed of wisdom.—H. F.

THE ROYAL AERONAUTICAL SOCIETY.

The jubilee of the Royal Aeronautical Society, which was founded in 1866, would have been celebrated in 1916, but for the late lamented war. However, a belated celebration was made the occasion for a very largely attended Garden Party, on Sunday afternoon, June 29th, at the Cricklewood Aerodrome, which was lent for the occasion by Messrs. Handley Page, Ltd.

The members and guests were received by the chairman (Major-General R. M. Ruck, C.B., C.M.G.), and the Council, in the running shed.

Messrs. Handley Page's works were thrown open to the inspection of the visitors during the whole afternoon, and a Handley Page machine was occupied for the greater part of the time in carrying passengers.

Commander T. Y. Baker, R.N., and Major L. N. G. Filon, D.Sc., F.R.S., R.A.F., gave a lecture, illustrated by lantern slides, on "Navigation on a trans-Atlantic Flight," which attracted a large audience, and an exhibit arranged by the Technical and Research Departments of the Air Ministry was a centre of attraction. This exhibit comprised a number of aero-engines of both Allied and enemy origin, wireless and photographic equipment, armament items, specimens of steel construction, and the like.

The band of the Royal Air Force discoursed more or less sweet music throughout the afternoon, and in addition the D.A.P. Quartette gave a concert in No. 1 shed.

Tea was served in the running shed—and it is to be hoped that the Society reaped a handsome profit therefrom—as the difference between the price charged therefor and the value received indicates that if they did not the contractors must have done so to excess.

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ON EIGHT YEARS OF "THE AEROPLANE."

It seems worth while to record the fact that with this issue of The Aeroplane begins the ninth official year of its existence, and its seventeenth half-yearly volume. One takes this opportunity of thanking those numerous readers who have stood it for so long. We are a patient and long-suffering people, and nothing proves the fact better than that The Aeroplane should have survived for eight years without being either suppressed by the Authorities or wrecked by infuriated readers.

It is a curious coincidence that this number of the paper should also be the first published without direct connection with any impending or present war, though one refrains from the hypocrisy of calling it "Our First Peace Issue," as one might do if one wished to be popular or conventional. When The Aeroplane was first published at Midsummer, 1911, one of the chief motives for starting it was to free one's hands for a campaign in this country with the object of preparing for the war with Germany which everybody with any understanding knew was bound to break out before long.

From 1911 till August of 1914, we who were concerned with this paper fought and intrigued and argued and preached for preparedness for war in the air. From August, 1914, till the signing of the Armistice we continued to fight and intrigue for better equipment and better administration in the Flying Services. For their help in this work before the war one desires to thank Mr. P. K. Turner, Mr. W. E. de B. Whittaker, Mr. W. H. Sayers, and Mr. E. M. Rossiter, all of whom laboured strenuously with the same objects in view (though very different in their methods) while on the staff of this paper, and all of whom have served the King throughout the war. During the war itself one's sole male assistant was the late Mr. W. L. Wade, who, unfit for military service, lived only long enough to see the object of all his work achieved, namely the command of the air held undisputed by the King's Flying Services. To his memory one owes a deep debt of gratitude. One is also greatly indebted to Miss S. F. Benda for much valuable work, especially as concerns military aviation, during the past two years.

Now The Aeroplane is acquiring a larger staff, and one is glad to be able to say that all the male members of that staff have served in the R.A.F. The Assistant Editor is Captain P. A. Barron, formerly a Technical Officer at S.W. Area Headquarters, and his assistant is Mr. G. L. Dore, Lieut. R.A.F., a scout pilot who was wounded and crashed in France.

The Technical Editor is Captain W. H. Sayers, formerly of the Seaplane Department at the Air Ministry and previously Lieut. R.N.V.R. at the R.N.A.S. Experimental Station, Isle of Grain, where he designed and built the highly efficient P.V. seaplanes and the famous "Kitten." His assistant is Mr. Leonard Bridgman, lately a Technical Officer in the Midland Area, and previously an infantry soldier.

Captain Sayers is at present the only former member of the staff of The Aeroplane who has returned to the fold. But one has hopes of others. And if fortune continues to favour this paper it is one's intention to add to the staff, as may be necessary, entirely from the personnel of the Flying Services.

During its eight years of existence this paper has had its headquarters at 166, Piccadilly. These offices are now too small and inconvenient, so in a few days' time headquarters will be removed to 175, Piccadilly. Thus the lucky figure 13 will still be made up by the sum of the address. The new offices are exactly opposite the Burlington Arcade, and as they are on the first floor and are thus independent of the eccentricities of elevators, they will be more readily accessible to visitors—who will be as welcome as ever, whether hostile or friendly, or merely menacingly neutral.

The immediate task of The Aeroplane is to assist in making Civil Aviation into a sound business proposition. In doing so one foresees that one will be obliged to continue to practise the gentle art of making enemies. That is always a praiseworthy occupation, for the Scriptures enjoin upon us that we shall love our enemies. One endeavours to obey that injunction. In fact one loves one's enemies so much that one makes a hobby of collecting them.

The new members of the staff and the regular contributors to the paper promise well in the same direction, and, as they are already absorbing the basic principle that The Aeroplane is not run for the benefit of its readers but entirely for the amusement of the editorial staff, there is every prospect of the said readers being as adequately supplied with mental irritation in the future as in the past.

The ultimate task of The Aeroplane in the piping times of peace which are now before us is to prepare for war. For this reason the King's Services will always be the first consideration in the policy of the paper. Of this future war for which we have now to begin to prepare one proposes to write in a few days' time, for if one is to maintain a reputation as a prophet it is well to start early while the going is easy.—C. G. G.

THE RE-ORGANISATION OF THE R.A.F.

The following letter has been received:—

Sir,—In reply to a letter signed "Audax" in your issue of June 25th, it seems to me that there is something to be said for General Trenchard's scheme for asking officers to accept temporary commissions. "Audax" complains that a temporary commission of this kind would lead one who accepted it merely into a "blind alley." I suggest that there are many who would be prepared to serve for a total of four years; one year of which would be occupied in training, while during the other three years the officer will be in all respects on the same footing as regards pay, disablement pension, etc., as the regular R.A.F. officer. After four years he will get a gratuity of £300, and will have under the C.A.S.'s scheme a first-class technical education at the expense of the Government. As is well known, the range of technical subjects in the Air Force is a very wide one, and a special feature is to be made of educating holders of temporary commissions in the future.

"Audax" should remember also that the work in the future R.A.F. will not be anything like as exacting as the war flying in the past, and will leave therefore more time and more opportunities for specialising in one of the many branches referred to above.

With regard to this second question in which he asks "why fighting pilots should be chucked out of the Service to make room for officers trained in an R.A.F. Sandhurst?" it seems to have escaped his notice that, even if all pilots in the Service on November 11th, 1918, were retained, this supply would not last for ever, and that it would still be necessary to legislate for the future supply. This is what Sir Hugh Trenchard is attempting with his scheme for an R.A.F. Cadet School.

In his last paragraph "Audax" states that he considers a Territorial Air Force to be a sound idea. It is, I believe, the intention of the C.A.S. that officers who have held temporary commissions should form this Territorial or Special Reserve Force, and I hope very much that "Audax" is right when he says that it will attract the best of the proved fighting and civilian pilots. I myself predict a great future for a reserve force composed of officers with three or four years' experience either with the R.A.F. in the field in the past or with the Regular Air Force in the future, and consider that such a force must be more efficient than one run purely on the lines of the Army Territorial Scheme, in which an officer need have only a month's preliminary training combined with a certain number of parades in addition to the ordinary fortnight's training in each year. Aileron.

THE AIR MINISTRY METEOROLOGICAL BRANCH.

The Air Ministry Meteorological Branch has removed to Canada House, Kingsway. The address for correspondence is, Secretary, Air Ministry (F.O.5), Canada House, Kingsway, London, W.C. The telegraphic address will be as heretofore, Flyindom, 'Phone, London. Requests for weather reports by telephone should be made to Holborn 2951, Extensions 520, 521, 522, 523, 524 or 525.

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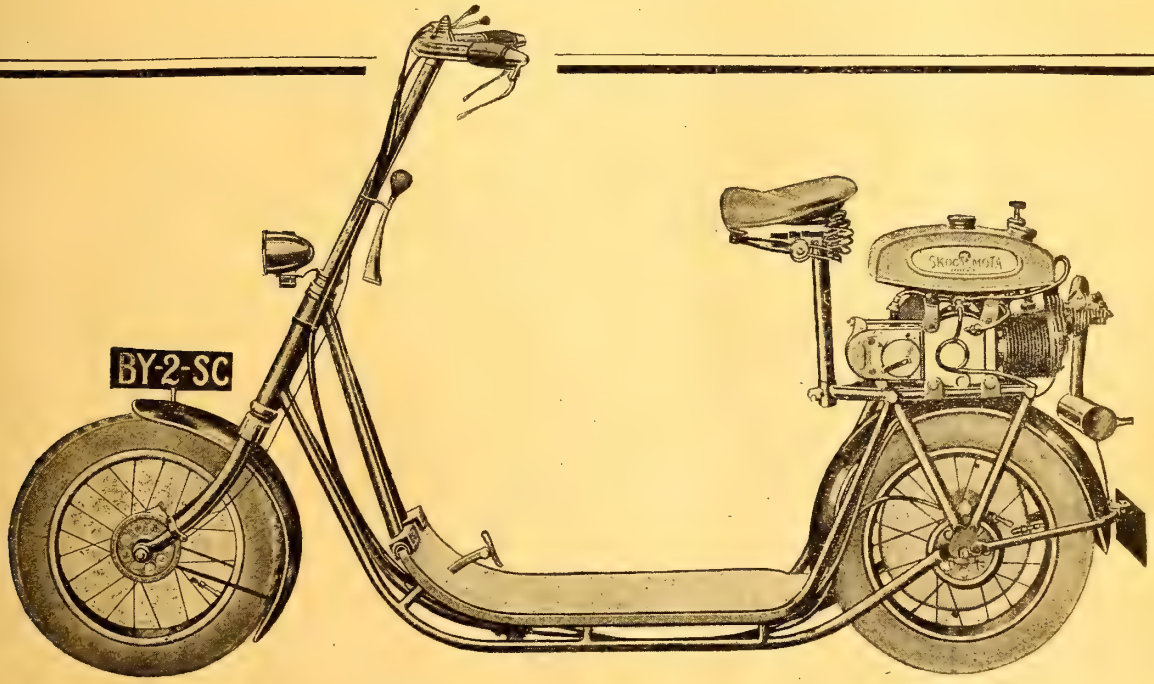

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OUR TEMPORARY INSANITY.

By Captain P. A. BARRON, (late) R.A.F.

Major-General Sir Hugh Trenchard, K.C.B., D.S.O., dropped a bomb among the bombers the other day when he outlined to a select company of Independent Force officers the future of the R.A.F.

He was most apologetic over the plan that he sketched, and informed his hearers at the outset that many would be disappointed. And they were.

Had anyone else made the announcement, one thinks that the feeling of disappointment would have found expression, but the fame of Sir Hugh Trenchard is so firmly founded in a Force the higher commands of which have not been overstocked with heroes to worship that criticism was for the moment withheld. Among so many there was the feeling that if Sir Hugh says the scheme is good it is good, and there is nothing more to be said . . . or, at any rate, it must be better than it sounds, as the old lady remarked when speaking about Wagner's music.

One is quite prepared to believe that the tune to which the R.A.F. is to dance is better than it sounds, but one's ears are not deaf to certain discords. One feels that Sir Hugh's apologetic attitude indicates that he is not the composer but the conductor, and that he has had some difficulty in getting the component members of the band to play in harmony. One feels that he realises the defects as keenly as anybody.

Briefly he told his hearers that a very small number of permanent commissions will be granted, and that the strength of the Force will be maintained by the granting of temporary commissions. The word "temporary" is to indicate a period of two or four years. This appears to be a scheme calculated to please those friends of every country but their own who before the war begrudged every penny of the money spent on undermanned Services which, owing to non-militant vote-cadging amateurs in statecraft, were a direct incentive to militarism among our enemies.

The plan appears to be an extension to officers of the short-service system which so many Army men think a colossal mistake. It can have been formulated only for reasons of economy. Apparently the argument is that in four years, or perhaps two, it is possible to produce a moderately efficient officer. After that period he may revert to civilian life on the understanding that he will be called when wanted. To paraphrase Mr. Rudyard Kipling:—

"I've served my time in the Air Force,
His Majesty says, 'Good-day,
And please to come when you're called for,
And here's gratuity pay.'"

As a tentative scheme this may have some features that are not altogether bad. Presumably the temporary commissions will be given to officers who have served in the war. These will therefore remain on the active list until civil aviation has developed sufficiently to offer positions for a certain proportion of them. For the individuals this has attractions, but, if the premises upon which the argument is based are sound, then these officers who have served in the war are not the ones who should be granted temporary commissions, because they are already trained. If the temporary commissions are to be granted merely for the purposes of training a reserve, then it would appear to be logical to give them to those who are at present untrained. The reasonable course would be to grant temporary commissions to a large number of the more promising cadets who had not completed their training up to the time of the armistice and to select a number of officers who have served in the war for the purpose of leavening the mass with whatever traditions have survived the mésalliance of the R.N.A.S. and the R.F.C.

It is when we consider the type of person who will be attracted by the temporary commissions that we begin to realise the weakest points of the scheme. A short-service system for men is not at all the same proposition as it is when it is applied to officers who, in peace-time, should surely be drawn in the main from the professional classes.

The man of the working class (in practice it is the out-of-work class) who enlists as a private for three years does not stand to lose much. In fact, his Army training may be of commercial value in after-life. But the young man of the professional class who accepts a commission for four years is giving the most useful period of his life when he would otherwise be laying the foundation of his career. After his four years' service he will find himself with somewhat extravagant tastes landed into a world in which his school contemporaries have already begun to make their way. Whatever his career may be, he will have to start at the bottom, and, having been trained to regard himself as an officer and a gentleman, he will find it much harder to begin again in a subordinate position in the profession he, or his parents, have chosen.

The war has taught us that the boy who came fresh from school to a commission with ample pay is not likely to make a satisfactory civilian—at any rate for some years. Yet he is to-day starting afresh in a world that fully understands and to some extent sympathises with his position. It will be very different under peace conditions, when he finds himself starting four years behind his contemporaries.

We still have in this country, despite the efforts of mob-elected legislators to tax them out of existence, a large class of families with service traditions. The great majority of them are not moneyed people in the modern sense, but the sons of these families are reared in the atmosphere of the Public Schools and the Services. These families supply officers to the Navy and Army generation after generation, and they are the best officers in the world. They have family tradition behind them, and the Services are their careers.

Will the sons of these families be attracted by temporary commissions in the R.A.F? The answer is most certainly not.

We turn, therefore, to another class—the moneyed family, in which the sons may serve in a smart cavalry regiment for a few years, not because they intend to make it a career, but because it is the thing to do and gives them a footing in Society. It seems extremely probable that this class will be attracted by the temporary commissions.

We arrive, therefore, at the propositions that the sons of families with Service traditions strongly ingrained will not be lured into a Force that does not offer them a career, that the sons of other professional classes cannot afford to spend four years in an organisation that leaves them at a loose end as soon as they have gained a certain value to the country, and that the only person who is likely to be greatly attracted is the person of independent means who can afford to join the R.A.F. for a few years before he settles down to a comfortable career of dissipating the family dollars.

Frankly, one does not like the outlook. One holds the opinion, open, of course, to revision, that a class of professional officers with tradition behind them and

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entering the Force with the fixed idea that their service is the *raison d'être* of their existence will always prove superior to those others who regard it as merely offering them the opportunity of enjoying a few years of rather amusing experiences.

In opposition to these views are those held by non-militarists who say that we improvised out of ordinary civilians a Force good enough to beat the Huns, and could do it again. That argument is not quite sound. So far as air forces were concerned, all nations in the war practically started from scratch. If we had held undisputed mastery of the air on the first day of the war a vast number of lives and an incalculable amount of money would have been saved. Instead of starting from scratch next time one would prefer to start with a lead. We should like to see the enemy as reluctant to send up their aircraft as the Germans were to send out their Fleet.

The next point raised is that the active life of a flying officer is necessarily short—perhaps ten years—and therefore the R.A.F. cannot offer careers for a large number. In the first place one queries the proposition that, when freed from the strain of war conditions, the flying period is limited to ten years. One would be inclined to raise it by fifty per cent. Secondly, if practically all the ground jobs were filled by ex-flying officers, there would be plenty of appointments in the administrative and technical branches for the older officers.

What will be the relations between the regular R.A.F. officer and the temporary officer? One feels instinctively that there will be a gulf between them. Just at first this may not be very noticeable, for it is presumed that many of the temporaries will have seen active service. But later on, when these valuable officers have to retire in favour of the comparatively useless novices, one thinks that the line between the pukka and the temporary will be very strongly marked indeed. There will be the vast difference between the professional and the amateur.

One would prefer to see some of the money spent on the temporary commissioned branch devoted to the encouragement of a territorial reserve from which the permanently commissioned officers might to some extent be recruited. This would enable us with the balance to keep a larger standing force of permanent officers.

With regard to those who are demobilised, permission to retain rank ought to be conditional upon willingness to remain in the reserve with the obligation of a certain number of days' training each year. To allow the old R.N.A.S. and R.F.C. officers to lose touch with the Force appears to be a mistake

As one said at the outset, the scheme appears to be a tentative one drawn up at a time when the country is passing through a period of reconstruction. One sincerely hopes that it is not final, for one feels that it is not upon those lines that the ideal Air Force that will attract the best of the young men of Britain will be built up.

THE ROYAL AERO CLUB.

Rolls Memorial Library.

A meeting of the Library Committee was held on Monday, June 16th, 1919, when there were present:—Major C. C. Turner, Mr. Howard T. Wright, and Mr. Harold E. Perrin, Secretary.

Special Committee Meeting.

A Special Meeting of the Committee was held on Tuesday, June 17th, 1919, when there were present:—Brig.-Gen. Sir Capel Holden, K.C.B., F.R.S., in the Chair; Mr. Ernest C. Bucknall, Mr. G. B. Cockburn, Lieut.-Col. John D. Dunville, R.A.F., Lieut.-Col. T. O'B. Hubbard, M.C., R.A.F., Lieut.-Col. F. K. McClean, and Mr. Harold E. Perrin, Secretary.

Election of Members.

The following new members were elected:—Lieut. Ian Patrick Anderson, R.A.F., Lieut. Cecil Wasbrough Andrewes (1/15th Highland Light Infantry), Lieut. Walter William Baker (Hampshire Regt.), Horace Rycroft Bass, Major Walter Henry Bell, R.A.F., Major Francis Herbert Bramwell, R.A.F., Edward John Bray, Bertram Christian, Albert Edward Cole, Capt. Edward O'Donovan Crean, R.A.F., Capt. Rupert John Goodman Crouch, R.A.F., Frazier Curtis, Capt. Robert Frederick Lea Dickey, R.A.F., Capt. Wilfrid Henry Dunn, R.A.F., Major Charles William Nutting, R.A.F., Lieut.-Col. Hubert Pennington, C.M.G., D.S.O., R.A.S.C., Capt. John William Pinder, D.F.C., R.A.F., Oswald Eric Tattersall, Capt. Albert Peter Thurston, Lieut. Harold Tomlinson, R.A.F., Capt. Cresswell Turner, R.A.F., Capt. Wilfrid Underhill, R.A.F., Capt. Robert Howell Craster Usher (Wiltshire Regt).

Trans-Atlantic Flight.

The following messages from the Officials of the Club in Newfoundland and Ireland were reported:—

"St. John's, Newfoundland.

"Royal Aero Club, London.

"Capt. Alcock and Lieut. Brown left St. John's, Newfoundland, in a Vickers "Vimy" Rolls on flight to England today, June 14th, 1919, at 4.13 p.m., G.M.T.

"Capt. Clements."

"Dublin.

"Royal Aero Club, London.

"Official time of arrival of Vickers "Vimy" Rolls crossing coast line Ireland was 9.25 a.m., B.S.T. (8.25 a.m. G.M.T.), June 15th, 1919. I examined machine and found everything in order.

"Major R. H. Mayo."

Balloon Ascents.

In view of the coming revival of the sport of ballooning, those wishing to participate, including owners of balloons, are requested to communicate with the Royal Aero Club, 3, Clifford Street, W.1.

The Flying Services Fund.

(Registered under the War Charities Act, 1916.)

Administered by the Royal Aero Club for the benefit of Officers, Non-Commissioned Officers and Men of the Royal Air Force who are incapacitated while on duty, and for the widows and dependants of those who are killed or die from injuries or illness contracted while on duty.

Honorary Treasurer.

The Right Hon. Lord Kinnaird.

Committee:

H.R.H. Prince Albert, K.G. (Chairman).
Mr. Chester Fox.
Lieut.-Col. T. O'B. Hubbard, M.C., R.A.F.
Lieut.-Col. C. E. Maude, R.A.F.
Brig.-Gen. R. H. More, C.M.G.

Secretary.—H. E. Perrin

Bankers.

Messrs. Barclays Bank, Ltd., 4, Pall Mall East, London, S.W.1.

Subscriptions.	£	s.	d.
Total subscriptions received to June 3rd, 1919	15,062	11	5
W. G. Lavender	2	12	4
Miss E. Bairdsmith (4th contribution)	1	1	0
Total, June 17th, 1919	15,066	4	9

Jacques Schneider Maritime Cup.

The Jacques Schneider Maritime Cup having been won in 1914 by C. H. Pixton on a Sopwith seaplane, the nominee of the Royal Aero Club representing the British Empire, the Race for 1919 will be held in England early in September next. The exact date and place will be announced later.

The Race will be over a distance of 200 nautical miles exclusively at sea, in a closed circuit having a minimum course of five nautical miles, and situated outside any port or enclosed harbour. At least two alightings must be made on the water at points fixed by the officials.

The Committee of the Royal Aero Club will select the three competitors to represent the British Empire, and reserves to itself the right to hold eliminating trials.

Entries are to be made at the Royal Aero Club, 3, Clifford Street, London, W.1, not later than July 31st, 1919. Each entry must be accompanied by the entry fee of £20.

RELINQUISHMENT OF LEYSDOWN AERODROME.

The Air Ministry announces that Leysdown Aerodrome will shortly be vacated by the R.A.F.

"SHELL" PERFORMS THE "HAT TRICK!"

3 Successive Triumphs

1st "Daily Mail" £10,000 Prize—

London-to-Manchester Flight, 1910

won by Paulhan on "SHELL"

2nd "Daily Mail" £10,000 Prize—

Circuit-of-Britain Flight, 1911

won by Beaumont on "SHELL"

3rd "Daily Mail" £10,000 Prize—

America-to-Europe-direct Flight, 1919

won by Capt. Sir John Alcock, D.S.C. on "SHELL"

"SHELL"

AVIATION MOTOR SPIRIT

"Shell" Aviation has been released by the Government; and, after fulfilling Air Board requirements for aviation purposes, this Spirit de Luxe will be available for private motorists.

"SHELL" Marketing Co., Ltd., 39-41, Parker St., Kingsway, W.C.2.

The WORLD of AERONAUTICS

NEWS OF THE WEEK FROM ALL QUARTERS

Dirigible Balloonacy.

In the "Aircraft Journal" of America, an article was published recently dealing with the uses of airships in times of peace. The following suggestions are made:—

"The dirigible will be useful to the Bureau of Mines because it can carry prospectors at low altitudes as they search for symptoms of minerals.

"In tropical forests trees of great value can be hunted for by their flowers, leaves or other symptoms seen from above.

"In countries where migratory insects like locusts need surveillance, scientific measures can be taken to find their breeding places and sterilise the egg-laden areas. A dirigible can follow a locust cloud and by the use of gases and explosives disperse it or drive it away from valuable crops.

"The Revenue Guards and the Department of Justice can use the dirigible to detect smugglers and to pursue large bands of outlaws, especially if they are mounted or have stolen live stock or property in vehicles."

One does not know which suggestion to admire most. The bombing or gassing of locusts appear to be the most practical, and would seem to provide better sport than the hunting of trees by their symptoms.

The pursuit of large bands of outlaws seems to offer great possibilities. Large bands would, of course, be chosen, because the smaller bodies of bandits would not have sufficient strength to pull down the dirigible in order that they might be arrested.

More Crimes Needed.

The "Daily Mirror" on June 28th published a photograph of a machine flying through the Tower Bridge. Underneath the picture appeared the following:—

"Don't Do as I Do."—The Air Ministry has forbidden flying through the Tower Bridge. This picture shows General Seely, Under Secretary of State for the Air, recently doing the feat which is now forbidden."

The "Daily Mirror" does not appear to understand that the time has arrived when it is essential to invent some crimes in order to prove the necessity for aerial police. Shortly, we may see a special Experimental Crime Department to devise stunts that are dangerous to the public in order that they may be prohibited. The Department might, for example, try the sports of taxi-ing a Vickers "Vimy" down Rotten Row, sea-planing in the Round Pond of Kensington, or dropping war souvenirs, such as unexploded bombs, to incite people to invest in the Victory Loan. As the deadliness of each experiment is proved the necessary legislative action can be taken. One would like to suggest that prizes for original sin should be offered.

Before the Dry Law.

In the United States officers recruiting for the Air Service bring in their victims by aeroplane. A recent official report contained an account of a recruiting flight during which the engine gave trouble and the prospective recruit arrived thoroughly oiled but happy.

The new "dry" law will check this sort of thing.

A Novel Design.

An aeroplane of an entirely new design appears to have been invented in America. The following is a description which has been published:—

"Recent requests for bids for airplanes by the Air Mail Service resulted in eight bids, of which the lowest are from the Lawson Air Line Co., Milwaukee, which has designed a plane embodying mail car equipment, and allows for the employment of a mail clerk en route. The engines will be installed by the Government and it is expected that the Liberty engine will be used.

"The airplane is of the biplane type, with the chassis built between the two wings with engine space provided at each side. There is sufficient space so that the men can walk round the body, which is enclosed in glass. A rack has been designed in which the mail may be distributed during the flight, and a drop chute allows for the discharge of mail bags at principal cities without stops. A model of the plane has been ordered and will be demonstrated here (at Washington) when completed."

The chief novelty is the undercarriage between the two planes. Presumably, the designers consider that a chassis in that position is not so liable to suffer damage in the event of a bad landing. One is glad to note that engine space is provided on each side of the undercarriage which is so ingeniously protected, as otherwise the engines might have been crowded out of the machine. Also, it seems an admirable idea to provide a promenade round the glass-enclosed body, as had this been omitted, the crew might have tried to break their way in and disturb the sorter.

To Watch the Weather.

The "Daily Chronicle" says "the Air Board is to be congratulated on taking over the disused observatory on the summit of Ben Nevis, which lack of funds compelled the Scottish Meteorological Society to close in 1904. The highest peak in Great Britain, the top of Ben Nevis, is an ideal situation for the obtaining of data concerning the phenomena of the atmosphere, about which we know so little."

The "Air Board" certainly is to be congratulated upon this evidence of continued vitality. One had heard rumours that an Air Ministry had been founded.

At any rate, now we know why the classic aerodrome at Montrose has been closed.

Plans.

The club is always an interesting place to visit at the week-end. It is a recently formed Service club, and at present the newly demobilised gather in large numbers to discuss their hazy plans for the future.

Several companies with capitals ranging from £5 to £50,000 are formed every two minutes, and are as quickly wound up, and many are formed with no capital at all, with the main object of sitting still and watching the money come in. The atmosphere is tense with excitement, and agitated groups discuss the merits of every new scheme, one ingenious member flourishing a note-book into which he has copied all the new ideas that come to him each morning while he is shaving.

To go from group to group is to learn how easy it is to pick up thousands of pounds and amongst many of these get-rich-quick schemes, some of the following may be of use to those not blessed with a fertile imagination.

A company for the exploration of Central Africa, with the object of giving nigger kings joy-rides in aeroplanes and demanding ivory tusks in payment.

A company for supplying collar-stud machines, to be placed in conspicuous public places, and intended for the use of the red and angry owners of floating collars.

A company for making any old drink that will prove sufficiently intoxicating.

A company for supplying Nova Zembliians with Gold Flake and rum in exchange for white fox furs.

A company for receiving old gold braid from Service hats and re-upholstering it for the use of cinema attendants.

A company for buying scrap metal and selling it as motor cars and many other sound propositions that could be handled with the necessary confidence.

Five thousand companies formed for the purpose of teaching girls to fly. All wound up, as being too dangerous. Besides which, it was considered to be unbusinesslike to risk having a balance-sheet made up of liabilities and no assets.

A company formed for the purpose of preserving the dignity of majors reduced in rank.

This company, for a small consideration, would salute and say "Sir" all day long, if necessary.

It came to nothing, as the greater number of members of the R.A.F. having been majors at some time or another, it was held that there would not be a sufficiency of junior members to do the work of the company.

Unfortunately, as everyone talks at once, none of the promotors get a fair hearing, otherwise there would have been several fortunes made and lost already. R. A.

Bad Taste.

The "Aerial Age" of America recently published the following:

"The first sermon from the air, preached by a 'sky pilot' of the Methodist Church, will be a headliner at the Methodist Centenary Exposition, to be held at Columbus, Ohio, June 20th to July 14th, according to plans announced.

"According to the exposition's Press agent the aerial sermon will be preached by a minister who will float above the heads of his congregation at a height of 2,000 feet or so. His message will be audible to all by means of a wireless telephone and a megaphone attachment."

It is difficult to conceive anything more nauseating than this methhod of advertising. One would think that the vulgarity of this "sky pilot's" methods of gaining "headliner" publicity would shock the religious susceptibilities of a partially fossilised Aztec.

BEFORE

DURING

AFTER

THE WAR

CELLON LIMITED,
22, CORK STREET,
LONDON, W.1.

The WORLD of AERONAUTICS (continued)

Autre Pays—Autres Moeurs.

It is understood that the French Authorities have given permission to the Nieuport firm to enter their latest type of high-speed single-seat fighter for open competitions in either France or any Allied country, and that they only failed to enter for the Aerial Derby because sufficient notice was not given to enable the necessary arrangements to be made.

It is further understood that the French Government is willing to supply responsible French firms who wish to initiate aerial transport schemes with service aircraft and engines and to pay these firms a subsidy for maintaining such service machines and engines in efficient running order.

Although our national vanity might have been piqued if a French machine had won the Aerial Derby, one feels that it would have been a useful lesson to the Air Ministry and would have shown the country the folly of prohibiting the use of the fastest British machines in the race.

With regard to the supply of machines and the subsidies for the encouragement of commercial aerial transport schemes, this policy is dictated by such sound common sense that one may feel assured that such a proposition would be enthusiastically condemned by our own Bolo.

No. 218 Squadron's Dinner.

A dinner will be held by 218 Squadron Officers. Will those desiring to attend please write to Major Wemp, c/o The Aeroplane, 166, Piccadilly, W.1, immediately?

No. 4 Squadron's Dinner.

A reunion dinner of No. 4 Squadron, R.A.F., will be held at the Criterion on July 22nd, Major-Gen. C. A. H. Longcroft, C.M.G., D.S.O., A.F.C., will be present as guest of honour. Any officer, past or present, wishing to attend should communicate with Mr. F. W. Rennie or Mr. Douglas Welch, R.A.F. Club, Bruton Street, enclosing £2 2s. cheque.

The Decline and Fall of Reticence.

Sir,—This recent war now just concluded in a patchwork Peace has brought many evils to a weary world, not the least of which in the decline in those honourable principles which governed throughout many generations of English history the actions and the conversation of those who held His Majesty's commission.

In most of the newsprints of the day one may see the elaborate advertisements of a system of mnemonics which has attained some fame among the forgetful. One is tempted to wish that all might undergo such a course of training in this system as would make it possible to remember its virtues without the constant reiteration of illimitable advertisement.

One of these advertisements is in the form of a letter from an officer (whose name and portrait are given) who prefaces his eulogy of the system with a description of his rapid progress through life from the day when his parents presented him to an expectant world. In flowing periods he tells of his entry into His Majesty's Navy, and of his early experiences in Naval aeronautics. At the age of 27 he reached the pinnacle of his earthly progress when he was gazetted Lieut.-Colonel in the Royal Air Force. A year later he attained his first serious failure and became a Member of Parliament.

Sir, his recent career would appear to be but a feeble testimonial to the new system for which he claims so much. He admits that it is scarcely two years since he first fell under its allurements while resting in one of His Majesty's ships of war, yet in that time his decline has been swift. Then he was an officer of promise (we are assured), to-day he is a Member of Parliament! It is hard to see what worse ill could befall him. His progress should be an example to others lest they, too, drift towards the rapids of Westminster borne there by sheer force of memory.

Yet it is not the career of this candid Member of Parliament which is of interest to those who have pride in the manners and habits of officers in the Military Forces of the Crown. Reticence and a strong dislike of self-advertisement have always dominated the actions of those who have the honour of their great profession at heart. Have these principles been allowed to lapse because the soil of France and Flanders covers the mortal remains of so many of those who worthily upheld them? And are we to expect in the future glaring advertisements of soaps, patent medicines or tailors written by soldiers and sailors of notoriety?

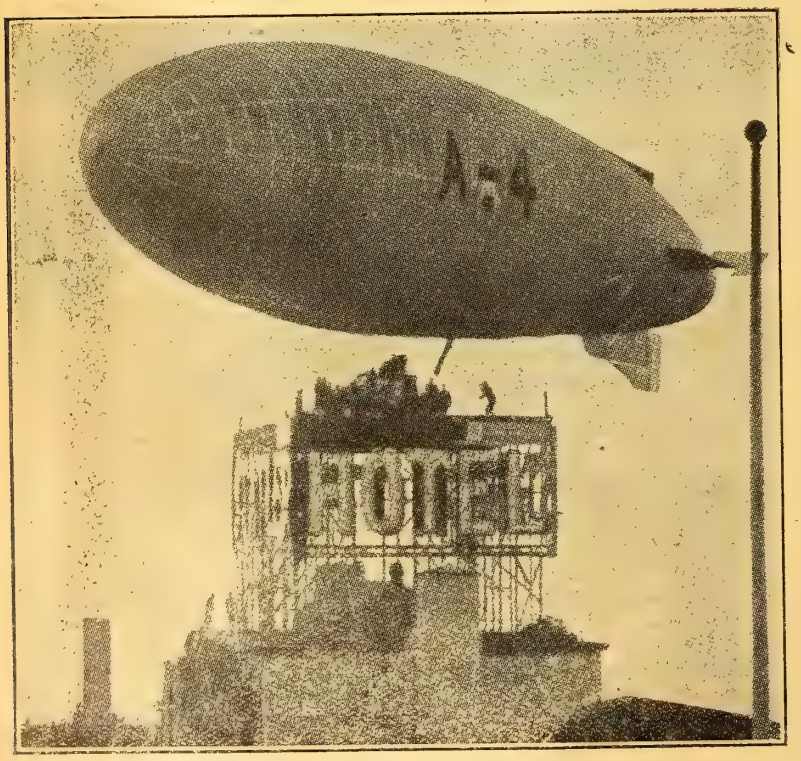
Will such headlines as "How the Use of Bermondsey Beer Brought Me Promotion to Brigadier-General," or "From Midshipman to Mansion House; or How Howell's Hair Oil Helped Me to Municipal Success," fill the advertisement pages of our prints in future? The old order is indeed dying; but surely it is not too much to hope that even in this modern England public opinion will be against soldiers and sailors adopting the methods of musical comedy actresses or of mythical old ladies of obscure origin whose "bad legs" have been cured by continuous applications of somebody's "Elixir of Vitality," price 1s. 6d. post free.

MILES.

The Sky Entrance

A 160 ft. airship, carrying five passengers, recently flew from Akron to Cleveland, Ohio, against a stiff wind in about an hour, and although both wind and rain interfered, a landing was effected on a platform of 30 by 50 ft., built on a hotel roof. The airship was steered slowly over the hotel and ropes were thrown down to the platform on to which the carriage of the balloon was drawn.

An airship, to carry 12 passengers, is being constructed to make flights during this summer to the hotel roof from Akron.



An American Airship alighting upon the roof of an Hotel at Cleveland, Ohio.

Ten Thousand Pound Flights.

It has been announced that Capt. Sir John Alcock, D.S.C., and Lieut. Sir A. Whitten Brown, winners of the "Daily Mail" £10,000 which they invested in Joy Loan, will give free flights over London in a Vickers "Vimy" Rolls-Royce machine to subscribers of £10,000, and will present each passenger with an autographed photograph of their Adantic machine

The American Method.

The Curtiss Aeroplane and Motor Corporation has repurchased from the American Government 2,176 aeroplanes and 4,608 motors which they made during the war.

Included in the deal are 1,100 aeropianes which the Curtiss Corporation did not build, but which they are buying in order to get back the Curtiss engines with which they are fitted.

All machines needing overhauling will be sent to the plant in Buffalo, and a staff of mechanics will be maintained to inspect every one before delivery to customers.

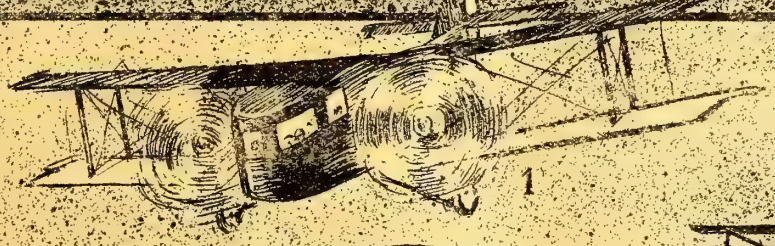
The American Government seem to have found a far better way of disposing of its surplus aircraft than the method adopted over here of scrapping the machines as soon as they were delivered by the makers.

The Sahara Flight.

Lieut. Lemaitre, the French aviator, attempted to fly from Paris across the Sahara. The first stages were to Casablanca, Marakesh and Mogador. He left Mogador on June 28th, and flew over Agadir on his 2,200-mile flight across the Sahara to Dakar.

A telegram reached Paris on June 30th intimating that he had crashed at Porte Etienne in Mauritania, about 400 miles from Dakar. He and his passenger are safe.

BRITISH NIEUPORT & GENERAL AIRCRAFT Co. Ltd.



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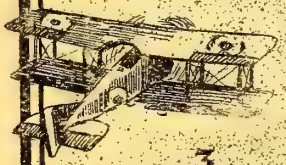

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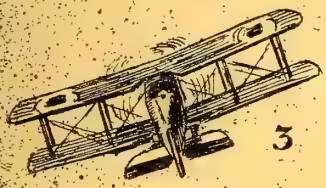

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OUR organisation which has in the past been responsible for our success in the design and production of Naval and Military Aircraft as evidenced by the Nieuport "Night Hawk" being chosen by the R.A.F. to fill their latest requirements for fighting scouts is now co-centrating its energies on the development of commercial machines. Above are depicted reading from top page:—

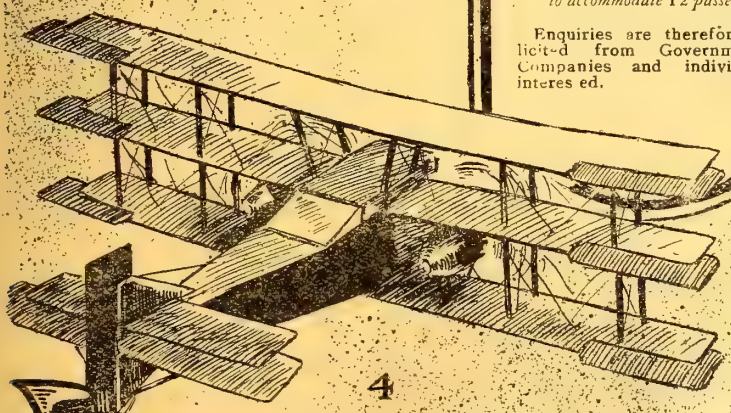
(1) *Four or six-seater—an ideal passenger machine.*

(2) *Two-seater (side by side) and single-seater. These are excellent sporting machines. Would also be invaluable for training purposes.*

(3) *"Night Hawk" which is being delivered in large numbers to the Government.*

(4) *Fourteen-passenger machine which has a spacious saloon to accommodate 12 passengers.*

Enquiries are therefore solicited from Governments, Companies and individuals interested.



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Daily Mail
DELIVERED BY AEROPLANE TO-DAY

Telephone: Willesden 2455 (3 lines). Office: **Langton Road, Cricklewood, N.W.2.** Telegrams: Nieuscout, Crickle, London.

CONTRACTORS TO H.M. GOVERNMENT.

The WORLD of AERONAUTICS (continued)

The Trans-Atlantic Flight.

THE AIRSHIP ATTEMPT.

The British Naval Airship R.34 is expected to make an attempt upon the Atlantic flight on July 2nd. Her officers are :—

Captain.—Major G. H. Scott, A.F.C. First Officer.—Lieut. G. S. Greenland. Second Officer.—Lieut. H. S. Lock. Engineer Officer.—Lieut. Shotter. Navigating Officer.—Major G. G. H. Cooke, D.S.C. Meteorological Officer.—Lieut. G. Harris. Steersmen.—Major J. E. M. Pritchard, O.B.E.; Lieut.-Comdr. Lansdowne, U.S.N. Wireless Officer.—Lieut. R. F. Durrant. Air Ministry Representative.—Brig.-General E. M. Maitland, C.M.G., D.S.O., Superintendent of Airship Equipment.

THE AEROPLANE ATTEMPT.

The Handley Page aeroplane has been ready for the start since June 20th, and Vice-Admiral Mark Kerr hopes to make the flight in 18 hours.

Mr. Raynham's Martinsyde is now rebuilt, and has been renamed the "Chimera." It is ready for the trial flight, which has by this time probably taken place.

A £5,000 PRIZE.

American newspapers announce that a prize of $25,000 has been offered by Mr. Raymond Orteig for the first non-stop aeroplane flight between New York and Paris, a distance of about 3,600 miles. Competitors must be of Allied nationality. The Aero Club of America is preparing a set of rules concerning the conditions under which the flight must be made. Competitors may start from either side.

Coming Events.

JULY.

The Royal Naval, Military, and Air Force Tournament at Olympia open until July 12th.

Saturday, July 5th.—Hendon Peace Meeting.

Sunday, July 6th.—Special Flying Displays at Hendon

Saturday, July 12th.—R.N. Air Station Eastbourne Dinner.

Saturday, July 12th.—Summer meeting at Hendon.

Sunday, July 13th.—Special Flying Displays at Hendon.

Saturday, July 19th.—Martinsyde Recreation Club Sports at Woodbridge Road, Guildford.

Friday, July 25th.—The Amsterdam Aircraft Exhibition opens.

AUGUST.

Tuesday, August 5th.—Handley Page Social and Athletic Club's Sports. Starting at 12 midday at Cricklewood Lane.

Thursday, August 21st.—R.A.F. Annual Athletic Meeting at Stamford Bridge.

Sunday, August 24th to Sunday, August 31st.—The "Avenir's" Tour de France Aérien.

DATES TO BE ANNOUNCED LATER.

Hendon—Birmingham—Manchester Air Race.

Hendon—Paris—Hendon Air Race.

Hendon—Brighton—Hendon Air Race.

PARIS NOTES

AERODROME FIRES.

The Paris aeronautical industry has sustained two very big losses by fire in the last two weeks. Firstly, there was the fire at Voisin's works at Issy-les-Moulineaux, although happily it is believed the loss does not exceed £16,000. Work is continuing in that part of the works left untouched, and the new four-engined Voisin will undergo further trials as soon as the few modifications have been completed.

Secondly, there was a conflagration at the Saint-Cyr aerodrome on the 21st inst. The fire broke out about two in the afternoon in a repair shop, and, aided by a violent wind, spread rapidly to the neighbouring hangars, and was not subdued till six in the evening. Eighteen hangars, 102 machines, and a huge stock of fabric, airscrews, motors, and spare parts, were reduced to cinders. Most of the complete machines, such as Breguets, Spads, and Moranes, were removed in time. It is estimated that damage to the extent of £160,000 was caused, although, contrary to the canards which quickly circulated, it represents but a twentieth of the total value of material in this one centre of aviation. The military authorities are instituting an inquiry into the cause. Some authorities, who know the aerodrome and its occupants well, are asking whether it may not have been caused by the Annamites working on the aerodrome who were imprudent enough to light fires in proximity to the Bessoneaux.

AN AERIAL TOURNAMENT.

Last Sunday, the 22nd inst., on the east side of Paris was opened the Stade Pershing, built by American soldiers and presented to the French nation. As is usual with such opening ceremonies, a great gala programme was arranged, among which, to cut a long story short, was an exhibition with different types of avions belonging to the French, Italian, Belgian, and American armies. The following took part :—French : Two Spads, two Farmans. Italy : two S.V.A., three Capronis (one triplane). Belgium : one D.H.Q., two Breguet, one Hanriot, one Spad. America : One Salmson, one D.H., one Avro, and one Spad.

To end up the day really nicely and to show the civilians how the war was really won, a battle was to take place between two Spads and a Fokker, the Fokker being mounted by an American, Capt. Moseley. Naturally the Spads were to triumph over the Fokker, although why it was necessary to have two Spads to attain this end the authorities do not vouchsafe. However, revenons à nos moutons, a lively combat ensued, and the Boche machine was (cimematographically, at all events) beaten, and should have landed on the parade ground at Vincennes. It did, but not in the way intended, and the pilot was seriously injured. The machine was reduced to bois cassé.

PARIS-CASABLANCA ON THE WAY TO DAKAR.

Readers may have noticed that I often refer to Dakar in these notes. I wonder if they know where it is? Take a map of N.W. Africa and follow the coast round from Tangiers and Dakar will be found situated on that part of the West African coast nearest to South America, hence the interest of the French in their own sort of Atlantic enterprises. Lieut. Lemaitre, who at the time of writing last week's notes had only got as far as Cazaux, left there at eight in the morning last Wednesday, and arrived at Casablanca at five p.m. Actually there is no further news of his continuance of the trip, although rumours abound. What is very sad to relate, however, is that, although his route from Casablanca to Dakar will take him over desert and savage country inhabited only by hostile or inhospitable tribes, and that, therefore, he must avoid landing by every precaution and means in his power, the French authorities, whilst permitting him to make the flight, refused him the help of any torpedo boats which are always in the vicinity, in case he should descend to the sea, whilst following the coast.

Lieut. Lemaitre is very discouraged at this refusal on the part of the authorities, and, whilst he is going to see the attempt through to its successful or unsuccessful conclusion, he has announced that it is the last of its sort that he will undertake. The unfortunate decision of the military and naval authorities is commented on very unfavourably here, and is the subject of considerable protest. Lieut. Lemaitre was the first to initiate an aerial postal service between France and Morocco.

FRENCH INFLUENCE IN THE BALKANS.

The Budget Commission has just voted the necessary credits for establishing several aerial lines in the Balkans. These lines will have Constantinople as a base, and will serve principally Asia Minor and Syria. Mesopotamia is to be left to the British influence, but the French will run one line with a terminating point at Cairo. According to present arrangements, the following is a list of the new airways proposed :—Constantinople-Smyrna-Grecian Archipelago ; Constantinople-Palestine, Mecca-Egypt ; Constantinople-Armenia, Caucasia-Persia ; Constantinople-Bucarest-South Russia ; Constantinople-Salonika-The Balkans.

£20,000 FOR ALGERIAN AVIATION.

From Algiers comes news that local financial delegations voted on June 13th a sum of £20,000 for the establishment of transportation by the way of the air.

BRITISH RECORD FLIGHTS—INFORMATION WANTED.

The Sporting Commission of the F.A.I., under the presidency of Mr. Soreau, have fixed August 31st as the last date on which dossiers relating to possible height, duration, speed or other records made during the war can be accepted.

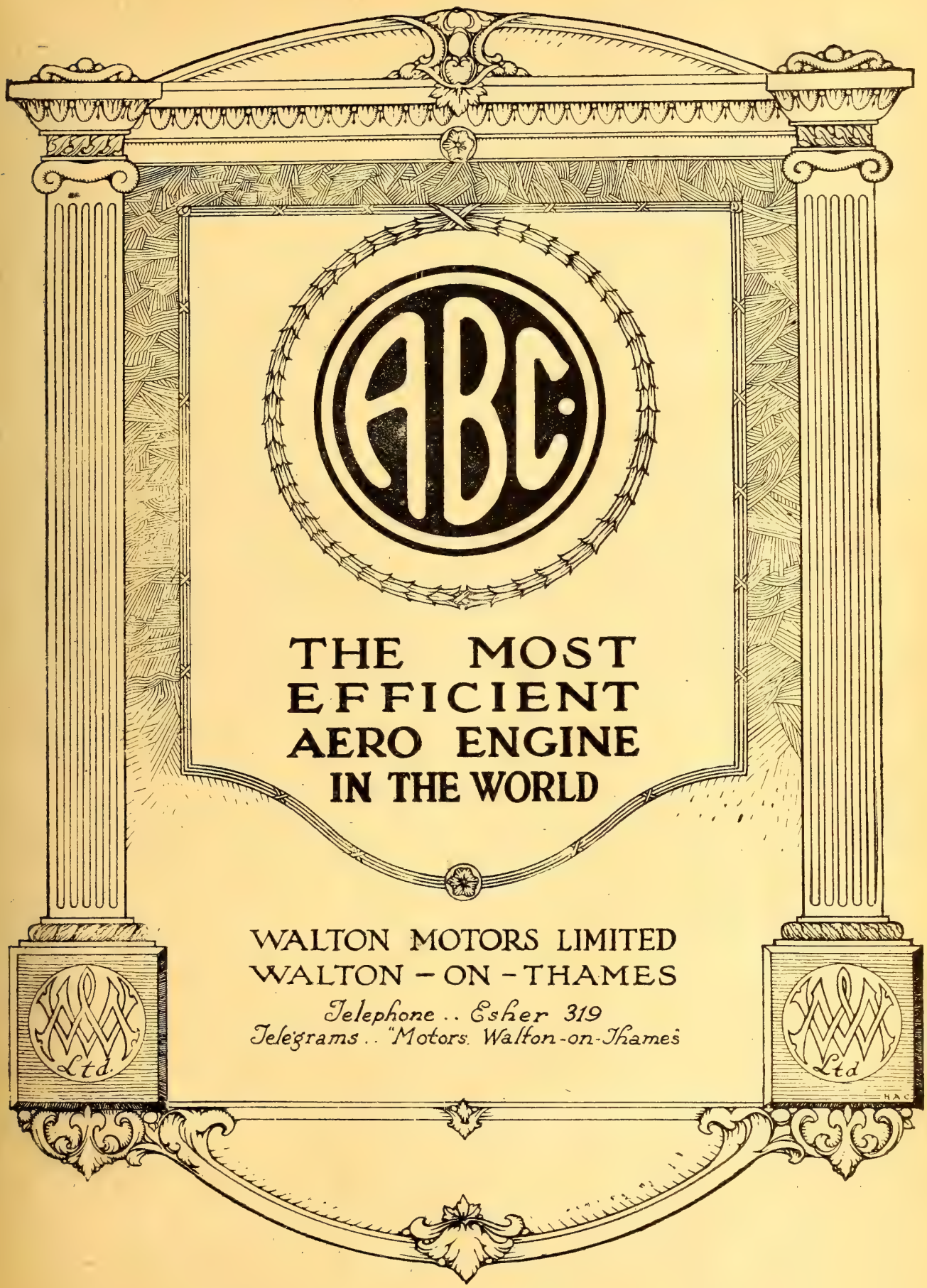
Any pilots who have put up performances that they seriously believe to be world's records in any particular class are asked to get the necessary documents and proofs in dossier form and to send the whole to the Commission Sportive Aeronautique, 35, Rue François Première, Paris, before August 31st.

SAUSAGES FOR SALE.

The American Aviation Camp at Romorantin (Loir-et-Cher) notify for sale 100 kite or observation balloons having a capacity of 991,000 litres, eight smaller balloons and several baskets, nacelles and attendant tackle. The French Press point out what an anomaly it is that the Americans are allowed to sell comparatively useless stuff, and yet are not only not allowed to sell their cars, but are permitted or ordered to burn them.

A TIMELY GIFT.

The Military and Naval Aeronautical Convalescent Home at Viry Chatillon (S.O.) is about to close its doors. At the end of its useful career it finds itself with a surplus of £2,000, which it proposes to hand over to the joint Aeronautical Aid Society of the French Aéro Club and the French Aerial League.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This machine is a dual purpose model—it can be employed either as a comfortable four or five seater passenger machine—or its cabin can be denuded of its luxurious internal fittings to provide cargo space for 2,000 lbs. of mail matter or goods.

A series of these machines is in production.

Governments and Air Transit Concerns desirous of acquiring a fleet of this new BAT model on favourable terms are invited to forward their enquiries.

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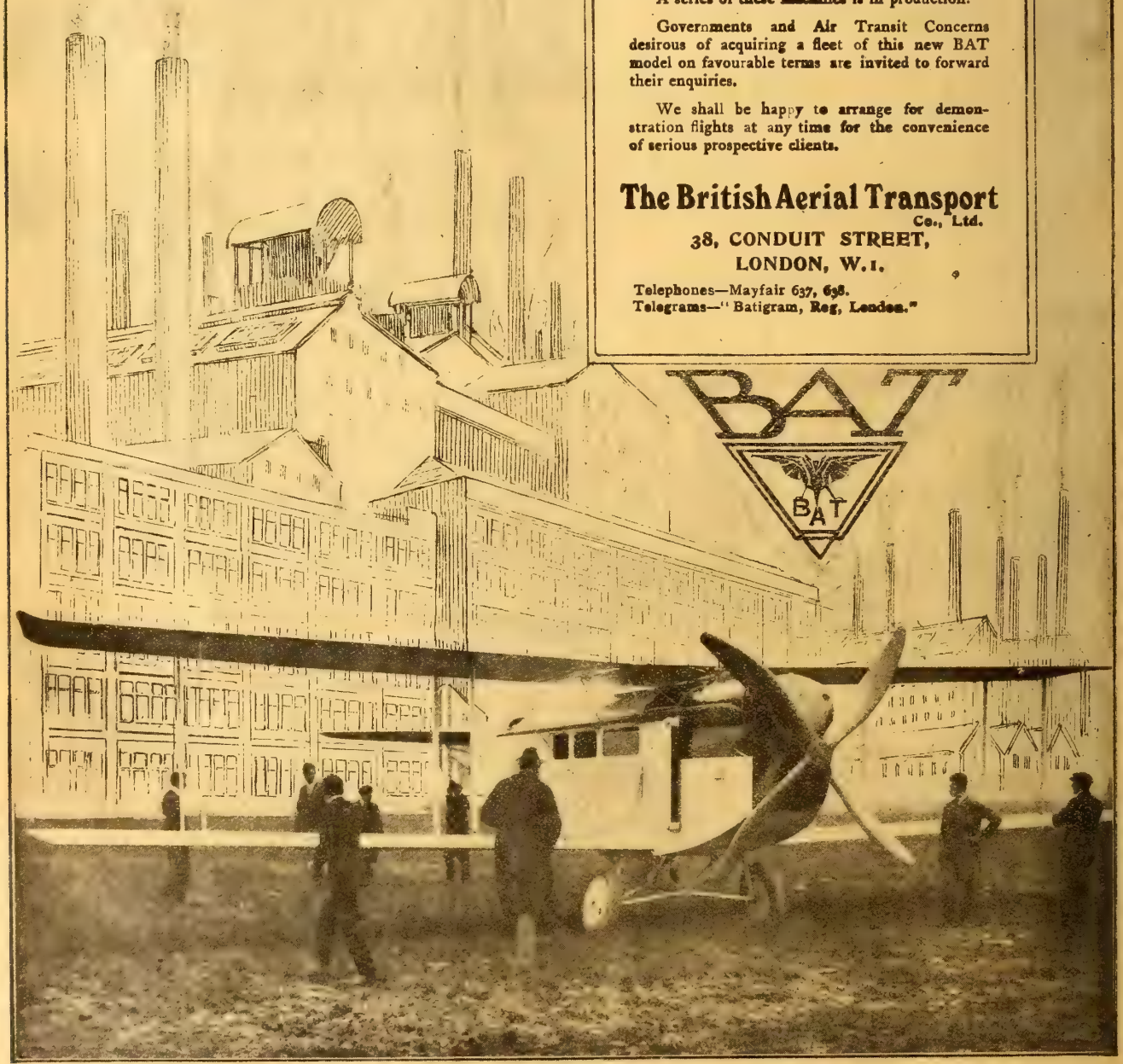
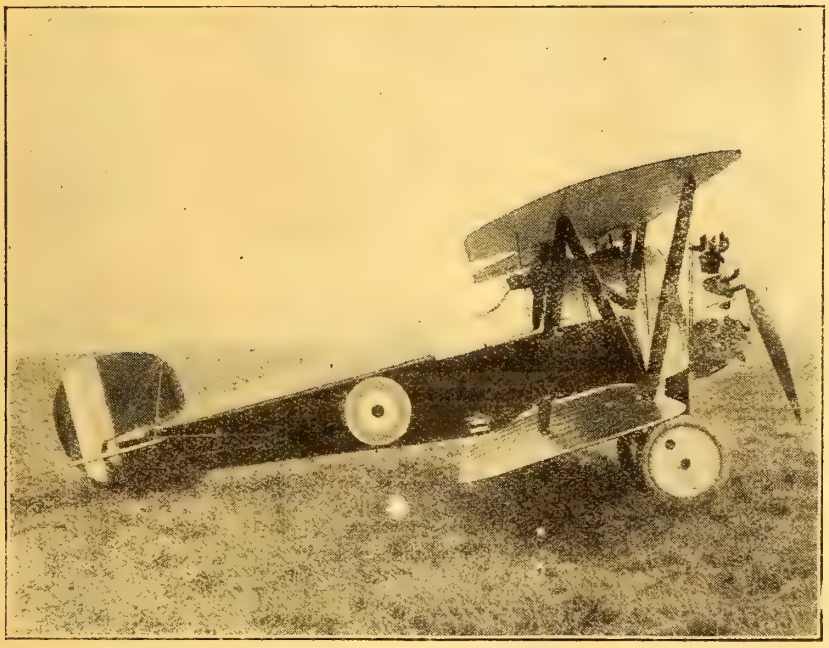


10,000 FEET IN 5 MINUTES 25 SECONDS

AT FARNBOROUGH IN APRIL, 1919, A BRISTOL SCOUT FITTED WITH A "MERCURY" ENGINE CLIMBED 10,000 FEET IN 5 MINS. 25 SECS., & 20,000 FEET IN 16 MINS. 15 SECS., SPEED AT 10,000 FEET 143 M.P.H. OFFICIAL CORRECTED BAROGRAPH FIGURES.

CONSTITUTING TWO BRITISH RECORDS



300 H.P. MERCURY IN BRISTOL SCOUT.

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MERCURY	300 H.P.	WEIGHT 587 LBS.
LUCIFER	100 H.P.	WEIGHT 220 LBS.

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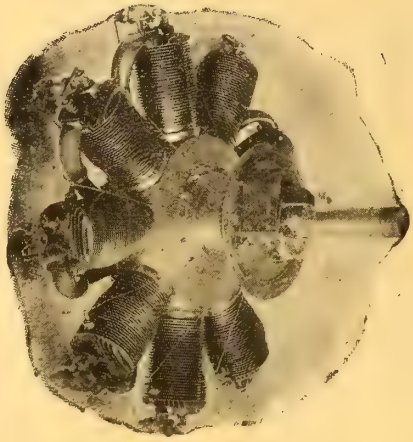

110 h.p. Le Rhone.

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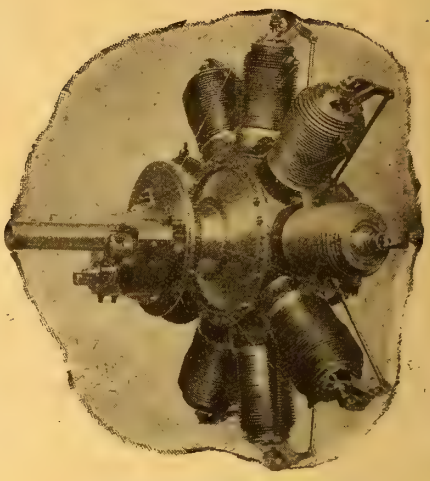

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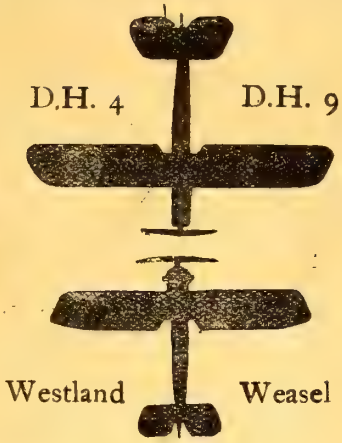

Westland Seaplane

Westland Wagtail

Westland Weasel

Short Seaplane
200 HP. Canton

These Illustrations give an idea of the range of our War production, which included machines of Westland design.

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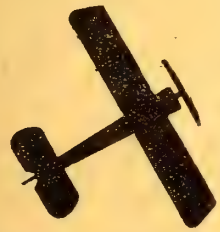
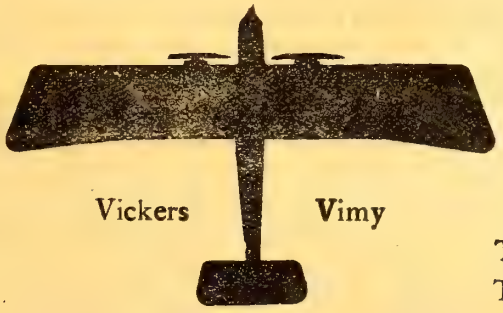


Sopwith 1½ Strutter

D.H. 9A



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THE WEEKLY COMMENTARY.

In the article on the Development of Aircraft Engines, Capt. Sayers suggests with considerable emphasis that it would be well worth while for aero-engine builders to design power-plant units, including engine, radiator, service petrol and oil tanks, and their connections, complete in a frame so that the whole might be bolted onto a fuselage end plate.

Capt. Sayers also argues strongly in favour of the substitution of a generator, battery and coil ignition system to replace the magneto.

Under the heading of "Modern British Aeroplanes" two machines built by the British Aerial Transport Co. which have as yet made no public appearance are described.

The report of the Wilbur Wright Memorial Lecture, read by Mr. Leonard Bairstowe, is concluded.

A letter from Mr. J. D. North on page 62 criticises Mr. C. W. Tinson's article on Longitudinal Stability recently published, and points out an important factor which has been neglected therein.

An illustrated description of certain American designs of super-charger, intended to maintain the output of aero-engines at high altitudes, is given in this issue.

The American work is entirely of the nature of a development of the Rateau exhaust gas turbo-compressor system, which has been boomed in the Press as an "Aerial Turbine."

THE DEVELOPMENT OF THE AERO-ENGINE, PAST AND FUTURE.—IV.

By Capt. W. H. SAYERS, late R.A.F.

Thus, although the Diesel type of aero-engine offers many possibilities for the future, the immediate development of commercial aviation must proceed with the aid of engines more or less similar to those of the present day.

The number of cases in which it would be possible to carry the extra weight of a Diesel-type engine at present is strictly limited.

The immediate problem, therefore, is to turn the petrol engine of to-day into a reliable and reasonably cheap power plant.

It has already been said that 75 per cent. of the failures of to-day are accessory failures, and that the engine proper can be made almost absolutely reliable by a process of "easing up."

Any really competent engine designer should be able to produce an engine which would itself never fail—if he were allowed to add ¼ lb. per horse-power to the weight of his present engine, and this part of the problem presents no difficulties.

With the accessories the question is different.

The Habits of Engine Builders.

Engine-makers themselves are very largely to blame for having in the past failed to look after the installation of their engines.

A few encounters with the representatives of firms who are responsible for the design of some of the best-known types of aero-engines give the impression that they neither know nor care what happens to their products when once they have left the test bench.

Apparently, if they care at all, the care is confined to their advertising department, and, if they know, their knowledge is admirably concealed.

A proper study of the conditions under which their engines have to be used, and a properly organised installation department, at the service of any aeroplane manufacturer who wished to instal one of the firm's engines, would prove a much better investment in the long run than the building of a few special engines for much-advertised competitions.

The Design of Power-Plant Units.

It is by no means impossible to treat an aeroplane power plant as a single unit, and to design an engine, radiator, oil tanks, and service fuel tank complete in a frame which can be bolted to a suitable front plate on any fuselage or nacelle, leaving the aeroplane builder nothing to do but to bolt on his power unit and make a few control connections and possibly fit one fuel supply pipe to the service tank.

It might possibly be necessary to arrange for two different-sized radiators—one for high-speed machines and a larger one for slower types—and to issue the power units in two types for each engine—one for pusher and the other for tractor airscrews.

Any engine manufacturer who cares to go to the trouble of attacking this problem and producing a complete and satisfactory power unit on these lines may be certain of a warm welcome from every aeroplane designer.

Not only that, but he will know that his engines will be run under fair conditions and will not be credited with breakdowns really due to quite external causes.

Failure due to faulty installation could be practically abolished by such means at the expenditure of only a fraction of the time and trouble which is occasioned by the haphazard methods now employed, and a very considerable advance would thus be made towards reliability.

Ignition Troubles.

Next in importance to faulty installation, the ignition system probably accounts for more trouble with present-day aero-engines than any other accessory. The modern

magneto has a reputation for extraordinary reliability, and deserves it.

Nevertheless, the magneto is electrically and mechanically a *tour de force*. It is a combination of an electrical generator and an induction coil compressed into the smallest possible space and made to work under the most unfavourable conditions possible.

The maximum pressure generated in the high tension winding of a magneto armature is in the neighbourhood of 10,000 volts, and it is possible that this figure is greatly exceeded on occasion.

The Magneto's Handicap.

Insulating materials, particularly those which are suitable for such pressures as those mentioned, are practically all of low mechanical strength, and are liable to seriously deteriorate at high temperatures and in contact with oil.

The conditions which obtain in a magneto armature—lack of space and liability to mechanical stress from vibration, generally in the presence of a high temperature and with a liability to accidental soaking in oil—are by no means desirable ones.

In spite of this, in practice magnetos rarely break down—in the sense of failing to generate their normal output at the correct instant—but in modern high-duty aero-engines they frequently fail to produce the required spark at the necessary place—*i.e.*, across the sparking-plug terminals.

This failure is usually due to a derangement of the sparking-plug itself—sometimes to a fault developed in the high-tension wiring from the distributor to the plug.

The latter is, properly speaking, an installation fault.

Failure to produce a spark at the plug points because the plug is oiled up, or because of a small deposit of carbon across the insulating surfaces, may be avoided in time by plug designers.

It could be avoided at once if a source of ignition current is employed with a reasonable surplus of output over that actually needed for ignition.

It would be very difficult indeed greatly to increase magneto output, and particularly to increase the maximum pressure developed at the instant of breaking the primary circuit, simply because of the unsatisfactory conditions under which the magneto has to work.

The Coil and Battery System.

The coil and battery ignition of ancient days suffered from crude design and insufficient output, but inherently it has great advantages over the magneto.

Properly designed and made and with the addition of an engine-driven generator, coil ignition is likely to supplant the magneto entirely for all high-duty engines such as are used for aircraft work.

A purely low-tension, direct-current generator will give a much greater energy output for the same overall dimensions and weight than will a magneto. The insulation required on its windings can be relied upon to withstand the effects of heat and oil with much greater certainty than can that of a magneto.

An induction coil, made with the care now given to the building of a magneto armature, instead of on the lines of amateur-built spark coils which used to be employed for ignition purposes, enclosed in a weather-proof case and put well away from the engine heat and oil, can be made to give a very much heavier discharge, when fed by such a generator, than is given by any existing magneto.

The production of such an ignition plant is all in the regular way of business of existing magneto manufacturers, who would enhance considerably their own reputations and that of British Aircraft by turning their attention to this subject and producing a satisfactory ignition system.

The Value of Surplus Spark Energy.

Given these possibilities of a much greater spark energy spark-plugs with longer gaps and with greater room for insulation can be used, giving greater security against actual plug failure.

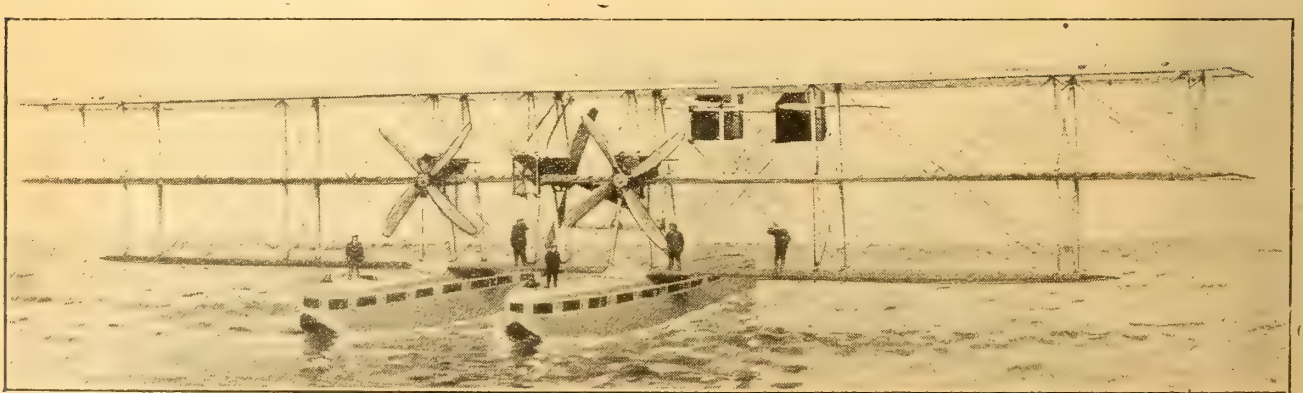
Over and above this, a very large surplus of spark energy would secure the certainty of ignition, even with an oiled-up or sooted plug, in fact under almost any conditions except those of metallic short circuiting of the plug points.

There is no difficulty in providing such surplus ignition energy with a coil, generator, and battery system. There are rather serious difficulties in the case of the magneto.

There are signs that some of the advantages of this type of ignition have been recognised, and that the old myth of the inferior quality of ignition which was obtained from coil and battery outfits was due to some intrinsic quality in the type of spark produced, instead of to the ill-design and inefficiency of the appliances themselves, is dying out.

The American "Delco" system of ignition, successfully used on the Liberty motor, is evidence of this fact, and the performance of the trans-Atlantic N.C. boats equipped with this ignition gear is testimony to the possible reliability of the system, for one learns that there was not a single fire in any of the engines employed in any of the three N.C. boats.

But the full advantages which can be secured by adopting this method of generating high-tension ignition current will only be realised when sparking-plugs of less cramped type than those now customary are used to complete the ignition scheme.



A Projected Passenger-carrier for long-distance overseas work, designed by Short Bros., of Rochester. Accommodation for 50 passengers with dining and sleeping facilities to be provided in the floats. The tail is to be carried on booms, "Bat-Boat" fashion. Span 160 ft., overall length 100 ft. Engines, 3 Rolls-Royce "Condor," each of 600 h.p. Estimated speed 100 m.p.h. The outer sections of the wings are arranged to detach in case of an emergency landing on the sea.

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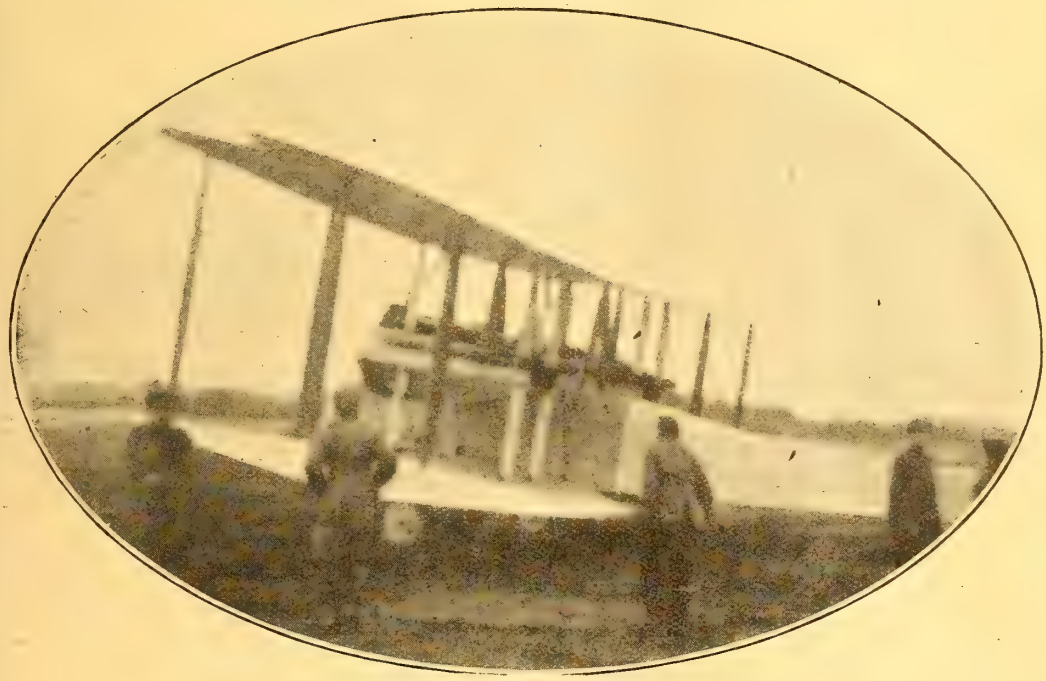
VICKERS-"VIMY" ROLLS

The first direct flight from Newfoundland to Ireland was accomplished by this Aeroplane in 15hrs 57mins.



Trials at Weybridge before proceeding to Newfoundland.

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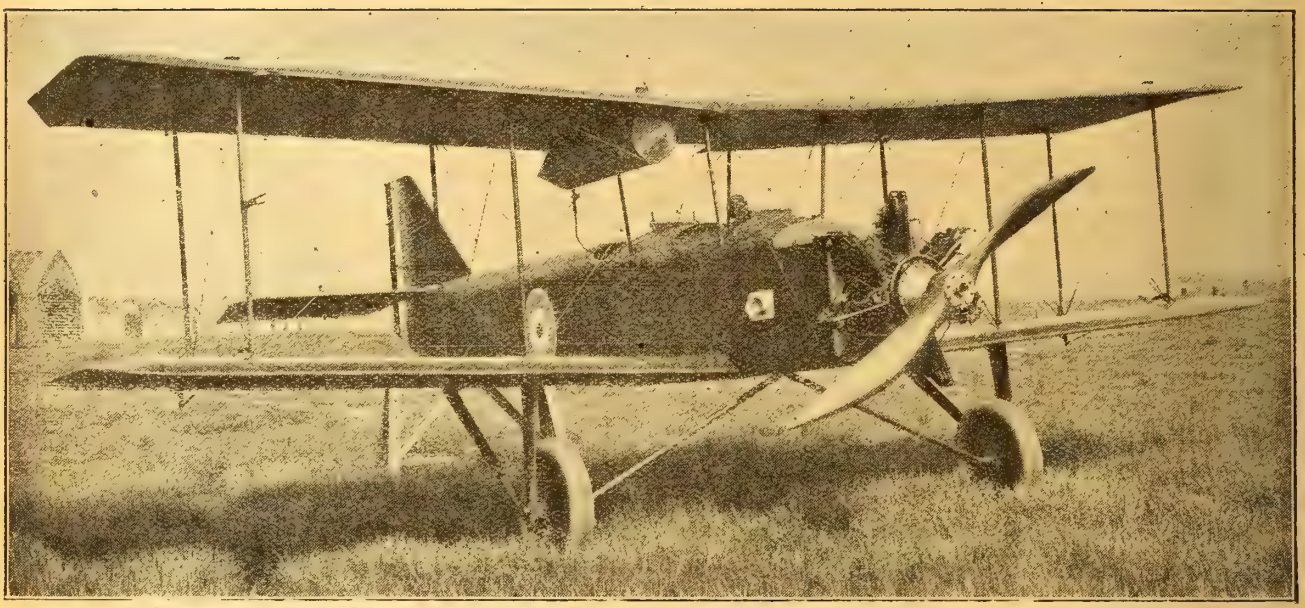
MODERN BRITISH AEROPLANES.

VI.—The British Aerial Transport Co., Ltd.

(Continued.)



Three-quarter Front View of the B.A.T. "Baboon" Training Machine (170 h.p. A.B.C. "Wasp" Engine).

THE B.A.T. "BABOON" F.K.24.

A small dual control two-seater, designed for training purposes.

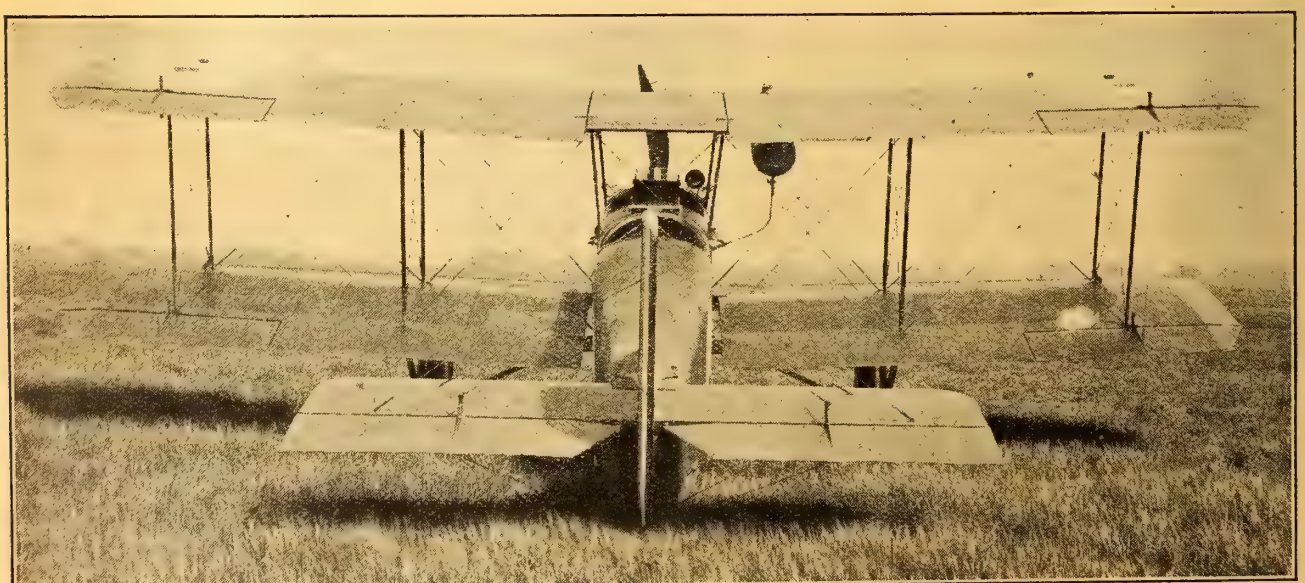
Very great attention has been paid in design to ease of manufacture and interchangeability of parts, so as to make it as easy and as cheap as possible to repair damage done by careless pupils and school mechanics.

As an instance of this it may be noted that ailerons, rudder and elevators are all identical and interchangeable.

The following are the leading particulars:—

SPECIFICATION.

Type of machine	Two-seater biplane (Dual Control)
Name or type No. of machine	B.A.T. F.K.24 "Baboon"
Purpose for which intended	Training
Span	25 ft.
Gap	4 ft. 8½ in.
Dihedral	2 deg.
Overall length	22 ft. 8 in.
Maximum height	8 ft. 10 in.
Chord	5 ft. 7 in.
Total surface of wings	259 sq. ft.
Span of tail	9 ft. 10 in.
Total area of tail	27.75 sq. ft.
Area of elevators	12 sq. ft.
Area of rudder	6 sq. ft.
Area of fin	5½ sq. ft.
Area of each aileron and total area	6 sq. ft. each—24 total
Maximum cross-section of body	7.5 sq. ft.
Vertical area of body	52 sq. ft.
Engine type and h.p.	170-h.p. A.B.C. "Wasp"
Airscrew	B.A.T. 2-blade, 7 ft. 10 in. dia., 5 ft. pitch
Weight of machine empty	950 lbs.
Load per sq. ft.	5.2 lbs.
Weight per h.p.	7.95 lbs.
Tank capacity	2 hours
Tank capacity	12 galls.
Disposable load apart from fuel	400 lbs.
Total weight of machine loaded	1350 lbs.
PERFORMANCE—	
Speed down down	90 m.p.h.
Speed, landing	40 m.p.h.
Climb—	
To 10,000 ft.	12 mins.



Rear View of the B.A.T. "Baboon" (170 h.p. A.B.C. "Wasp" Engine).

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Before the fateful days of 1914 Beardmore had made History.

Record upon Record was created by this Masterpiece of Aero : : Engineering : :

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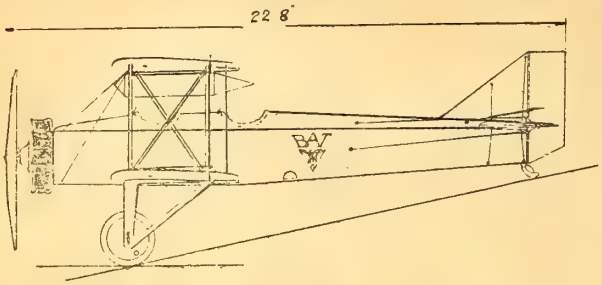
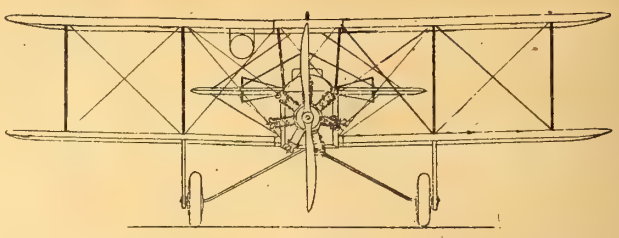
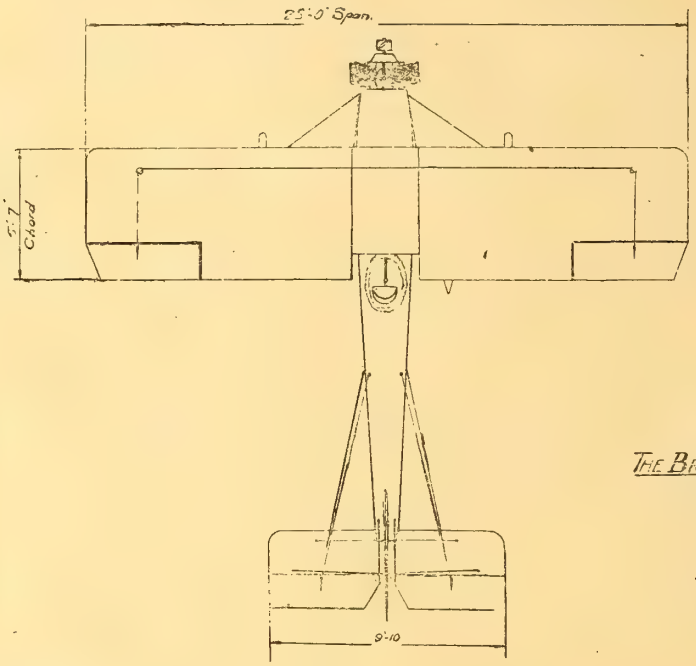
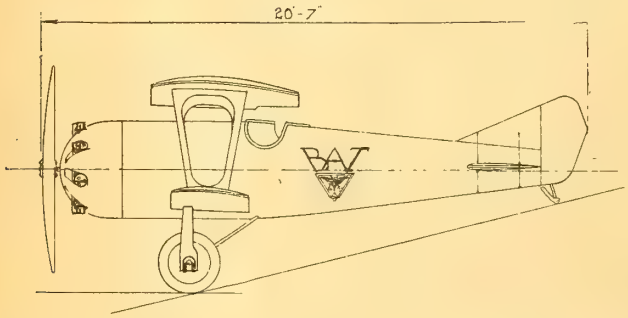
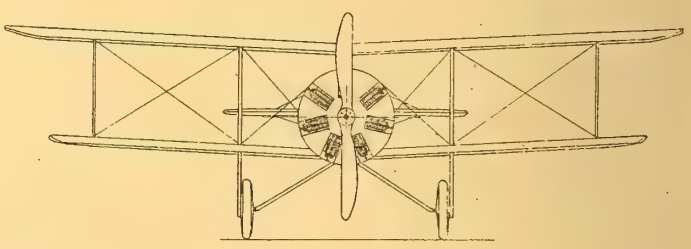


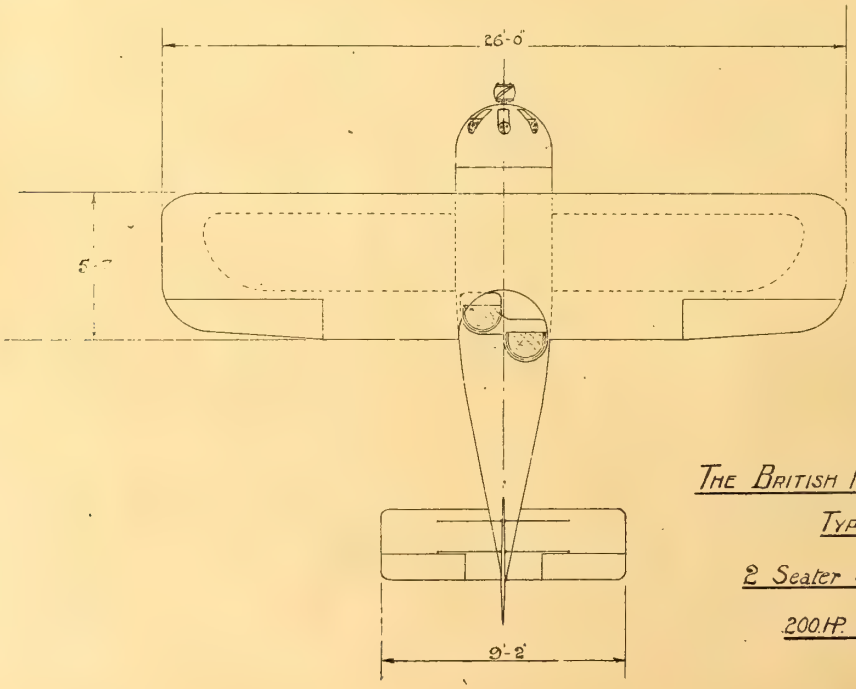




The British Aerial Transport C°. Ltd.
Type. F.K. 24 "Baboon"
Two Seater Biplane
A.B.C. 170 H.P. Wasp.

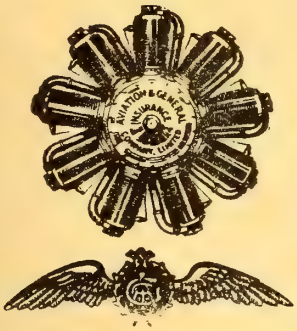






The British Aerial Transport Co Ltd
Type. F.K. 27.
2 Seater Sporting Biplane
200 H.P. ABC. Wasp II.

Aviation & General



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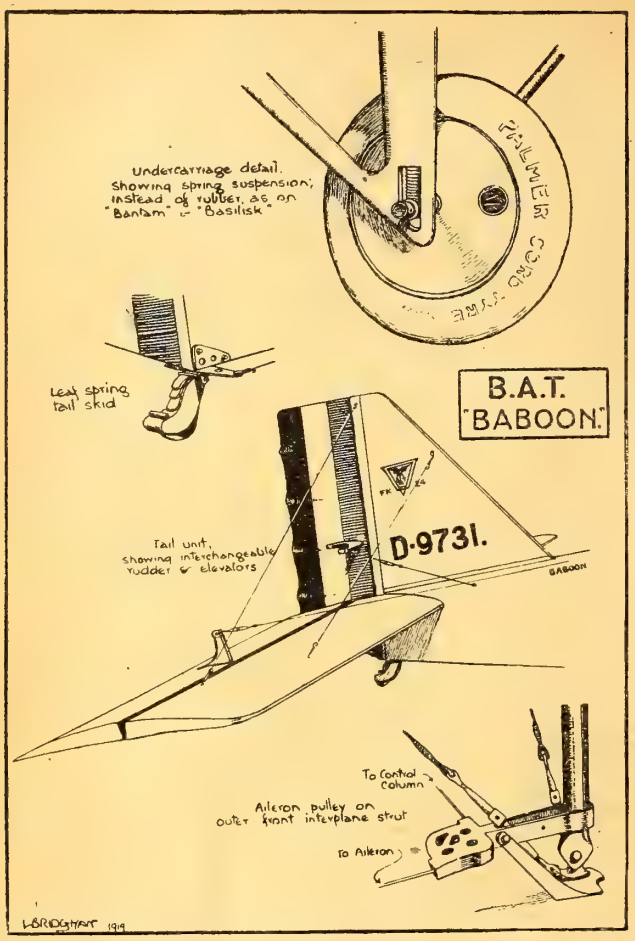

Some Details of the B.A.T. "Baboon" Training Machine.

THE B.A.T. F.K.27.

A really high performance two-seater sporting type machine, which follows generally the outline of the "Bantam" and "Basilisk" in design.

The two seats are arranged in a "staggered" or échelon position in the fuselage just below the trailing edge of the upper wing.

The lower wing is of considerably smaller chord and slightly less span than the upper.

The leading particulars are as given below :—

SPECIFICATION.

Type of machine	Two-seater biplane
Name or type No. of machine	B.A.T. F.K.27
Purpose for which intended	Sporting type
Span	26 ft. top, 22 ft. 10 in. bottom
Gap	3 ft. 11 in.
Overall length	20 ft. 7 in.
Maximum height	7 ft. 10 in.
Chord	Top 5 ft. 7 in., bottom 3 ft.
Stagger	8½ in. on leading edge
Dihedral	3 deg.
Total surface of wings	200 sq. ft.
Span of tail	9 ft. 2 in.
Total area of tail	23.4 sq. ft.
Area of elevators	6.3 sq. ft.
Area of rudder	4.4 sq. ft.
Area of fin	2.8 sq. ft.
Area of each aileron and total area	7.5 sq. ft. each—15 sq. ft. total
Maximum cross-section of body	10.5 sq. ft.
Vertical area of body	40 sq. ft.
Engine type and h.p.	200-h.p. A.B.C. "Wasp"
Airscrew	B.A.T. 2-blade, 7 ft. 10 in. dia., 5 ft. 4 in. pitch, 1850 r.p.m.
Weight of machine empty	800 lbs.
Load per sq. ft.	7 lbs.
Weight per h.p.	7 lbs.
Tank capacity	4 hours at ¾ throttle
Tank capacity	30 galls.
Disposable load apart from fuel	400 lbs.
Total weight of machine loaded	1,400 lbs.
PERFORMANCE—	
Speed low down	142 m.p.h.
Speed at 10,000 ft.	130 m.p.h.
Landing speed	50 m.p.h.
Climb—	
To 5,000 ft.	2 mins.
Ceiling	24,000 ft.

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Side View of the B.A.T. "Basilisk" (320-h.p. A.B.C. "Dragon-fly" Engine).

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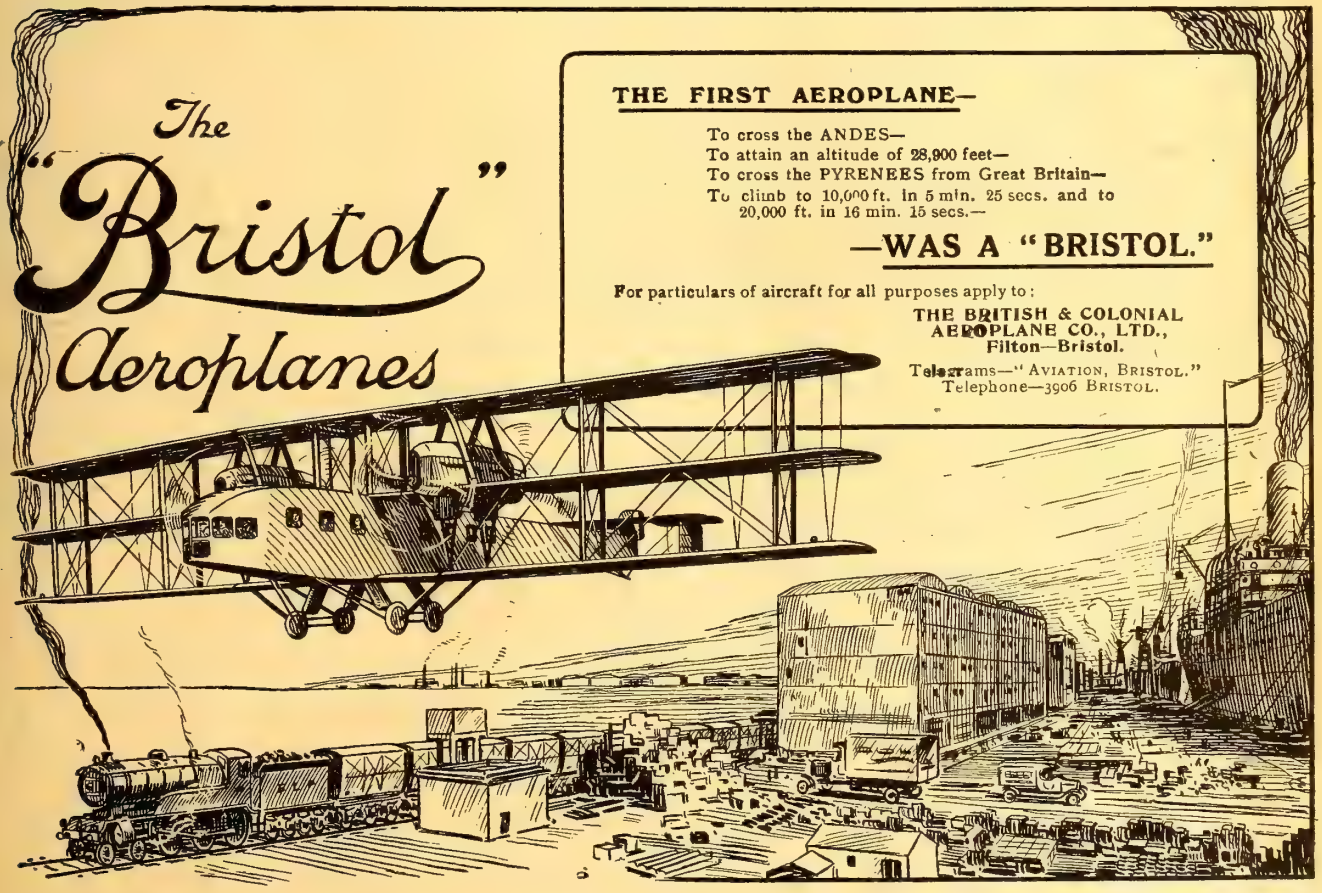

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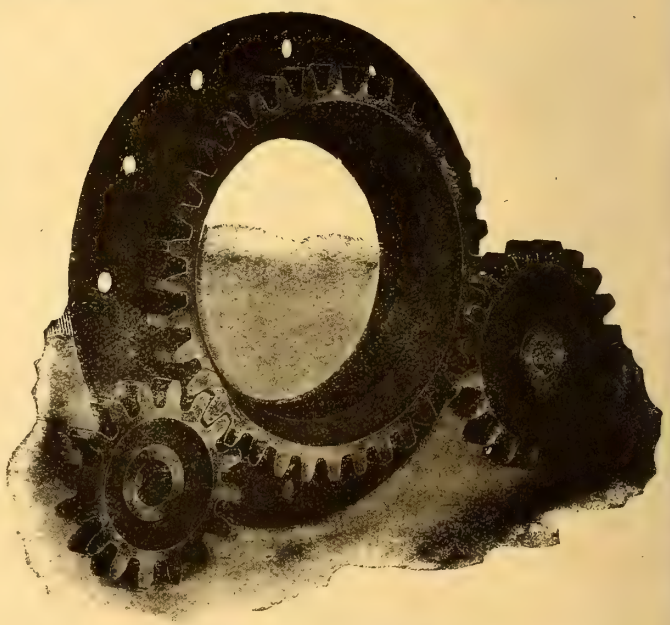

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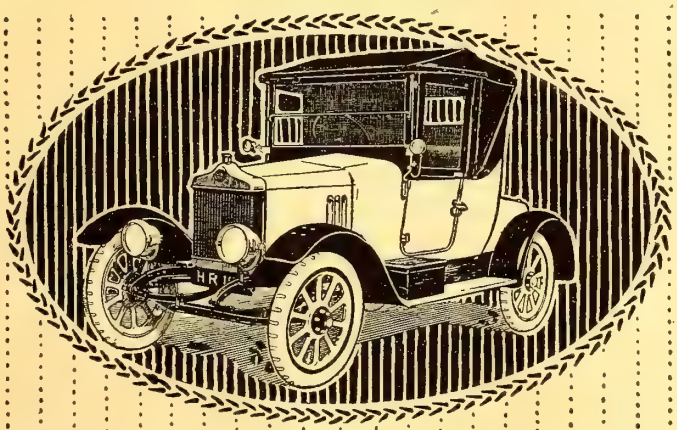

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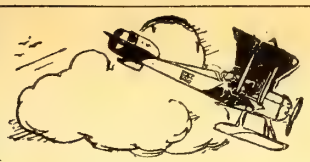

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Flying Boat Builders—
Gosport Aircraft Co., Gosport. "Flight, Gosport." Gosport 217.

Galvanising—
Boulton & Paul, Ltd., Rose Lane, Norwich. "Aviation, Norwich." Norwich 851.

Gauges—
J. A. Prestwich & Co., Northumberland Park, Tottenham, N.17.
Voucher, Co., Auto Tool Works, Walsall "Voucher Walsall." Walsall 0196.

Gears—
Moss Gear Co., Ltd., Thomas Street, Aston, Birmingham. "Mosgear, Birmingham." East 407.

Glue—
Cannon, B., & Co., Ltd., Lincoln. London Office, 110, Cannon Street, E.C.4. "Bececolin, Cannon, London." City 1206.
Improved Liquid Glues Co., Ltd., Gt. Hermitage Street, E. (Croid.) "Excroiden, 'Phone, London." Avenue 4611-2.
Mendine Co., 8, Arthur Street, E.C. Bank 5873.

Goggles—
Triplex Safety Glass Co., Ltd., 1, Albemarle Street, Piccadilly, W.1. "Shatterlys, Piccy, London" Regent 1340

Heating and Ventilating—
Chas. P. Kinnell and Co., Ltd., 65 & 65A, Southwark Street, London, S.E.1. "Kinnell, London." Hop 372 (2 lines).
The Thames Bank (Blackfriars) Iron Co., Ltd., Upper Ground Street, London, S.E.1. "Hot Water, Friars, London." Hop 763.

Instruments—
British Wright Co., Ltd., 33, Chancery Lane, W.C.2. Holborn 1308.

Instruments (Scientific, Altimeters, etc.)—
Short & Mason, Ltd., Macdonald Road, Walthamstow, E.17. "Aneroid, Phone, London." Walthamstow 180.

Insurance—
Aviation Insurance Association, 1, Royal Exchange Avenue, E.C.3 London Wall 9944.
Bray, Gibb & Co., Ltd., 166, Piccadilly, W.1
S. Sackville & Sons, Duchy Chambers, 4, Clarence Street, Manchester.
Harold Townend, Ltd., 13-14, Abchurch Lane, King William Street, E.C.4. "Carinsur, London." Central 156 (2 lines).
Percy Wingfield, 22, Newgate Street, E.C.1. City 4672.

Leather Cloth—
New Pegamoid, Ltd., 134, Queen Victoria Street, London "Pegamoid, Cent., London." City 9704 (2 lines).

Lubricating Oil Refiners and Merchants—
W. B. Dick & Co., Ltd., 90, Fenchurch Street, E.C.3 Telegrams, Dicotto Fen, London. Avenue 7854 (2 lines.)

Magneto Driving Pieces—
Herbert Terry & Sons, Ltd., Redditch. "Springs, Redditch." Redditch 61.

Magnetos—
The British Lighting & Ignition Co., Ltd., 204, Tottenham Court Road, W.1. "Vicksmag, Phone, London." Museum 430.
The British Thomson-Houston Co., Ltd., Lower Ford Street, Coventry. "Astroidal, Coventry." Coventry 278.

Metal Casement Manufacturers—
Henry Hope & Sons, Ltd., 55, Lionel Street, Birmingham. "Conservatory, Birmingham." Central 999 (2 lines).

Metal Manufacturers—
Clifford, Chas., & Sons, Ltd., Birmingham. "Clifford, Birmingham." Central 42-43. Avenue 1432.

Metals in General—
Samuel Mercer & Co., 198, Upper Thames Street, E.C.4. "Reconciled, Cannon, London." City 6342.

Metal Parts and Fittings—
Accles & Pollock, Ltd., Oldbury, Birmingham. "Accles, Oldbury." Oldbury 111 (4 lines)
Arnott & Harrison, Ltd., Hythe Road, Willesden Junction. Willesden 2207.
Bayliss, Jones, & Bayliss, Ltd., Wolverhampton. (Bolts and Nuts.) "Bayliss, Wolverhampton." Wolverhampton 1041.
Blackburn Aeroplane & Motor Co., Ltd., Olympia, Leeds. "Propellors, Leeds." Roundhay 345 (3 lines).
British Metal (Kingston), Ltd., Kingston-on-Thames.
Brown Bros., Ltd., Gt. Eastern St., E.C.1.
Mann, Egerton & Co., Ltd., 177, Cleveland Street, London, W.1 "Installing, Eusroad, London." Museum 70.
Rubery Owen & Co., Darlaston, South Staffs.
Sankey, Joseph, & Sons, Ltd., Wellington, Shropshire. "Sankey, Wellington, Salop." Wellington 66.
The Pulvo Engineering Co., Ltd., 10 to 16, Dane Street, High Holborn, London, W.C.1. "Pulvipult, Phone, London." Holborn 410.
The Selsdon Aero & Engineering Co., Ltd., 1, Albemarle Street, Piccadilly, W.1. "Selaero, Phone, London." Regent 1181.
The Rotax Motor Accessories Co., Ltd., Victoria Road, Willesden Junction, N.W.10. "Rodynalite, Phone, London." Willesden 2480.
Thompson Bros., Ltd., Bradley, Bilston. "Thompson Bros., Bilston." Bilston 10.

Metric Bolts—
Cashmore Bros, Hildreth Street, Balham, S.W. Battersea 415.
Rubery Owen & Co., Darlaston, South Staffs.

Miscellaneous—
Anderson, D., & Son, Ltd. (Roofs), Belfast. "Anderson, Belfast." Belfast 4033-4034-4035
British Metal (Kingston), Ltd., Kingston-on-Thames.
Brown Bros., Ltd., Great Eastern Street, E.C.1 "Imbrowned, Bethroad, London." London Wall 6300.
Herbert Frood Co., Ltd., Chapel-en-le-Frith. "Frodobrake, Birmingham" Central 703
MacLennan, J., & Co., 30, Newgate Street, E.C.1., and at Glasgow. Tapes, Cords, and Threads. City 3115.

Motor Cars—
Arrol Johnston, Ltd., Dumfries. "Mocar, Dumfries." Dumfries 281-282.
Mann, Egerton & Co., Ltd., 379/381, Euston Road, London, N.W.1. "Manegecar, Eusroad, London." Museum 70.
Standard Motor Car Co., Coventry. "Flywheel, Coventry." Coventry 530 (4 lines).

Nameplates and Labels—
British Metal (Kingston), Ltd., Kingston-on-Thames.
The Clegg Metal Engraving Co., Ltd., Worthing. "Clegg, Worthing."

Observation Panels—
Triplex Safety Glass Co., Ltd., 1, Albemarle Street, Piccadilly, W.1. "Shatterlys, Piccy, London." Regent 1340.

Oils—
C. C. Wakefield & Co., Ltd., Wakefield House, Cheapside, E.C.2. "Cheery, Cent, London" Central 11305 & 13466.

Parachutes—
E. R. Calthrop's Aerial Patents, Ltd., Eldon Street House, Eldon Street, London, E.C. "Savemalivo, Ave, London." London Wall 3266-3267.
The North British Rubber Co., Ltd., Castle Mills, Edinburgh. "Weba, Edinburgh." Edinburgh 3880 Central. (5 lines.)
C. G. Spencer & Sons, Ltd. (See under "Balloons").

Piston Rings—
The Standard Piston Ring and Engineering Co., Ltd., Don Road, Sheffield. "Ocean, Sheffield." Sheffield 2149

Presswork—
Rubery Owen & Co., Darlaston, South Staffs.
Terry, Herbert, & Sons, Ltd., Redditch. "Springs, Redditch." Redditch 61.

Propellers—
The Aircraft Improvements Co., Mornington Works, Arlington Road, Camden Town, N.W.1
Blackburn Aeroplane & Motor Co., Ltd., Olympia, Leeds. "Propellors, Leeds." Roundhay 345 (3 lines).
Boulton & Paul, Ltd., Rose Lane, Norwich, "Aviation, Norwich." Norwich 851.
Ebora Propeller Co., 11 & 12, Surbiton Park Terrace, Kingston-on-Thames "Ebora, Kingston." Kingston 672.
Integral Propeller Co., Ltd., "Aviprop, Hyde, London." Hendon 9. Kingsbury 104
Lang Propeller, Ltd., Weybridge. "Aerosticks, Weybridge." Weybridge 520-521.
Oddy, W. D., & Co., Leeds. "Airscrews, Leeds." Leeds 20547-8.
Westland Aircraft, Yeovil. "Aircraft, Yeovil." Yeovil 129.

Pyrometers—
The Foster Instrument Co., Letchworth, Herts. "Foster Instruments, Letchworth." Letchworth 20.

Rawhide Hammers—
Ira Stephens, Whitelands Leather Works, Ashton under-Lyne. "Stephens, 709, Ashton." Ashton 709.

Rigging for Aircraft—
Cradock, Geo., & Co., Ltd., Wakefield, England. "Cradock, Wakefield." Wakefield 466.

Rubber Tubing & Accessories—
Hancock, James Lyne, Ltd., 266, Goswell Road, London, E.C.1 "Masticator, Isling, London." City 3811 & 3812
The North British Rubber Co., Ltd., Castle Mills, Edinburgh. "Weba, Edinburgh." Edinburgh 3880 Central. (5 lines.)

Safety Belts—
C. H. Holmes & Son, 38, Albert Street, Manchester. "Semloh, Manchester." City 4432.

Screwing Die Heads—
Voucher, Co., Auto Tool Works, Walsall. "Voucher Walsall." Walsall 0196

Screw-driving Machines—
Russell Bros. (Redditch), Ltd., Littleworth, Redditch. "Inventors, Redditch." Redditch 74.

Seaplane Manufacturers—
Blackburn Aeroplane & Motor Co., Ltd., Olympia, Leeds. "Propellors, Leeds." Roundhay 345 (3 lines).
Phœnix Dynamo Manufacturing Co., Ltd., Thornbury, Bradford. "Dynamo, Bradford." Bradford 3700 (7 lines).
Short Bros., Rochester. "Seaplanes, Rochester." Chatham 627.
Supermarine Aviation Works, Ltd., Southampton. "Supermarin, Southampton." Woolston 37.

Searchlights & Landing Lights
Brown Bros., Ltd., Great Eastern St., E.C.1.
Imperial Light, Ltd., 123, Victoria Street, London, S.W.1. "Edibrac, Phone, London" 3540 Victoria (3 lines).
The Rotax Motor Accessories Co., Ltd., Victoria Road, Willesden Junction, N.W.10 "Rodynalite, Phone, London." Willesden 2480

Shock Absorbers—
Luke Turner & Co., Deacon Street, Leicester Leicester 967.
Tubbs, Lewis & Co., Ltd., 29 & 30, Noble Street, E.C.2. "Elastics, London." City 22.

Sheet Metal Pressings—
Accles & Pollock, Ltd., Oldbury, Birmingham. "Accles, Oldbury." Oldbury 111 (4 lines)
Blackburn Aeroplane & Motor Co., Ltd., Olympia, Leeds. "Propellors, Leeds." Roundhay 345 (3 lines)
British Metal (Kingston), Ltd., Kingston-on-Thames.
Rubery Owen & Co., Darlaston, South Staffs.

Sheet Metal Work—
The Acetylene Corporation of Great Britain, Ltd., 49, Victoria Street, S.W.1. "Flamma, Vic, London." Vic 4830
British Metal (Kingston), Ltd., Kingston-on-Thames. [Staffs.
Rubery Owen & Co., Darlaston, South
The Selsdon Aero & Engineering Co., Ltd., 1, Albemarle Street, Piccadilly, W.1. "Selaero, Phone, London." Regent 1181
Imperial Light, Ltd., 123, Victoria Street, London, S.W.1. "Edibrac, Phone, London." Victoria 3540 (3 lines).

The · Aeroplane · · Buyers' · Guide.

Accumulators—

The Chloride Electrical Storage Co, Ltd, Clifton Junction, near Manchester "Chloridic, Pendlebury" Central Manchester, 1638 Pendleton, 11.

Acetylene Welding Plant—

Acetylene Corporation of Great Britain, Ltd, The, 49, Victoria Street, Westminster, S W 1 "Flamma, Vic, London" Vic 4830

Imperial Light, Ltd, 123, Victoria Street, London, S.W.1. "Edibrac, 'Phone, London" 3540 Victoria (3 lines)

Aeroplane Manufacturers—

Aircraft Manufacturing Co, Ltd, Hendon "Airmanship, Hyde, London" Kingsbury 220

Armstrong, Sir W., Whitworth & Co, Ltd, Newcastle - on - Tyne. "Armstrong Aviation, Newcastle-on-Tyne" Gosforth 500

Blackburn Aeroplane & Motor Co., Ltd, Olympia, Leeds. "Propellors, Leeds" Roundhay 345 (3 lines)

Boulton & Paul, Ltd, Rose Lane, Norwich, "Aviation, Norwich" Norwich 851

British Aerial Transport Co., Ltd. Head Office: 38, Conduit Street, London, W 1 "Batigram Reg London" Mayfair 637, 638

Works: Hythe Road, Willesden, London N W 10 "Aerbritans, Phone, London" Willesden, 2272, 2273

British & Colonial Aeroplane Co, Ltd (The Bristol Co), Filton, Bristol "Aviation, Bristol" Bristol 3906

Central Aircraft Co, High Road, Kilburn, N W 6 "Aviduction, Phone, London" Hampstead 4403 and 4404

Dawson, John, & Co, Ltd, Newcastle-on-Tyne "Dependable, Newcastle-on-Tyne" Central 2604 (2 lines).

Eastbourne Aviation Co., Ltd., Eastbourne "Aircraft, Eastbourne" Eastbourne 1176

Gosport Aircraft Co, Gosport "Flight Gosport" Gosport 217

Grahame-White Company, Ltd, London Aerodrome, Hendon "Volplane, Hyde, London" Kingsbury 120
London Office, 12, Regent Street, S W 1 Regent 2084.

Handley Page, Ltd, 110, Cricklewood Lane, N W 2 "Hydrophid, Crickle, London" Hampstead 7420

Hooper & Co, Ltd, 54, St James St, Piccadilly, London, S W "Sociable, St James, London." Regent 912

Mann, Egerton & Co, Ltd, Norwich "Motors, Norwich" Norwich 482 (4 lines)

Martinsyde, Ltd, Brooklands, Byfleet, "Martinsyde, Weybridge." Woking 331; Byfleet 171

"Nieuport" & General Aircraft Co, Cricklewood, London, N.W 2 "Nieuscout, Crickle, London." Willesden 2455

Phœnix Dynamo Manufacturing Co, Ltd, Thornbury, Bradford. "Dynamo, Bradford." Bradford 3700 (4 lines)

The Regent Carriage Co., Ltd, 126/132, New King's Road, Fulham, S W 6 "Carbodis, London" Putney 2240-2241

Roe, A. V., & Co, Ltd, Manchester. "Triplane, Manchester" City 8530-8531, Manchester

Saunders, S E., Ltd, East Cowes, I O W "Consuta, East Cowes" Cowes 193

Short Bros, Rochester, Eastchurch and Whitehall House, S.W. "Tested, Phone, London" Regent 378

The Siddeley Deasy Motor Car Co, Ltd, Coventry. Coventry 954 "Deasy, Coventry."

Sopwith Aviation Co, Ltd, Kingston-on-Thames "Sopwith, Kingston" Kingston 1988 (8 lines)

The Supermarine Aviation Works, Ltd, Southampton. "Supermarin" Woolston 37 (2 lines)

Vickers, Ltd, Imperial Court, Basil Street, Knightsbridge, S W 3 "Vickerfyta, Knights, London" Kensington 6810

Waring & Gillow, Ltd, Hammersmith "Warisen, Ox, London" Museum 5000

Westland Aircraft, Yeovil "Aircraft, Yeovil" Yeovil 129

White, J Samuel, & Co, Ltd, East Cowes "White, East Cowes" Cowes 3

Airships—

Airships, Ltd., High Street, Merton Wimbledon 1314.

The North British Rubber Co, Ltd, Castle Mills, Edinburgh "Weba, Edinburgh" Edinburgh 3880 Central (5 lines)

Short Bros, Rochester, Eastchurch, and Whitehall House, S W "Tested, 'Phone, London" Regent 378

C G Spencer and Sons, Ltd. (See under "Balloons")

Aluminium Castings (Sand and Die)

Coan, R. W, 219, Goswell Road, London, E C 1 "Krankases, Isling, London" City 3846

Balloons—

The North British Rubber Co, Ltd, Castle Mills, Edinburgh "Weba, Edinburgh." Edinburgh 3880 Central (5 lines)

C G Spencer and Sons, Ltd, 56A, Highbury Grove, N 5 "Aeronaut, London." Dalston [illegible]

Bent Timber Parts—

Hopton & Sons, George Street, Euston Square, London, N W 1 "Hoptons, Eusquare, London" Museum 360
Also at Market Harborough, Leicestershire "Hoptons, Market Harborough" Market Harborough 1.

Bearings (Etonia Cast Phosphor Bronze)

Brown Bros, Ltd, Gt Eastern St, E C 1

Yorkshire Engineering Supplies, Ltd., Wortley, Leeds "Yes, Leeds" Central 3927

Blowpipes (Oxy-Acetylene)—

Acetylene Corporation of Great Britain, Ltd, The, 49, Victoria Street, Westminster, S W 1 "Flamma, Vic, London" Vic 4830

Imperial Light, Ltd, 123, Victoria Street, London, S W.1 "Edibrac, 'Phone, London." Vic 3540 (3 lines)

Bolts—

Mitchell Wedgewood & Co, Campbell Works, Stoke Newington, London, N 16 Dalston 2500 (2 lines).

Books (Aero Engines)—

Dykes' Auto Encyclopedia, Gillam, 149, Strand, W C 2

Buildings—

Boulton & Paul Ltd, Rose Lane, Norwich "Aviation, Norwich" Norwich 851

Rubery Owen & Co, Darlaston, South Staffs

Cable Coverings and Cable Controls—

The Bowden Brake Co, Ltd, Tyseley, Birmingham "Bowden, Acock's Green" Acock's Green 103 & 104

Bowden Wire, Ltd, Willesden Junction, "Bowirelim, Harles, London" Willesden 2400 (3 lines).

Herbert Terry & Sons, Ltd, Redditch "Springs, Redditch" Redditch 61.

Carburettors—

Hobson, H. M, Ltd., 29, Vauxhall Bridge Road, S W 2 Victoria 4670

Casein—

Nieuwhof, Surie & Co., Ltd., 5, Lloyds Avenue, London, E.C 3 "Suricodon, Fen, London." Avenue 34 and 35

Clothing—

Burberry's, Ltd, Haymarket, S W 1 Regent 2105

Dunhill's Ltd., Euston Road, N W 1 "Dunsend, London" North 3495-6

The North British Rubber Co, Ltd, Castle Mills, Edinburgh "Weba, Edinburgh" Edinburgh 3880 Central (5 lines)

Component Parts—

Accles & Pollock, Ltd, Oldbury, Birmingham "Accles, Oldbury." Oldbury 111 (4 lines)

Brown Bros., Ltd, Gt Eastern St, E.C.1.

Central Aircraft Co, High Road, Kilburn, N.W 6 "Aviduction, 'Phone, London" Hampstead 4403 & 4404.

Thompson Bros (Bilston), Ltd, Bradley, Bilston, England "Thompson Bros, Bilston" Bilston 10

Cords, Tapes, and Threads—

MacLennan, J., & Co., 30, Newgate Street, E C 1. And at Glasgow City 3115.

Dopes—

Titanine, Ltd, 175, Piccadilly, W 1 "Tetrafree, Piccy, London" Gerrard 2312

British Cellulose Co, 8, Waterloo Place, S.W.1. "Cellutate, London" Regent [illegible]

The British Emaillite Co, Ltd, 30, Regent Street, S W 1. "Ridleypren, Piccy, London" Gerrard [illegible]

Cellon, Ltd, 22, Cork Street, London, W 1 "Ajawb, Reg, London" Gerrard [illegible]

Robt. Ingham Clark & Co., Ltd., West Ham Abbey, E 15 "Oleotine, Strat, London" East [illegible]

Engines and Parts—

Allen, W. H., & Co., Ltd., Bedford. "Pump, Bedford." Bedford No 1.

Arrol-Johnston, Ltd, Dumfries "Mocar, Dumfries" Dumfries 281-2

Beardmore Aero Eng, Ltd, 112, Great Portland Street, W.1. "Beardmore, London" Gerrard [illegible]

The Cosmos Engineering Co, Ltd, Fishponds, Bristol.

Dudbridge Iron Works, Ltd (Salmson), 7, Victoria Street, London, S W 1 "Aeroflight, Vic, London" Vic [illegible]

Gordon Watney & Co, Ltd, Weybridge "Mercédès, Weybridge." Weybridge 550 (7 lines)

Green Engine Co, Ltd, Twickenham Richmond [illegible]

Gwynnes, Ltd, Hammersmith, W "Gwynne, Hammersmith" Hammersmith [illegible]

Napier & Son, D, Ltd, 14, New Burlington Street, London, W, and at Acton, W "Nitrifier, London" Gerrard [illegible]

Rolls-Royce, Ltd, 14 and 15, Conduit Street, W 1 "Rolhead, London" Gerrard [illegible]

The Siddeley-Deasy Motor Car Co, Ltd, Coventry Coventry 954 "Deasy, Coventry."

Sunbeam Motor Car Co, Ltd, Wolverhampton "Moorfield, Wolverhampton" Wolverhampton [illegible]

The Gnôme & Le Rhône Engine Co, Ltd, 27, Buckingham Gate, S W 1 "Elevenfold, London" Walthamstow [illegible] (2 lines).

Walton Motors, Ltd., Walton-on-Thames. "Motors, Walton-on-Thames" Walton-on-Thames 220

Electrical Accessories—

Belling & Co, Montagu Road, Upper Edmonton, N 18. "Belling, Edmonton." Tottenham 1954

Brown Bros., Ltd., Gt. Eastern St., E C 1

Johnson & Phillips, Ltd, Charlton, London, S E 7. "Juno, London" Central 2207, London Wall 1514

The Rotax Motor Accessories Co, Ltd, Victoria Road, Willesden Junction, N W 10 "Rodynalite, 'Phone, London" Willesden 24[illegible]

Electric Cables—

E Kalker and Co, Coventry "Kalker, Coventry" Coventry [illegible]

Johnson & Phillips, Ltd., Charlton, London. S E 7. "Juno, London." Central 2207, London Wall 1514

Electric Lighting and Power—

Johnson & Phillips, Ltd, Charlton, London, S E 7 "Juno, London." Central 2207, London Wall [illegible]

Mann, Egerton & Co, Ltd, 117, Cleveland Street, London, W. "Installing, Eusroad" Museum 70 (4 lines)

Electro Platers and Metal Polishers' Engineers—

W Canning & Co., [illegible], Great Hampton Street, Birmingham "Materials, Birmingham" Birmingham 3622 Central (3 lines)

Fireproof Petrol Tanks—

The Aircraft Improvements Co, Mornington Works, Arlington Road, Camden Town, N W 1

Flare Lights—

Imperial Light, Ltd, 123, Victoria Street, London, S W 1 "Edibrac, 'Phone, London" Victoria 3540 (3 lines).

Flexible Shafts—

Herbert Terry & Sons, Ltd, Redditch "Springs, Redditch" Redditch 61

Fluxes—

Imperial Light, Ltd, 123, Victoria Street, London, S W 1 "Edibrac, 'Phone, London." Victoria 3540 (3 lines)

The Auto Controller Co (Fluxite), Vienna Road, Bermondsey, Eng

Flying Boat Builders—

Gosport Aircraft Co., Gosport. "Flight, Gosport" Gosport 217.

Galvanising—

Boulton & Paul, Ltd, Rose Lane, Norwich "Aviation, Norwich." Norwich 851

Gauges—

J A Prestwich & Co, Northumberland Park, Tottenham, N 17

Voucher, Co, Auto Tool Works, Walsall "Voucher Walsall" Walsall 0166

Gears—

Moss Gear Co., Ltd., Thomas Street, Aston, Birmingham "Mosgear, Birmingham" East 107

Glue—

Cannon, B., & Co., Ltd, Lincoln. London Office, 110, Cannon Street, E C 4 "Beccecolin, Cannon, London." City 1206

Improved Liquid Glues Co, Ltd, Gt Hermitage Street, E (Croid) "Excroiden, 'Phone, London" Avenue 4011-2

Mendine Co, 8, Arthur Street, E.C Bank 5873

Goggles—

Triplex Safety Glass Co, Ltd., 1, Albemarle Street, Piccadilly, W 1 "Shatterlys, Piccy, London" Regent 1340

Heating and Ventilating—

Chas P Kinnell and Co, Ltd, 65 & 65A, Southwark Street, London, S E 1 "Kinnell, London" Hop 372 (2 lines).

The Thames Bank (Blackfriars) Iron Co, Ltd, Upper Ground Street, London, S E 1. "Hot Water, Friars, London." Hop 765

Instruments—

British Wright Co, Ltd, 73, Chancery Lane, W C 2. Holborn 1308

Instruments (Scientific, Altimeters, etc.)—

Short & Mason, Ltd, Macdonald Road, Walthamstow, E.17 "Aneroid, Phone, London" Walthamstow 180

Insurance—

Aviation Insurance Association, 1, Royal Exchange Avenue, E C 3 London Wall 6044

Bray, Gibb & Co, Ltd., 166, Piccadilly, W 1

S Sackville & Sons, Duchy Chambers, 4, Clarence Street, Manchester

Harold Townend, Ltd, 13-14, Abchurch Lane, King William Street, E C 4. "Carinsur, London" Central 156 (2 lines).

Percy Wingfield, 22, Newgate Street, E C 1 City 4672

Leather Cloth—

New Pegamoid, Ltd., 134, Queen Victoria Street, London "Pegamoid, Cent., London" City 4704 (2 lines).

Lubricating Oil Refiners and Merchants—

W. B. Dick & Co, Ltd, 90, Fenchurch Street, E C 3 Telegrams, Dicotto Fen, London Avenue 7854 (2 lines)

Magneto Driving Pieces—

Herbert Terry & Sons, Ltd., Redditch "Springs, Redditch" Redditch 61

Magnetos—

The British Lighting & Ignition Co, Ltd., 204, Tottenham Court Road, W 1. "Vicksmag, Phone, London" Museum 430

The British Thomson Houston Co, Ltd, Lower Ford Street, Coventry "Asteroidal, Coventry" Coventry 278

Metal Casement Manufacturers—

Henry Hope & Sons, Ltd, 55, Lionel Street, Birmingham "Conservatory, Birmingham." Central 909 (2 lines).

Metal Manufacturers—

Clifford, Chas, & Sons, Ltd., Birmingham. "Clifford, Birmingham" Central 4213. Avenue 1432

Metals in General—

Samuel Mercer & Co, 198, Upper Thames Street, E.C.4 "Reconciled, Cannon, London" City 6342.

Metal Parts and Fittings—

Accles & Pollock, Ltd, Oldbury, Birmingham "Accles, Oldbury" Oldbury 111 (4 lines)

Arnott & Harrison, Ltd, Hythe Road, Willesden Junction Willesden 2207

Bayliss, Jones, & Bayliss, Ltd, Wolverhampton (Bolts and Nuts) "Bayliss, Wolverhampton" Wolverhampton 1041.

Blackburn Aeroplane & Motor Co, Ltd, Olympia, Leeds "Propellors, Leeds" Roundhay 345 (3 lines)

British Metal (Kingston), Ltd, Kingston-on-Thames

Brown Bros, Ltd, Gt Eastern St, E C 1

Mann, Egerton & Co, Ltd, 177, Cleveland Street, London, W 1 "Installing, Eusroad, London" Museum 70.

Rubery Owen & Co, Darlaston, South Staffs

Sankey, Joseph, & Sons, Ltd, Wellington, Shropshire "Sankey, Wellington, Salop" Wellington 66

The Pulvo Engineering Co, Ltd, 10 to 16, Dane Street, High Holborn, London, W C 1 "Pulvipult, Phone, London" Holborn 110

The Selsdon Aero & Engineering Co, Ltd, 1, Albemarle Street, Piccadilly, W 1 "Selaero, Phone, London" Regent 1181

The Rotax Motor Accessories Co, Ltd, Victoria Road, Willesden Junction, N W 10 "Rodynalite, Phone, London" Willesden 2450

Thompson Bros, Ltd., Bradley, Bilston. "Thompson Bros, Bilston" Bilston 10

Metric Bolts—

Cashmore Bros, Hildreth Street, Balham, S W Battersea 415

Rubery Owen & Co, Darlaston, South Staffs

Miscellaneous—

Anderson, D, & Son, Ltd. (Roofs), Belfast "Anderson Belfast" Belfast [illegible]

British Metal (Kingston), Ltd., Kingston-on-Thames

Brown Bros, Ltd, Great Eastern Street, E C 1 "Imbrowned, Bethroad, London" London Wall 6300

Herbert Frood Co., Ltd., Chapel-en-le-Frith "Frodobrake, Birmingham" Central 703

MacLennan, J., & Co., 30, Newgate Street, E.C.1., and at Glasgow. Tapes, Cords, and Threads. City 3115

Motor Cars—

Arrol Johnston, Ltd, Dumfries "Mocar, Dumfries" Dumfries 281-282

Mann, Egerton & Co, Ltd, 79-381, Euston Road, London, N W 1 "Manegecar, Eusroad, London" Museum 70

Standard Motor Car Co, Coventry "Flywheel, Coventry" Coventry 530 (4 lines)

Nameplates and Labels—

British Metal (Kingston), Ltd, Kingston-on-Thames

The Clegg Metal Engraving Co, Ltd, Worthing. "Clegg, Worthing."

Observation Panels—

Triplex Safety Glass Co, Ltd, 1, Albemarle Street, Piccadilly, W 1 "Shatterlys, Piccy, London" Regent 1340

Oils—

C. C. Wakefield & Co., Ltd, Wakefield House, Cheapside, E C.2. "Cheery, Cent, London" Central 11305 & 13466

Parachutes—

E R Calthrop's Aerial Patents, Ltd, Eldon Street House, Eldon Street, London, E C. "Savemalivo, Ave, London" London Wall 3266-3267

The North British Rubber Co, Ltd, Castle Mills, Edinburgh "Weba, Edinburgh." Edinburgh 3880 Central (5 lines)

C G. Spencer & Sons, Ltd (See under "Balloons")

Piston Rings—

The Standard Piston Ring and Engineering Co, Ltd, Don Road, Sheffield "Ocean, Sheffield" Sheffield 2149

Presswork—

Rubery Owen & Co., Darlaston, South Staffs

Terry, Herbert, & Sons, Ltd., Redditch. "Springs, Redditch" Redditch 61

Propellers—

The Aircraft Improvements Co, Mornington Works, Arlington Road, Camden Town, N.W 1

Blackburn Aeroplane & Motor Co, Ltd, Olympia, Leeds "Propellors, Leeds" Roundhay 345 (3 lines).

Boulton & Paul, Ltd, Rose Lane, Norwich, "Aviation, Norwich" Norwich 851.

Ebora Propeller Co, 11 & 12, Surbiton Park Terrace, Kingston-on-Thames "Ebora, Kingston" Kingston 672

Integral Propeller Co, Ltd, "Aviprop, Hyde, London." Hendon 9. Kingsbury 104

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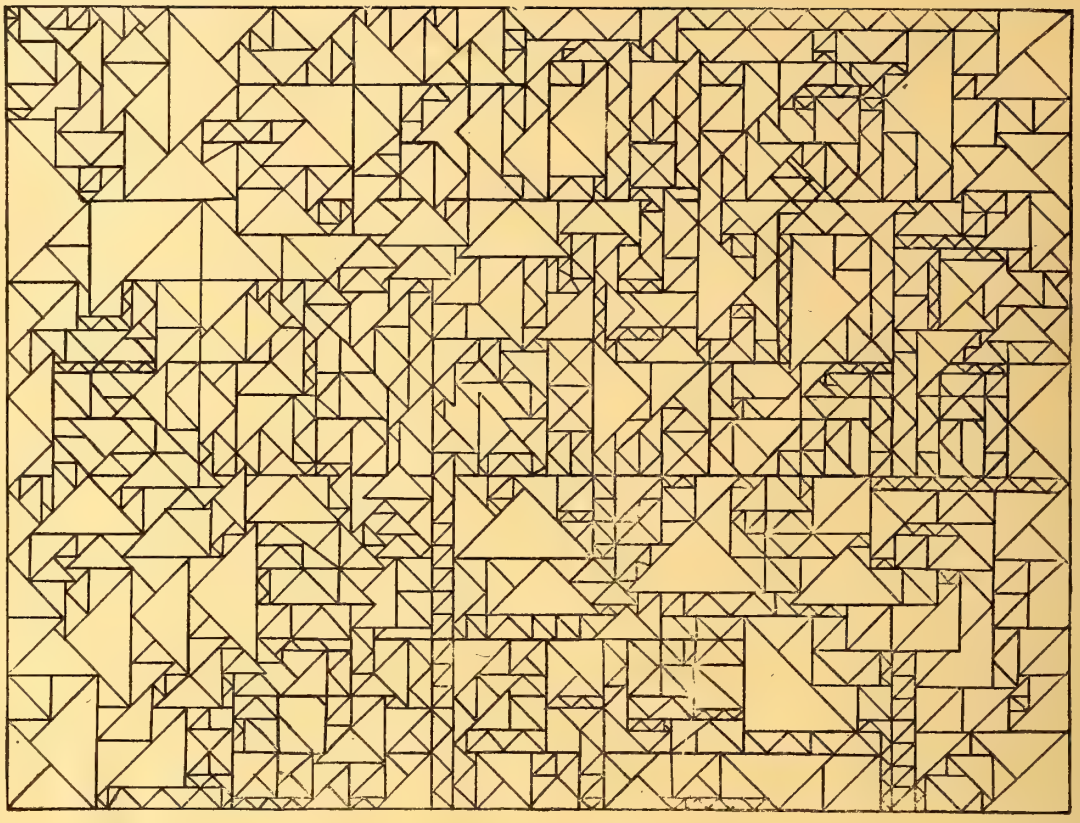

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AMERICAN SUPERCHARGING DEVELOPMENTS.

A Possible Means of Acquiring Additional Efficiency in Engines used on Commercial Aircraft.

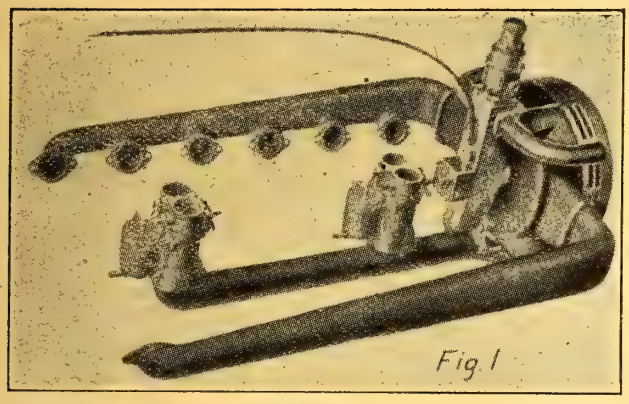


Fig. 1.—The Sherbondy Supercharger Unit for the Liberty Engine.

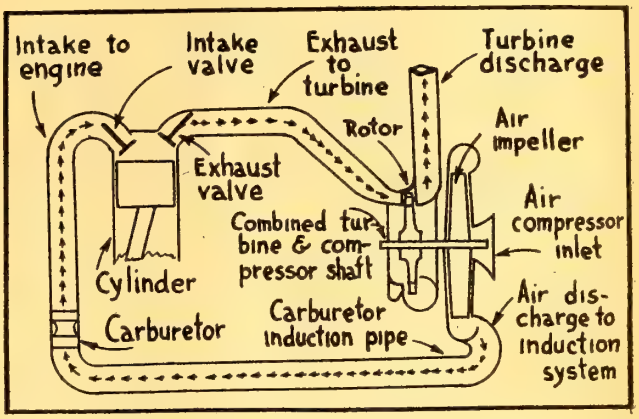


Fig. 2.—The General Scheme of the Turbine Type of Supercharger.

It is now a matter of common knowledge that a considerable amount of experimental work was carried out in various Allied countries with a view to maintaining the power output of aero engines at high altitudes.

So far, no details of this work have been published beyond a few references to the fact that Prof. Rateau had designed an exhaust-driven turbo-air compressor designed to supply air at normal ground-level density to aero-engines at high altitudes.

According to an American Journal—the "Aerial Age Weekly," of New York—the American authorities took up this question, and, working along lines laid down in Europe, secured very promising results.

Soon after the American declaration of war against Germany, the U.S. Government requested Mr. E. H. Sherbondy, and Dr. Sanford A. Moss, of the General Electric Co., of America, to take up the investigation of this problem

Both these gentlemen finally adopted the main lines of the Rateau system—to the extent of utilising a turbine driven by the exhaust gases of the engine, made to drive a turbo-air-compressor which supplies air to the carburetters of the engine.

Mr. Sherbondy made certain experiments with a compressor gear driven from the engine shaft, but eventually abandoned this method for the turbine drive.

"Aerial Age Weekly" publishes general arrangement drawings of the original Rateau supercharger, and of the Sherbondy modification, together with a number of other illustrations.

Generally all three types differ only in detail. All employ a turbine of the single wheel and expanding nozzle type associated with the name of de Laval, which drives a centrifugal air-compressor on the same shaft at some speed round about 30,000 r.p.m., and a mechanism more or less similar in principle to the ordinary aneroid which controls the exhaust gas admission to the turbine in such a manner as to maintain an approximately uniform pressure on the delivery side of the compressor.

Fig. 2, attached, shows diagramatically the *modus operandi* of all three systems.

Fig. 4 is a general arrangement of one of the Rateau superchargers showing the disposition of the turbine and the compressor.

Fig. 5 is a similar view of the Sherbondy supercharger. In this figure A is the air compressor-impellor, mounted upon the shaft S, which also carries the turbine rotor B.

Exhaust gases are led by two special manifolds to the annular chamber N, and passing through the nozzles R, impinge on the turbine buckets K and pass to the exhaust outlet E. Between N and E is the bye-pass valve V. The bye-pass valve is controlled by the diaphragm F, which is open to the atmospheric pressure on one side and has on its other side a sealed chamber containing air at normal atmospheric pressure.

Movement of the diaphragm with varying external air pressure controls a small piston valve O which opens or closes oil ports leading to a cylinder whose piston P is on the stem of the bye-pass valve V.

At ground level this bye-pass is wide open and no exhaust gases pass the turbine nozzles. As the altitude increases and the external pressure on the control diaphragm decreases the bye-pass is progressively closed, more and more gas passes through the turbine, and the speed of the turbine-compressor unit is automatically regulated so as to maintain the required pressure in the induction pipes.

Air enters the compressor through the intake G and is driven by the impellor A into the circumferential chamber C, and passes to the induction pipes and carburetters through the outlet J.

The turbine and compressor casings are separated by a water space W which is coupled to the engine-cooling system. In the centre of the shaft and surrounded by the water space is a labyrinth packing system which prevents leakage of exhaust gases from the turbine to the compressor.

Fig. 1 gives a general view of the complete supercharger unit, with exhaust manifolds and carburetter connections as applied to the 12-cylinder Liberty engine.

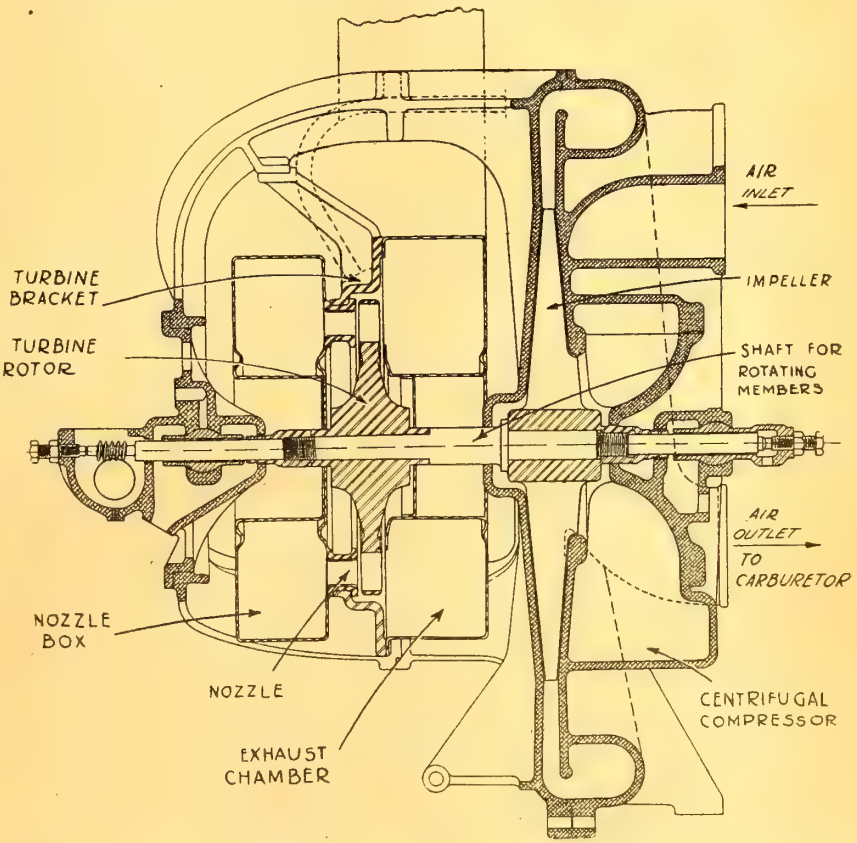


Fig. 4.—Cross-section of a Rateau Turbo Supercharger.

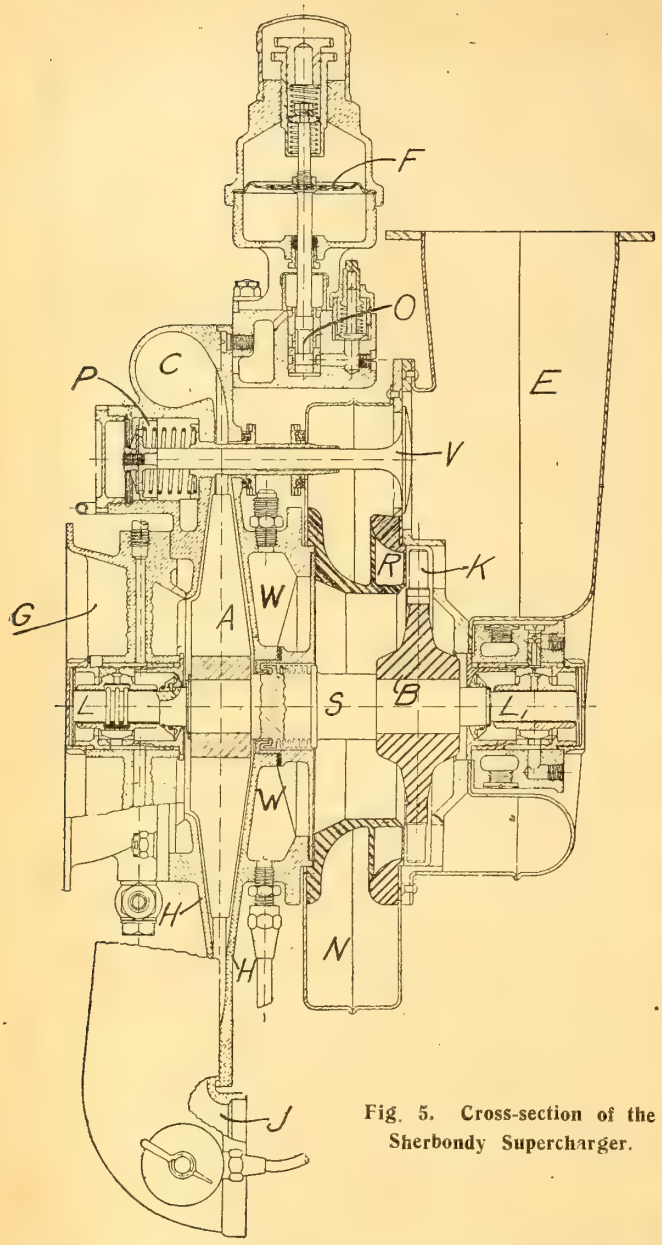


Fig. 5. Cross-section of the Sherbondy Supercharger.

Fig. 3 shows the turbine rotor and the air impellor mounted on the shaft.

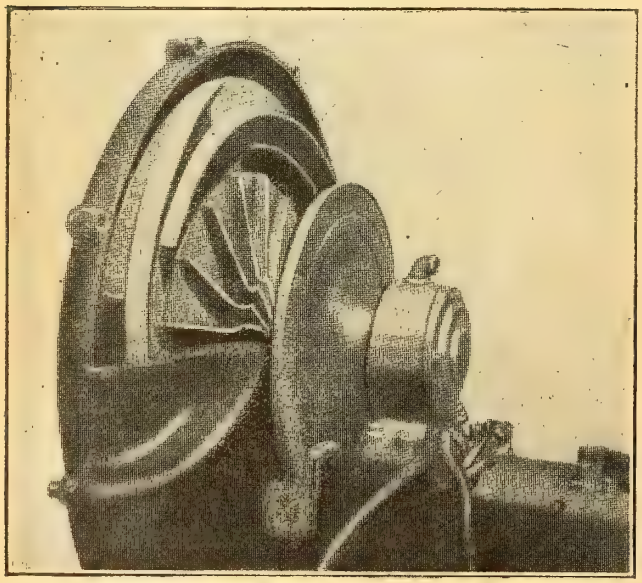
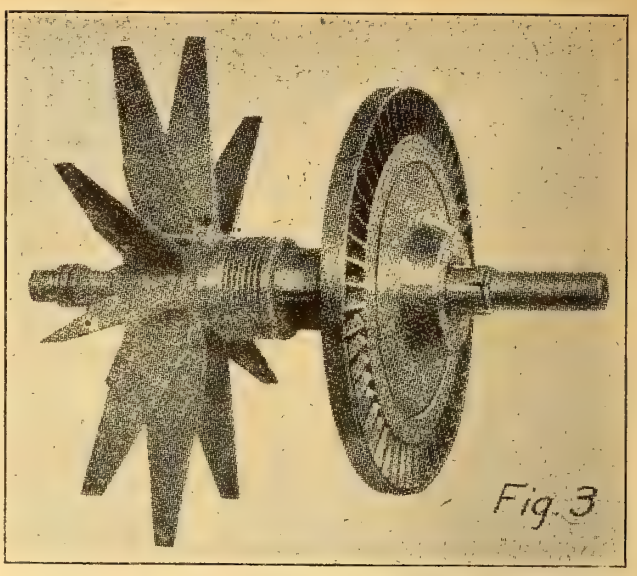


Fig. 6. Turbine Rotor and Impellor of the Moss Supercharger.

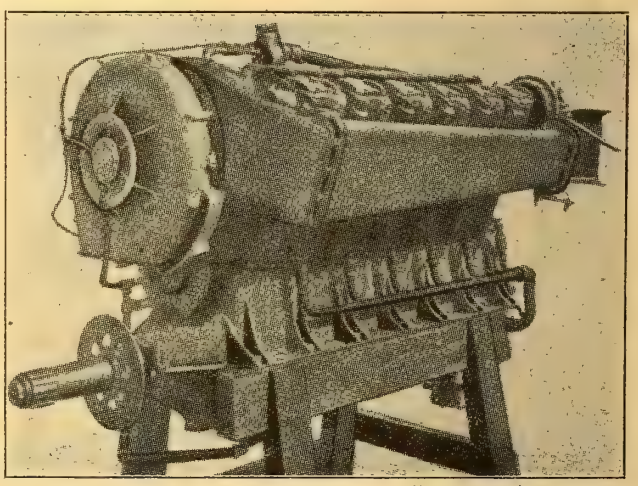


The Turbine Rotor and Impellor of the Sherbondy Supercharger.

The Moss supercharger differs from the Sherbondy mainly in detail.

Fig. 6, which shows the turbine wheel and the impellor, together with part of the compressor casing, shows the general similarity of lay out. In this case the rear shaft-bearing has been water-jacketed to minimise the effects of its close proximity to the exhaust gases, and the casings of the turbine and the compressor are separated to allow air circulation between the two units.

Both the types described above are designed to preserve full air supply to the 400-h.p. Liberty engine up to 20,000 feet.



The Moss Supercharger Fitted to a Liberty 400-h.p. Engine.

A GIANT SEAPLANE.

According to a note in "Engineering," Vickers, Ltd., are at present engaged upon the design of a very large seaplane

This machine is to be, as far as the structure is concerned, entirely of duralumin, and will have a total weight of roughly 50 tons, with a disposable lift for fuel, crew and cargo of 20 tons.

A TRADE MOVE.

Mr. E. C. Newman, for five years connected with the Sopwith Aviation Company, has recently joined the British Aerial Transport Company. Mr. Newman may safely be called one of the pioneers of British aviation, for he started aeroplane work with the Short Bros. in 1908 and was working with the late the Hon. Charles Rolls in Bournemouth when that pioneer pilot was killed. After the death of Mr. Rolls, Mr. Newman went to the Crystal Palace, where he joined the late Mr. Moissant, the American aviator, who had just arrived there from Paris on a two-seater Blériot.

Mr. Newman went to America with Mr. Moissant, and was with him when he was killed at New Orleans. He stayed on in America working with Mr. J. A. D. McCurdy, the pioneer Curtiss pilot, and returned to England in 1912, where he joined the Bristol Company. He worked with them for a considerable time at Brooklands, and he joined the Sopwith firm in 1914, where he has since been concerned with the tuning up and testing of the experimental machines. His long and wide experience of experimental work should be of very great value to Mr. Koolhoven and the B.A.T. Company.

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(*Continued.*)

Engine Weight and Supercharging.

When saying that an engine weighs 2 or 3 lbs. per horse-power it is common practice to use the maximum horse-power the engine can give continuously. In designs as they now exist, this maximum power is usually developed at ground level. The power developed during high flying is less than this maximum and in fact is about half of it at 15,000 feet where the weight per horse-power is 4 to 6 lbs. Attention has been drawn to methods of keeping up the power of the engine, and two main lines of progress show promise. In one of these the design is based on high altitude conditions and the full power development at the ground prevented; in the other a blower is provided which increases the air taken into the cylinder at high altitudes. The exhaust turbine, developed by Rateau for this express purpose, has now reached an advanced stage of development. The weight of the blower and the power necessary to drive it must be offset against the increased power due to greater charges, and although an important reduction of engine weight below 6 lbs. per horse-power at 15,000 feet may be expected, the limit will always be above that quoted for ground level.

Airscrews.

The consideration of airscrew design for supercharged engines brings into prominence a very useful but somewhat accidental balance between the output of power of a non-supercharged engine and the power required to drive the airscrew. Some of the important stresses in an engine arise from centrifugal forces, and for this and other reasons a limit is put by makers to the maximum permissible speed of rotation to the crankshaft. The combination of aeroplane, airscrew and engine with which we are best acquainted goes a very long way towards a natural arrangement for the prevention of excessive speed. The balance is very seriously disturbed if a supercharged engine, which maintains constant horse-power from the ground to 15,000 feet, is used. An idea of the magnitude of the change of speed can be obtained from a simple formula which says that the horse-power for flight in the neighbourhood of normal top speeds varies as ρV^2. For constant power the aeroplane speed and airscrew revolutions will be $\sqrt[3]{2}$ times as great at 15,000 feet as at the ground. This is an increase of 26 per cent. or from 1,400 to 1,760 r.p.m. and would be many times the excess allowed for good running. It will be noticed that the effect of supercharging an engine is to convert a small loss of speed with height into an appreciable gain.

In order to deal successfully with the supercharged engine when it arrives, it will be necessary to abandon fixed airscrew blades and to have a device which admits of the adjustment of pitch during flight. In civil aviation there will be time for the operation by hand of the necessary mechanism. Satisfactory methods of holding wood blades in metal sockets have been developed and it is not improbable that the work of operating the variable pitch mechanism can be thrown onto the engine. There appears to be every reason to think that the difficulties are well within the reach of engineers and will be overcome whenever the demand becomes sufficiently insistent.

A discussion of some importance has been raised by the conflicting requirements of airscrew designers and engine makers. It is apparent from the trend of engine design that crankshaft speeds of 2,500 r.p.m. are contemplated in order to reduce weight per horse-power. On the other side, the airscrew designer finds a loss of efficiency of the airscrew which becomes serious at high speeds and much greater than any gearing losses in the engine. If, for civil flying, it may be anticipated that the engine unit will have a horse-power of about 400, the gearing for a "tramp" aeroplane should bring the airscrew revolutions down to 1,000 or 1,200 r.p.m. If necessary, four-bladed airscrews can now be used, and the slow rotation and large diameter will not only tend to high efficiency but probably also to quieter running.

The use of ungeared engines and large powers was bringing a new feature into airscrew design. Tip speeds of 600 ft. per second are not uncommon even with gearing, and airscrews have been used with tip speeds in excess of 850 f.s. On theoretical grounds it was expected that changes in the type of air flow from an airscrew would appear at about 500 f.s., or roughly half the velocity of sound in air.

The importance of the subject was becoming very great in the closing period of the war and a special design was made at the Royal Aircraft Establishment which could be rotated on a spinning tower at speeds up to nearly 1,200 f.s. The results obtained were very striking, the simplest of observations sufficing to indicate a great departure from the type of flow on which normal airscrew design is based. Standing in the rear of the airscrew, the usual strong breeze was felt at speeds below 900 f.s., but disappeared before the top speed of 1,160 f.s. was reached, leaving a region of comparative calm. The change was noticed more readily on shutting down owing to the suddenness with which the slip-stream made its reappearance. The phenomenon was investigated and it was found that the new type of flow was largely centrifugal, whereas the normal flow resembles that of a jet of rather less diameter than the airscrew. There was no sudden increase in the rate of variation of power with speed, but considerations of momentum suggest that almost the whole of the thrust had disappeared. As an organ of propulsion, the airscrew was probably very inefficient.

An experiment in flight with an airscrew having a tip speed above the velocity of sound has been contemplated, and this is one of the cases in which flight on an aeroplane presents the only available means of progress. It will be a difficult experiment, but is accepted by the experimental pilots because of its value. I should like to add my personal tribute to the courage and skill of the members of the Experimental Staff and Flying Squadron at the Royal Aircraft Establishment. In one instance in particular, loss of life occurred in a very direct attempt to assist in urgent design. An accident of which the cause was particularly obscure had recurred and an investigation was being made. The Royal Aircraft Establishment was approached for assistance and completed a valuable report; when the last records were being taken the aeroplane came to grief by a repetition of the accident which they were investigating. Both pilot and observer lost their lives.

Factors of Safety.

I am not going to deal with the calculations made when estimating the load which an aeroplane can safely bear, but to draw attention to the loads which may come on it due to its motion through the air. A further difference between military and civil flying is shown in the process, and it will be seen that the fighting pilot carried out his work under exciting conditions during which his aeroplane was subjected to severe strain, and in which his physical sensations must have added considerably to those due to the presence of an enemy.

The forces on an aeroplane can be measured by an instrument called an "accelerometer." Although it has a good scientific name it is a very prosaic instrument which measures the heaviness with which a pilot sits on his seat. Ducking the nose of the aeroplane tends to throw the aviator out, and at the moment at which he loses his seat the instrument reads zero. During a loop it may indicate that instead of a real weight of 10 stone, the pilot's apparent weight is 40 stone. His head is then very heavy on his shoulders, and on the one occasion on which I experienced the sensation my head was distinctly unstable, and an incautious movement brought it forward "out of control."

The first record occupied nearly half an hour in the taking, of which about twenty minutes was in the air. The instrument was strapped to the knee of an observer, and at intervals the pilot interposed some of the trick evolutions of flying on the more normal course of the flight. The first clear deduction from the record is the uneventfulness of straight flying, especially at good heights. This is shown by the tendency of the black line to keep about the value 1, so that the pilot and passenger have their usual weight. Flying low down the changes called "bumps" sometimes reduce a pilot's apparent weight to half its ordinary value, and at other times increase it to nearly one and a half times.

Leaving the record of ordinary flight and coming to the "stunts" it was found that on two occasions the pilot was in danger of leaving his seat, and the importance of a belt will be appreciated. Looping and spinning produce heaviness on the whole, the extreme value being nearly three times the normal. A rapid turn almost always increases the apparent weight, and in a mock fight it is very noticeable that the greater number of manœuvres seat the pilot more solidly, and therefore help in the accurate control of the aeroplane's motion. In a few instances and for a few seconds the apparent weight is zero, whilst the extreme in the other direction is as great as four times the normal.

Periods of high stress do not last long, but the air forces have been fully transmitted through the structure, which is then liable in fighting to be loaded to four or five times the load in level flight. Although the conditions of fighting are very exacting, the demand for adequate structural strength has been met with considerable success. It would therefore appear that for civil transport structural design is far advanced towards complete safety.

Controls.

Control is difficult to define in numerical form, especially as the manœuvres are rapid; it takes only a few seconds to get from a level keel to a vertical bank, and the pilot is far too busy to observe a stop watch. At the Royal Aircraft Establishment the idea was formed and developed of photographing one aeroplane from another. The cinema camera used was carried on one aeroplane which flew steadily along a straight level path; the film was driven by a small windmill. Directed towards a second aeroplane flying behind, any motion, such as turning, rolling, or looping, could be photographed. The latest stage of the experiment is to use simultaneously a number of instruments bearing the undignified title of "Rats," which record the movements of the controls during the manœuvre. The scheme will only be outlined this evening as a full description will shortly

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be given by the Royal Aircraft Establishment. Given such a method of investigation, it would be possible, even in a fighting scout, to assess the merits of any particular control in a definite numerical statement, and so lay the foundation for the final design of the best systems.

Relay Control for Large Aeroplanes.

With the exception of a few flying boats, the control of all heavier-than-air craft has been by column or wheel and rudder bar connected by cables to the elevator, ailerons, and rudder. This is a partial relay, as the couples which move the aeroplane come from the air and are far greater than those exercised by the pilot's muscles. An aeroplane of a given size may be light or heavy on its controls, and those designs in which the control is light are greatly appreciated. Forces on a pilot's hand of 1 to 3 lbs. are described as light, 5 to 10 acceptable, and 30 to 40 lbs. heavy. Bigger forces can be taken through the legs from the rudder bar. The largest manually controlled aeroplane weighs twenty times as much as the smallest, and, other things being equal, this would represent the increase in the pilot's effort. A small aeroplane with light control may represent a heavy type of large aeroplane. Some relief can be obtained by the use of an adjustable tail plane, but this is too slow for such operations as landing. In meeting the new problems involved in the control of large aeroplanes, balanced surfaces were introduced, and have sufficed to bridge the present range of size—at any rate for those large aeroplanes which have sufficient stability to fly themselves for the greater part of their time in the air. It might be thought that no limit existed to the possibilities of balancing, but it is found that the conditions required are not the same at all speeds of flight. It is important that the controls shall not "take charge," due to overbalance, and so a small reserve of stability of the control surface is necessary. A more important but less obvious limitation arises from the fact that the atmosphere is gusty, either naturally or because of the airscrews. This gustiness upsets all hope of accurate balance, as the irregular forces on the pilot's limbs lead to discomfort. Some appreciable degree of stability in the controls is thus indicated, and as a corollary it is necessary to look to new ideas. The most promising development is one which assists the pilot in the same way as the steering engine of a ship assists the helmsman. The stage of finality is still distant, but one control has been developed and used for seaplanes which relieves the pilot of three-quarters of the effort required to move the ailerons.

Stability.

The relay control just mentioned only assists the pilot and does not remove the necessity for his constant attention. The human being is a complex mechanism onto which aeronautics throws all its outstanding difficulties, and, although the opinion is probably heretical, I believe that pilots are not anxious to do unnecessary work. At any rate, one of them had the normal human characteristic and fixed a plate in the wind which was to operate the relay control when one wing went down and sideslipping began. He discovered a natural period of the aeroplane. Every six seconds down came the right wing; the control put over the ailerons and brought it up as expected, but overshot the mark, so that "hunting" occurred until the pilot intervened. It is probable that that natural period had never been suspected, just as early aeroplanes were thought to be free from phugoid oscillations.

These natural periods are indicators of stability, and every aeroplane has its own characteristics. Many records are now available from the Royal Aircraft Establishment and some from Martlesham Heath. In a lecture to this society some years ago I had the pleasure of exhibiting a number of small models made to illustrate the mathematical theory of stability. Most of the examples to-night are taken from flight records, and as such are devoid of any theory. It is perhaps necessary to say this clearly, otherwise the distinction might be missed in the exactness of the agreement.

Two pieces of apparatus, one a simple block of wood, will draw attention to the mechanical ideas which in aviation constitute the basis of stability. Everyone knows that a top-heavy body falls over; an aeroplane may have a property exactly analogous to top-heaviness and a tendency to turn over on its back. The wooden block stands steadily on the table until disturbed, when it oscillates and gradually settles back to its initial state. This is one of the noticeable characteristics of the motion of a stable aeroplane. The other way up, the block is stable against a small blow, but it is upset by a larger one and is typical of a limited range of stability. All these motions are familiar. A fourth type is far less common, and the model used to illustrate it is correspondingly uncommon. If I spin the gyro and set the apparatus in a vertical position, it will oscillate slowly, the amplitude getting greater and greater until the apparatus falls over. This is the condition known to engineers as hunting. I propose to show a record taken on an aeroplane which hunted.

Stable Aeroplane.

The figure (not reproduced) shows a speed record taken by an automatic apparatus attached to an aeroplane. A special clutch was provided, by means of which the control column could be locked; the record begins with the aeroplane flying at 62 m.p.h. and the lock just put into operation. As the steady speed for the control position was 73 m.p.h., the aeroplane, being stable, commenced to dive and gain speed. Overshooting the mark, it passes 83 m.p.h. before again turning upwards; there is a very obvious dying down of the oscillation, and in a few minutes the motion would have become steady. The record shows that after a big bump the aeroplane controlled itself for more than two miles without any sign of danger.

Unstable Aeroplane.

The next record is very different, and not so easily obtained, since no pilot cares to let an unstable aeroplane attend to itself. No lock was provided, but by gently nursing the motion it was found possible to get to a steady flying speed with the control column against a stop. Once there, the pilot held it as long as he cared to, and the clock said that this was less than a minute. After a few seconds the nose of the aeroplane began to go up, loss of speed resulted, and stalling occurred. Dropping its nose rapidly, the aeroplane began to gather speed and get into a vertical dive, but at 80 m.p.h. the pilot again took control and resumed ordinary flight.

Further Records.

As an aeroplane may be flown at different speeds, it is necessary to examine the effect of speed on stability, and the next record shows good stability for a modern aeroplane at speeds of 83 m.p.h. to 111 m.p.h. and for conditions more onerous than those of a locked control column. The records were taken by the equivalent of a pinhole camera carried by the aeroplane and directed towards the sun. The pilot started the record by putting the nose of the aeroplane down and then abandoning the control column. Big oscillations were produced which died down with considerable rapidity. All records show marked damping, and without measurement it is difficult to detect any effect of speed. In another record, which is uncommonly interesting, the effect of speed is obvious. The upper diagram shows that at a speed of 100 m.p.h. and a height of 10,000 ft., the aeroplane is satisfactorily stable. During one period the pilot did his best to fly level, whilst for another the aeroplane was left to its own devices and proved to be a good competitor to the pilot. At a speed of 90 m.p.h. at 1,000 ft. the oscillation died down for the few first periods and then became steady. The stability in this condition was very small indeed, and a reduction of speed to 70 m.p.h. was sufficient to produce hunting.

The oscillations so observed are calculable, and the effect of gusts in a natural wind are readily deduced from the oscillations observed in still air. It is to be hoped that the stability of the aeroplane will now receive the attention which has in the past been devoted to performance, and has led to a British literature unparelleled in any other country in the world. It is easy to make an unstable aeroplane; it is not difficult to make a very stable aeroplane. On the other hand it needs considerable care to give an aeroplane a desired degree of stability.

Once it is conceded in the necessary official quarters that the study of stability is important, there will be no difficulty in beginning the progressive collection of data, but if this work is to proceed satisfactorily it is necessary that an appreciable part of the time of the staff of the National Physical Laboratory and the Royal Aircraft Establishment shall be continuously devoted to it. Incomparably more laborious than that relating to performance, it is work which can only be broken into at frequent intervals at a cost of serious loss of time and accuracy, and in the days to come, when the number of aeronautical engineers with mathematical knowledge is sufficient for the needs of the industry, this data will be fundamental stock-in-trade. The immediate needs of the industry have much support, but a policy of looking two or three years ahead has fewer advocates, in spite of the fact that such provision is necessary if Britain is to keep her lead in the air.

LONGITUDINAL STABILITY.

The following letter has been received:—

Sir,—I have noted from your recent issues some articles by C. W. Tinson on the subject of longitudinal stability; these articles are very misleading, and contain considerable inaccuracies.

It is impossible to discuss the subject fully in a letter, but Mr. Tinson's error is most noticeable in his last article, where he shows the conditions in a terminal nose-dive, omitting the main plane moment, which is of considerable magnitude, even at the angle of no lift. The conditions he works out for the resistance weight and tail plane couples could not, of course, produce equilibrium.

I do not know if Mr. Tinson has access to official publications, but if he has, I would refer him to Confidential Information Memorandum No. 22, which was published by the Admiralty in February, 1917. This covers the conditions of loads on tails in high-speed flight, particularly the conditions for a terminal nose-dive.

It may be of assistance in reading this C.I.M. to note that coefficient Kq used therein is the same as the Km of present-day use, and that the value of Q (i.e., $KqpAv^2$) is negative in a nose-dive.

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MARKET TOPICS.

PRICES ARE FOR QUANTITIES ON USUAL TERMS.

JUNE 26th, 1919.

COPPER.—This market has, during the past week, been very active, and prices have made a fairly substantial advance. It has been pointed out on two or three occasions recently in these reports that immediately the demand for Copper revives values would begin to harden; the present advance, however, appears to be a little premature, as consumers are not making heavy purchases, and the present prices are undoubtedly due to American movements.

Consumers are, of course, showing much more interest in the market, and there are good signs of improvement. The situation at present calls for great care and watchfulness, as the high level of values has made the market a little sensitive. English B.S. Ingots are scarce, and prices are very high. Strong Sheets have also advanced during the last 10 days from £114 to £121 per ton.

COMPARATIVE PRICES.

	Per Ton. £ s. d.
To-day, June 25th	87 5 0
Last week	84 0 0
Last month	79 7 6
Average price, 1918	115 10 0

TIN.—At the present time prices are steady, but the demand from consumers is not large, and the market is being influenced by the lifting of the embargo on imports into U.S.A., and the expected signing of the Peace this week-end.

It should be pointed out that although the American embargo will be lifted on June 30th it is not expected that permission will be given for the importation of Tin before the end of July.

It is reported that Eastern Tin has recently been sold at prices below the London market. The future of the market is uncertain, but it is not expected that there will be a serious rise.

COMPARATIVE PRICES.

	Per Ton. £ s. d.
To-day, June 25th	242 10 0
Last week	243 0 0
Last month	245 7 0
Average price, 1918	329 10 0

LEAD.—This market is in a weak condition, and buyers are afraid to buy far ahead, their action being due, primarily, to the huge stocks which the Government still hold, the approximate quantity being 120,000 tons. There is no guarantee that the Ministry of Munitions may not suddenly decide to turn the metal into cash, even if it is sold at a price less than the present market value; it is, in fact, known that they have recently accepted a special price of £23 per ton for a large quantity.

This kind of thing will certainly not encourage confidence; on the other hand, it has already damped the little interest which was being shown by consumers. Yesterday prices were £22 5s. net.

STEEL.—This market is still in a state of uncertainty, uncertainty of labour, hours, costs, prices. At the present time the Teeside Steel works are on strike for a 44-hour week. The outlook is very perplexing and obscure, and Steelmakers are faced with very severe competition from U.S.A.; also reports are continually being received of large orders being secured by American firms in foreign and Colonial markets.

The market, of course, is in a very unsettled position; buyers cannot obtain firm prices, and rather than cover their future requirements at an indefinite price prefer to live hand-to-mouth.

TIMBER.—Consumers continue to show interest in this market, although there is a feeling of uncertainty, which is probably due to the freight question and the apparent shortage of certain classes of Timber. Timber merchants have now combined with the object of forcing down the present shipping rates, and the action they have taken should certainly result in the rates being reduced.

There is a serious shortage of Aeroplane Spruce, and constructors should watch their stocks very carefully indeed, as there are no signs of supplies coming forward at present. There must, of course, be large quantities on the other side. There is a very strong demand for Hard Woods, but very little Timber is arriving recently; consequently, prices are hardening, and there are no indications that they will decline to the low level which they have reached since the Armistice was signed.

A very serious fire occurred in Manchester recently, and it was estimated that over 1,000 standards of Timber were destroyed, including some very valuable stocks of Hard Woods. This is very serious, indeed, as the shortage of Timber is likely to become acute, if the expected demand is realised. It should be pointed out that the whole of the Timber destroyed was Government stocks, and it is understood that every stick could have been disposed of a short time ago, if the Government prices had only been reduced a little.

FABRIC.—As stated last week, the whole of the Aeroplane Linen held by the Government, has been sold to Mr. Martin, and it transpires that the price is in the vicinity of the figures indicated in the last issue, viz., 1s. 8d. per lineal yard. It is also reported that Mr. Martin proposes to sell the Fabric at 2s. per lineal yard.

This is quite a reasonable price, and even if Aeroplane constructors are proposing to use cotton fabric on their commercial machines, it is not expected they will be able to purchase supplies at anything approaching this figure. The quality of some of the linen fabric is very poor, indeed, and intending buyers should be very careful before making purchases.

Although the Ministry are complimenting themselves on having effected a good deal in the interests of the taxpayers, it should be noted that they have omitted to point out that the Fabric must have actually cost the Government 2s. 9d. per lineal yard, and the actual loss between the price paid and the price obtained from Mr. Martin must be just over £2,000,000.

It is not, of course, inferred that the Government could have disposed of the Fabric at the price which was paid; at the same time, the price obtained is not very handsome, and taking all things into consideration, the Ministry should not consider themselves entitled to any compliments.

THE PLACE FOR PRESENTATION PLATE.

So many people connected with aviation have had dealings one way or another with the Goldsmiths and Silversmiths Company, Limited, that it is probably of general interest to the readers of this paper to know that the Swords of Honour presented by the City of London with the Freedom of the City to Admiral Sir David Beatty and Field Marshal Sir Douglas Haig at the Guildhall on June 12th were designed and manufactured by the said Goldsmiths and Silversmiths Company.

Probably of considerably more interest to the aeronautical community is the fact that the aforesaid firm are still specialising on making silver models of various types of aircraft for presentation purposes. During a recent visit to the firm's shop in Regent Street one noticed some extraordinarily fine examples of such models. There was one large and very perfect B.E.2b; another of the ancient Grahame-White biplane known as "Lizzie," which had been built to the order of the father of a flying officer who had learnt to fly on that particular machine. There were two small and very pretty specimens of Vickers' Fighters, and a beautiful little model of an early R.E.8 which had been presented to the Hon. Mrs. Dawnay, of Hillington Hall, by sundry grateful flying officers who had the good fortune to be sent to Hillington when Mrs. Dawnay was running it as an R.F.C. hospital. This particular model had been damaged in an accident, and had just been rebuilt by the Goldsmiths and Silversmiths Company.

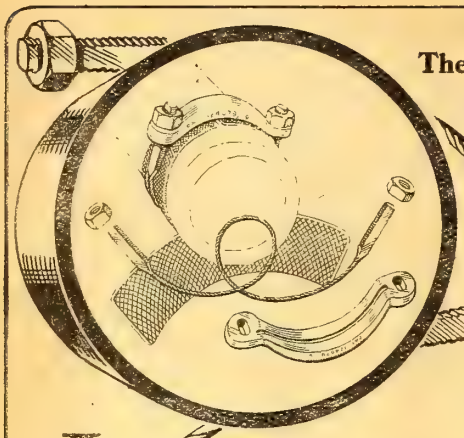
These little models do in fact make very much more suitable presentations to people concerned with aircraft than do the ordinary conventional silver cups and such things.

TRANSATLANTIC LUBRICATION.

The Rolls-Royce engines of Capt. Sir John Alcock's Vickers "Vimy" machine upon which the Atlantic flight was made were—as in customary with these engines—lubricated with "Castrol R." and Messrs Wakefield have received from Sir John Alcock a telegram testifying to the excellent qualities of that brand of oil.

B.T.H. MAGNETOS.

It is worthy of note that the Napier "Lion" engine of the DeH. machine upon which Capt. Gathergood finished first in the Aerial Derby was equipped with B.T.H. magnetos, designed and manufactured by the British Thomson-Houston Co., Ltd., of Rugby.



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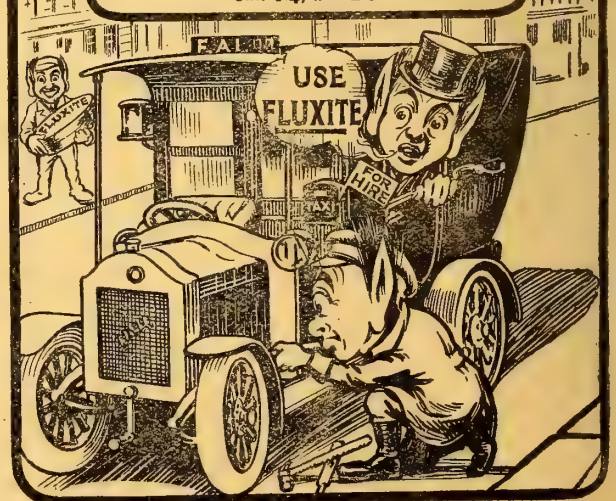

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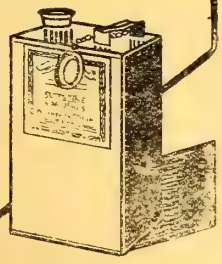

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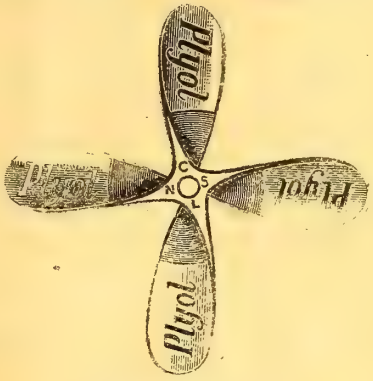

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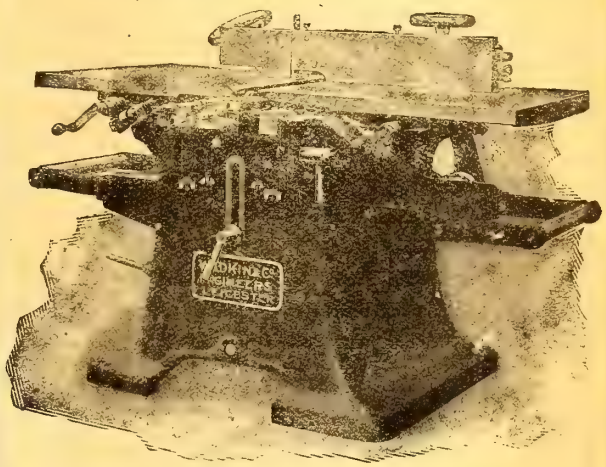

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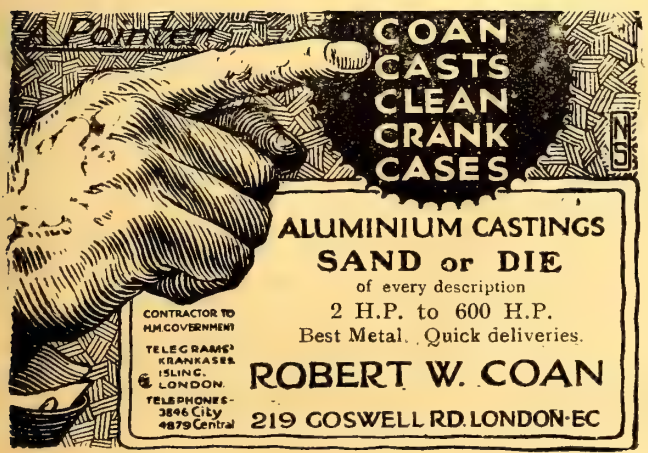

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A REAL "LONDON" AERODROME.

BY "MEDWAY."

The comments recently published in THE AEROPLANE on the subject of the programme and conduct of the Whitsun meetings at Hendon give rise to the consideration of a question of really great importance. Ought we to have within easy reach of London a concern that could really deserve the name of the London Aerodrome, run on truly educational lines for the ultimate purpose of encouraging civil and commercial aviation in general and without any bias towards any particular private interest?

Personally, I am a great believer in publicity, provided it is properly organised. Nowadays no industry or movement, however great, need regard direct publicity as something rather beneath its dignity. A good many years have passed since the present Prime Minister pressed his fourpenny pup on a somewhat reluctant public by advertising a catch-phrase intended to convince everybody that the animal was worth at least ninepence. During the war the works of great artists have been more or less prostituted in order to increase the strength of official appeals to the public to practise economy and finance wilful waste. Patriotism has been inculcated by advertisement. Advertisement exercised a moral force in favour of enlistment, more effective upon many natures than the physical force of the Compulsory Service Act—"What did you do in the Great War, Daddy?"

We have also, as a nation, announced on public posters and public platforms our deep affection for any and all of our Allies, particularly upon occasions when the real public sentiment was, to put it mildly, lukewarm. The natural instinct of the primitive man is to dislike anybody who does him a service. As somebody remarked when a former friend cut him in the street, "I don't know what I have done to annoy him; he doesn't owe me a penny."

TEXTS AS ADVERTISEMENTS.

In short, advertisement nowadays is not merely ubiquitous but universal. Even texts from the Bible are inserted as advertisements in the agony columns of the "Times," if not by the Deity himself, at least by those who believe themselves to be very closely associated with His views and objects.

The possession of a real London aerodrome, properly run for the one and only object of serving as an advertisement for civil and commercial aviation, would be an enormous asset to the movement, and I believe the receipts would be so good that the advertisement would cost less than nothing. This advertisement would begin and end with the programme. The printed programme itself, instead of telling us how Mr. So-and-So was getting on as a motor agent, would contain varied quotations from recognised authorities rubbing in the practical use of aeronautics and at the same time discouraging wild hopes calculated to lead to wild speculation and even wilder execrations when the inevitable result subsequently occurred.

A FUNNY COLOURED INDUCEMENT.

The programme, in the proper sense—that is to say, the programme of events—would, of course, be the biggest advertisement of all. As already suggested in the columns of this paper, every manufacturer and every pilot of an interesting machine should be positively encouraged to take part. Each machine would not be merely indicated by name, but would be described and its capabilities briefly outlined. Only a good effect could be produced on the business man with some capital to be invested if he could be told on decent authority that such and such a machine would carry so many passengers over stages of so many miles with a total operating cost of so much a mile, allowing such and such a rate per mile for depreciation. With this information he would regard the machine, not as a funny coloured inducement to waste an afternoon, but as a possible money-maker in which he could take a serious interest.

BORED WITH JOY.

The movement cannot make an indefinite living simply out of joy-rides. These form a good stop-gap until really permanent propositions mature, but sooner or later the novelty will wear thin. At least half the joy-riders go up solely for the sake of being able to say that they have done it. Many will not trouble to do it twice, except for some definite purpose connected with serious business. Many of those who are quite keen at first will get bored after a few trips. The joy-ride will remain for some time as a section of the business, but it cannot be permanently the backbone of it.

The London aerodrome should be a place at which the seeker after information will meet the man who can give it him, and at which the seeker after pleasure will be given information in a palatable form. The secret of good propaganda is to inculcate ideas that lead to business and at the same time to make people think that those ideas have arisen spontaneously out of their own superlative intelligence.

I should like to see Hendon taken over as an official demonstration ground, either controlled by the Air Ministry or else by, let us say, a Joint Committee of the Royal Aero Club and the Society of British Aircraft Constructors. In the early stages we certainly want to encourage the joy-ride habit, because every man who goes up will talk about it, and, as he talks, will become more and more convinced that the whole thing is quite simple and safe. The joy-ride, however, should not be an end in itself, but only a means to an end, and this end should not be profit of any single firm, whether that firm is mainly concerned with the manufacture of aeroplanes or with the retailing of motor-cars.

It is very easy to get a sound movement discredited by bad handling, or by handling which indicates that a personal profit is the main consideration. We want a broader outlook than this, and I hope we may get it at Hendon. If not, it seems to me we must establish a really good London aerodrome at some other point which must be carefully selected as being easily accessible and situated in pleasant surroundings.

MORE FICTITIOUS FIGURES ON FLYING.

By "BLUE ENSIGN."

"Engineer Officer's" "Fictitious Figures on Flying" are almost as dangerous to aviation as the estimates he decries. Based on his experience they may be accurate, but the writer, who had the honour to serve with the first R.N.A.S. Handley Page Squadron on the Belgian Coast, proposes to point out certain underlying fallacies, and submit an estimate based on actual working knowledge of large aircraft, the efficiency of which, under proper organisation, can be very much higher than is commonly supposed.

The two most serious errors are the selection of an excessive stage run of 500 miles and the small amount of work got out of the plant employed.

Examination of probable air routes shows that stages of 500 miles are rarely necessary or desirable, towns of sufficient size to be used as ports of call generally lying close together; further, a run of five hours' continuous flying is a considerable strain on a pilot, especially in hard weather. A run of 250 miles will reduce the chances of unavoidable crashes and increase the paying load carried by the machines. It may be pointed out that very few runs in excess of 250 miles are made by express trains simply to ease the strain on the engine crew.

"Engineer Officer" says little of his type of machine, but, from his cost figures, it appears reasonable to assume the following :—

Speed, 115 m.p.h.; loadings, 16.2 lbs./h.p., 9.6 lbs./sq. ft.; total weight, 16,200 lbs.; structure at 30 per cent. of total, 4,860 lbs.; engines, four at 250 h.p., at 3.9 lbs. per h.p. installed, 3,900 lbs.; fuel, three hours' full power at 0.5 lbs. per h.p., 1,500 lbs.; oil, four hours' full power at 1 gallon per h.p. engine hour, 160 lbs.; tankage at 10 per cent. of fuel, 166 lbs.; crew of two men and gear, say, 500 lbs.; weight of machine, less paying load, 11,086 lbs.; maximum possible paying load, 5,114 lbs.

Allowing for bulkage and incomplete loads 2.0 tons = 4,480 lbs., appears to be a reasonable estimate.

The writer has seen aircraft worked at an average flying time of 30 hours per month, or 360 hours per year, and is convinced that 1,000 hours per annum can be easily obtained and exceeded in commercial practice; but the question of ease of operation must be kept in view during design; it is no exaggeration to say that at present it is absolutely disregarded.

For the purpose of this article it is sufficient to note that the modern aeroplane, apart from its engine, is a very reliable piece of machinery, and is only responsible mechanically for about 10 per cent. of the failures to undertake or complete a flight, the remaining failures being due to engines. By designing the engine and its installation as a self-contained unit which can be changed in some three or four minutes, an efficiency far ahead of anything at present attained can be reached. Nor does the adoption of such a unit construction present any great difficulty.

"Engineer Officer" makes no allowance for the reduced wear and tear of commercial as compared with War service. Well cared for a machine should last from two to three years, an average life of two years, with an overhaul every six months, should enable a company to maintain its aircraft in excellent order.

The cost of a machine per hour then becomes :—

Cost of aeroplane (new)	£10,000
Four overhauls, at £1,500 each	6,000
Scrap value	2,000
Cost per annum per machine	7,000

The cost of engines per hour of flight is the most serious question aviation has to face. The best types of modern aero motors cannot be trusted to average more than 80 hours between overhauls, and after two such overhauls will require extensive replacements.

Further, the load carried by a machine depends greatly on its propeller efficiency, and a total life of 100 hours at maximum efficiency is not likely to be exceeded.

ENGINE COSTS.

	£	Hours run.
Cost of 250 h.p. motor (new) at £5 per h.p.	1,250	80
Cost of first overhaul	150	80
Cost of second overhaul	250	80
Cost of third overhaul, including replacements	800	80
Cost of fourth overhaul	150	80
Cost of fifth overhaul	250	80
	2,850	480
Less scrap value of engine	200	
	£2,650	

FUEL COSTS.

Petrol, 17½ gallons per hour, 8,400 at 2s. 6d., £1,050; oil, 1 gallon per hour, 480 at 5s., £120; total fuel, £1,170; propellers at £40 each, £200; total cost of 250 h.p. for 480 hours, £4,020; cost per h.p. hour, 8s. 4d.; cost per engine hour, £8 4s.; cost per machine hour, £33 6s.

It will be necessary to maintain in store some 100 engines for every 100 actually in machines, but apart from the cost of housing and attention, these do not represent any expenditure on the part of the company so far as cost per machine per engine hour is concerned; to make some allowance for them, however, this cost will be taken at £40 per hour in lieu of £33 6s.

The number of flying days per year must depend on the countries in which the service is worked; to avoid undue optimism 250 is taken as a figure. It will become much higher in time, but, as the rate of development cannot be foretold, a low estimate is advisable.

A satisfactory organisation must obtain the maximum amount of flying from each machine, also, because the one superiority of air transport is speed, the minimum delay at each stopping-place. This should not exceed 15 minutes either for refuelling the machine or changing load. Also, a machine should be capable of flying for 10 hours between examination of the machine.

Supposing a route 5,000 miles long, containing five main stages of 1,000 miles, each of which in turn is divided by refuelling depots into 250-mile stages, it should be possible to run a daily service each way with four machines at each main depot, two on duty, one stand by, and one under overhaul. The four machines between them do 5,000 hours' flying per annum corresponding to 1,250 hours per machine.

The organisation of the route then becomes six main depots at 1,000 mile intervals; 15 sub depots at 250 mile intervals; four machines at each main depot, or 24 machines in all; time for trip, flying at 100 m.p.h., 50 hours; 19 stops at 15 minutes each, 4.25 hours; total, 54.25 hours; total number of trips per annum, 500; hours flown per annum, 25,000; ton miles flown per annum, 25,000, by 100 by 2 = 5,000,000 ton miles.

COST OF WORKING SERVICE

	£
Machines—24 at £7,000 each	168,000
Engines, 25,000 hours at £40 per hour	1,000,000
Pilots, four per short stage and 50 per cent. in reserve, 120, at £500 per annum	60,000
Main depots, six, at £15,000 per annum each	90,000
Sub depots, 15, at £5,000 per annum each	75,000
Insurance	say 150,000
Offices, 10 sets, at £3,000	30,000
Hands, 80 per main depot, at £250 per annum each	120,000
Hands, 20 per sub depot, at £250 = 15 by 5,000	75,000
Cars, 20 per depot	42,000
Total	£1,819,000

Increasing this by 20 per cent. in view of the roughness of the estimate total cost is, say, £2,200,000. Cost per ton mile to company, £0.44, about 8s. 10½d. Allowing 30 per cent. profit on above charge per ton mile becomes £0.57 = 11s. 5d.

Cost of passenger tickets per mile, taking one man and gear at 200 lbs., is £0.051 = 1s. 2½d., a good deal less than special train.

London to Liverpool is about 200 miles, representing a ticket cost of £10 2s., say, £17 10s. return.

The cost of speed is always high, and for a service timed at 80 miles per hour in place of 100, the load carried per horse-power, the determining factor of all transport costs, can probably be increased from the 16.2 lbs., assumed, to some 22 lbs.; of this, 1.44 will be absorbed in structure, and 0.5 lbs. in extra fuel, leaving 2.86 lbs. per h.p. extra to go in to paying load. In the machine considered this would increase the load to 7,974 lbs., say, a working load of 3.2 tons, bringing down the cost per ton mile £0.275 and £0.358 = 7s. 2½d., and per passenger mile to £0.032, about 8d.

The most striking feature in the foregoing figures is the cost of engines, a factor that the future will see reduced. The writer is of opinion that his estimate is on the high side, but it is not of the 4s. 6d. a mile for a car order to which "Engineer Officer's" calculations are comparable.

A MODEL-MAKING COMPETITION.

The judging in the above competition, inaugurated by Messrs. Thos. Parsons and Sons, took place at the Exhibition of Famous War Models, 315-317, Oxford Street, on June 3rd.

H.M. Queen Alexandra has graciously consented to accept the First Prize Model in the Senior Section of the Competition, and H.R.H. the Prince of Wales the First in the Junior Section.

The winner of the First Prize of £60 in the Senior Section is Mr. L. F. Rudd, 2, Upper Grange Road, Bermondsey, S.E., with a model of H.M.S. "Princess Royal."

The winner of the First Prize of £25 in the Junior Section is Mr. J. R. Baker, aged 16 years, 9, Whitfield Street, Tottenham Court Road, W.1, with a model of a Handley Page aeroplane.

The prizes in this competition, generously given by Messrs. Thos. Parsons and Sons, amount to £170. Their Exhibition of War Models to aid disabled sailors and soldiers has been a great success—over £10,700 being handed to the War Seal Foundation.

Air Records

When famous pilots like Fonck, Casale, Sadi-Lecointe and France insist on having Lumiere propellers for their record making machines there is a very good reason.

Fonck—29 530 feet

He is going to attempt a climb to over 10,500 metres. Lumiere propeller.

Casale—30,510 feet

Climbed in 41 mins. on May 28th with a 300 h.p. Nieuport 29, and raised the world's record to nearly 10,000 metres with the same machine on June 7th. Lumiere propeller.

Sadi-Lecointe—29,200 feet

Flying a 500 h.p. Spad made the previous record on May 19th, also used a Lumiere propeller.

British Machines

Fitted with British Lumiere propellers could win the world's speed and height records. Try one. Test propellers can be supplied at once.

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AEROPLANES—SECONDHAND.

6 Blackburn "Kangaroos," fitted with "Falcon" 250 H.P. Rolls-Royce Engines.

15 Bristol Monoplanes, complete with 110 H.P. Le Rhone Engines.

AEROPLANES—NEW.

20 Martinsyde F.3. Machines, less engines.

Tenders are invited for the above, returnable on or before July 14th. Forms from Controller.

PROPELLERS.

New Propellers made for engines that are now obsolete—in mahogany or walnut.

Four Bladed	-	30/-
Two Bladed	-	25/-

To be sold singly or in quantities, and arrangements can be made for delivery.

Any further particulars may be obtained from the Controller,

AIRCRAFT DISPOSAL DEPARTMENT,
YORK HOUSE,
KINGSWAY, E.C.2.

POWER ALCOHOL AND AERIAL TRANSPORT.

By "MEDWAY."

I have always been adequately impressed with the value and importance of alcohol as a commodity, but my opinion of the particular brand known as "power alcohol" has risen still higher on reading the report of the Inter-Departmental Committee appointed last autumn to consider the subject. The name "power alcohol" is given to a spirit containing 95 per cent. of pure alcohol in order to distinguish it from "powerless alcohol" commonly known as "war whisky." The stronger stuff used to be called "industrial alcohol," but this name has been given up because some of the more strenuous representatives of labour, not realising the true significance of the term, decided in their own minds that industrial alcohol must be something even worse than war whisky, specially produced by the bloated capitalist for the nefarious purpose of poisoning the honest working man of the industrial class

However, enough of names. We must get on to facts. This committee that has now reported has come to some very definite conclusions, and, as the committee itself consisted mainly of Government officials, it may be that the Government will consider its views worthy of casual perusal before being finally pigeon-holed. The committee, many members of which started with no knowledge whatever of the subject, has come to the unanimous conclusion that power alcohol is, or could be, very valuable for fuel purposes, and that consequently a permanent body with funds, powers, and staff should be set up by the Government to get ahead with the preliminary work.

Sampling the Alcohol.

This permanent body will no doubt sample all the available brands, after which its view of the question should be rosy-hued if indistinct. It will at least be convinced that it is high time to abolish any customs and excise restrictions which make alcohol unnecessarily expensive or cause it to be denatured with nasty stuff that completely spoils the taste. The present denaturant is wood spirit. Among the suggested alternatives are formaldehyde, pyridine, and tobacco oil. The last may find favour with habitual chewers, but none of the three are commonly used in any large quantities in the more popular liqueurs. I believe there are plenty of Irishmen who will drink methylated spirits. There are certainly coloured races who have a great taste for axle grease, so altogether the problem of rendering power alcohol unfit for human consumption without being positively poisonous is a fairly tough one.

On the staff of the permanent body there will be no great rush for the job of the gentleman who is to decide whether the denatured mixtures are absolutely undrinkable or entirely poisonous. The nation will, however, doubtless hold in honoured memory those who die for the cause.

The next important point in the Report will come as a blow to those of my readers who do not possess aeroplanes. There is no likelihood of any really large quantity of power alcohol being produced in this country from home sources (groans and curses). A paltry hundred million gallons per annum may be got by the synthetic conversion of alcohol from ethylene extracted from coal or coke oven gases. There is very little hope for potato spirit, because the potato has not enough strength to produce more than about 20 gallons of alcohol per ton, and consequently the price would be about the same as that of the worst brandy, the fiery temper of which makes it dangerous to dispute its claim to having been born in 1865.

Power from Trees and Flowers.

The committee tells us that we shall get our power alcohol from tropical and sub-tropical countries, mainly from molasses, maize, and other cereals, and certain trees, flowers, and shrubs. For instance, the flower of the mahua tree which grows in Hyderabad can be collected and delivered to a distillery near by at a cost of 30s. per ton, from which 90 gallons of power alcohol can be distilled. There is no reason why the cost of the raw material should be any higher if we depend on maize or other grains grown in the right places and tended by cheap labour.

It is not seriously suggested that we should set about redesigning all our engines to use alcohol neat. The idea is rather to employ alcohol mixtures in existing engines. Alcohol-benzol about half and half will give about the same power and consumption as petrol, but might be troublesome for starting in cold weather. Alcohol-ether is a likely mixture for aerial use. The ether is obtained from the same materials as the alcohol and in the same distillery, and does not add much to the cost. It is thoroughly volatile, and there ought to be nothing against this fuel as a standard for our Imperial air routes.

Now we come to the real beauty of the whole position. I suggest seriously that the air routes ought to be outlined so that the intermediate landing grounds are in the majority of cases placed where alcohol crops can be grown extensively and cheaply. The aeroplanes would start off from England with supplies of synthetic alcohol. At points on the way they would pick up fresh supplies of alcohol distilled locally, the cost of which would be extremely low, because there would be nothing to pay for freight or distribution.

Food for Land, or Pigs.

The distillery would be next door to the aerodrome. The method of cultivation would no doubt involve the rotation of crops, so that the districts would become self-supporting in the matter of food. Personally I know nothing whatever about the rotation of crops, but I hazard the above statement for what it is worth. I believe also that the waste stuff from the distilleries makes very good food either for land or for pigs, I forget which. In either case the ultimate result is much the same. Anyhow, the crops would rotate all the time, and not merely after the consumption of the alcohol.

My distillery-aerodromes would, I feel sure, be extremely popular. Things would go swimmingly. There would be a big tap for filling the tank and a small tap for filling the pilot, and the gentleman inside the distillery would have been induced by monetary considerations to forget to put the denaturant into the stuff that came out of the small tap. This would be an obvious precaution. The life of the pilot working the Imperial air routes would be a short but a merry one. His cargo including films of interesting topical events, he would have a thoroughly up-to-date cinema show to attend in the evenings. The district would soon become a populous one. There are lots of people who would invent reasons for living in it. Besides, it would be within a few hours of London or Melbourne, or both, and there would be a mail service every couple of hours or so. In fact, it would possess overwhelming attractions as a week-end resort.

Earl Alcohol of Ether.

Altogether, if my readers will take the trouble to extract the pure spirit from the mash in this article, I think some at least of them will agree that I have really got on to a great idea and one that will lead to the development of what are at present very remote and unprofitable districts in the British Empire. When the first chain of alcohol distilleries is complete I hope that a free passage along the route will be given to the originator, formerly unknown as "Medway." I look forward to the day when his reply to the toast of "The World's Benefactor" will be received with loud and prolonged cheers—(Hic! hic Hurr—upp!)—during which the recently created Earl Alcohol of Ether will sink modestly into his chair.

COMMERCIAL AVIATION LANDING GROUNDS.

"Automotive Industries" of June 12th publishes the reports made by American Army Aircraft officials on the considerations entering into the location and design of landing grounds for commercial aviation.

Because of the thinner atmosphere in districts located at relatively high altitudes it is necessary to make the landing grounds in such districts of greater length, since the machine will require a longer run before it will gain flying speed and be able to leave the ground.

The U.S.A. War Department has developed a formula from which it is found that at 1,000 ft. altitude a square field with a 600 yd. side is required, whilst at 500 ft. 1,800 yds. is required.

The height of the surrounding country, the character of the soil and the prevailing winds are other important considerations. The point of landing must be at least 1,200 ft. from an obstacle 100 ft. high, and 500 ft. from an obstacle of 60 ft. Large concrete crosses or circles are being used by the Army to mark the fields, so that they can be seen distinctly from a great height.

Hangars should be placed to bear the brunt of the prevailing winds, and act as a protection to the ground and the aeroplanes landing on it.

A GARDEN PARTY.

The chairman and directors of Vickers, Limited, gave a garden party on June 24th at Edgwarebury House, Elstree, the residence of Sir Trevor Dawson, in honour of Captain Sir John Alcock, K.B.E., D.S.C., R.A.F., and Lieutenant Sir A. Whitten Brown, K.B.E.

Many guests brought their autograph books, which kept the aviators busy until tea time. A Royal Artillery band played during the afternoon.

HONOURABLE MENTION.

It is interesting to note that the Vickers "Vimy" (Rolls-Royce) machine in which Capt. Sir John Alcock, K.B.E., D.S.C., and Lieut. Sir Arthur Whitten Brown, K.B.E., made the trans-Atlantic flight were fitted with Lang airscrews.

THE INFLUENCE OF THE AERO ENGINE.

As a result of the alliance of the Siddeley-Deasy Motor Car Co., Ltd., with Sir W. G. Armstrong Whitworth and Co., Lt., the Armstrong-Siddeley car has been introduced with a six-cylinder engine based on the Siddeley aircraft engines with overhead valves and embodying the use of aluminium. The well-equipped chassis is priced at £660.

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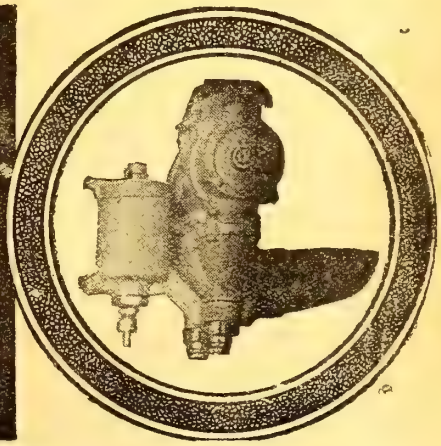

CIVIL AERIAL TRANSPORT NOTES.

United Kingdom.

HENDON-DUBLIN AND BACK.

On Wednesday, June 25th, Captain Gathergood, of Aircraft Transport and Travel, Ltd., left Hendon at 2.30 p.m. with an Airco 9 machine to take Mr. Gordon Selfridge on a business trip to Dublin.

In spite of a head wind and low clouds in the Irish Channel, Baldonnel aerodrome, Dublin, was reached without incident at 6.30 p.m., including half-an-hour's stop at North Shotwick for tea and weather reports. The return journey was accomplished on Friday, June 27th. Leaving Dublin at four o'clock, Captain Gathergood landed at Shotwick at 5.15 p.m., and after waiting half-an-hour for weather reports, Hendon was reached at 7.15 p.m. Thus the return journey from Dublin to Hendon was accomplished in 2¾ hours' actual flying time.

Very severe weather was encountered on the North Coast of Wales, which necessitated a detour round the coast at about 200 ft., but after leaving Shotwick beautiful weather was encountered and the trip was entirely without incident.

When it is remembered that the distance is about 320 miles, the journey can be considered as a good example of modern high-speed aerial transport.

AVRO FLYING.

A honeymoon journey by aeroplane was chosen by a bride and bridegroom at Chorley Wood, Bucks, on June 26th. On a space immediately in front of the parish church where the wedding took place, an Avro limousine three-seater was waiting, with a silver horseshoe attached to the undercarriage, and after the ceremony and reception the couple took their seats in the machine and started their journey to Fowey, Cornwall, where the honeymoon is to be spent. They arrived at Fowey at 8 p.m.

The bride was Miss Nora Standen, granddaughter of Mrs. Macnamara, of Chorley Wood Lodge, and her husband, Mr. R. Hamilton, of the Indian Civil Service.

Return flights to Folkestone, St. Albans, and on Sunday, June 22nd, to Whitley Camp—two officers wishing to remain in London for Peace Celebrations on Saturday night, and who had to be on Church Parade at Whitley at 10.45 a.m. on Sunday, were able to do this with the aid of an Avro.

A remarkable feat was performed during the week. An American officer, due to return to Germany on Sunday morning received his first dual instruction on an Avro on Tuesday afternoon, and made his first solo flight on one of the ordinary passenger-carrying Avros after only five hours' dual control. The certainty and accuracy with which he flew showed great credit to his instructor, Mr. H. R. Hastings, A.F.C.

The Avro Limousine is doing daily trips over London, the feature of the machine being that women can wear their ordinary hats.

The Aerodrome at Brighton has now been sanctioned, and will be opened in a few days. Those at Margate and Southsea are now open.

Italy.

A regular air mail service has been started between Rome and Naples, with two trips daily from each city. An aerial line will be started between Rome and Palermo in the near future. The trip will take about 4 hours.

Central Africa.

The "African World" states that King Albert has purchased fifteen seaplanes of different types, and has personally contributed two million francs for an experimental service for carrying passengers and aerial mail on the Congo and its chief tributaries.

Argentina.

Maj. A. Kingsley, representative of the Aircraft Manufacturing Company, is making arrangements for the establishment of a service between Buenos Aires and Montevideo, with two D.H. machines, one for four and the other for 16 passengers.

United States of America.

On June 25th a resolution was proposed in the House calling on the Postmaster-General for a statement of facts regarding the loss by the Harriman National Bank, New York, of cheques of the value of £12,000 sterling, alleged to have been destroyed through the burning of a mail aeroplane between Cleveland and Chicago.

Mr. J. W. Harriman, president of the bank, alleges that he wrote several times to the Postmaster-General requesting an explanation why the fact of the destruction of mail was never communicated to the bank to enable it to protect itself, and adds that as he is unable to obtain any explanation from the post office he has been obliged to ask Congress to demand one.

[How very English! Who can doubt our cousinship across the sea.—ED.]

A WARNING.

The Air Ministry stated on June 27th for the information of all pilots that the practice of flying through the Tower Bridge between the high-level footways and the bascules must cease. Any such cases reported in future will be severely dealt with.

AIRCRAFT SALVAGE.

The Aircraft Disposal Board announces that they are offering for sale a large number of aeroplane propellers.

The propellers are all in good condition, but are suitable for engines now obsolete as far as the R.A.F. is concerned.

The prices are 25s. each for two-bladed, and 30s. for four-bladed propellers.

These propellers are for sale over the counter at the Disposal Board's showroom, York House, Kingsway.

The Disposal Board are asking for tenders, on or before July 14th next, for the following aeroplanes:—

Six second-hand Blackburn "Kangaroo" biplanes, each with two 275 h.p. "Falcon" Rolls-Royce engines.

Fifteen second-hand Bristol monoplanes with 110-h.p. Le Rhône engines.

Twenty new Martinsyde Type F.3 biplanes without engines.

Particulars will be found in the advertising columns of this issue.

A HENDON PEACE MEETING.

The Directors of the Grahame-White Co., Ltd., announce that to celebrate the signing of Peace, a special air race meeting will be held at the London Aerodrome, Hendon, on Saturday next, July 5th, when the programme will include a speed contest round the aerodrome pylon course.

The race, which will commence at 4 p.m., will be run in two heats of four laps each, and a final heat of six laps.

The prizes include the London Aerodrome "Peace Trophy" presented by the Directors.

The entrants include:—

1. Lieut. C. Turner, A.F.C. B.A.T. 170-h.p. A.B.C. "Wasp." 120 m.p.h. approx.
2. Capt. P. R. T. Chamberlayne. Grahame-White "Bantam." 80-h.p. Le Rhône. 90 m.p.h. approx.
3. Major C. Draper, D.S.O. B.A.T. (Special "Bantam"). 170-h.p. A.B.C. "Wasp." 125 m.p.h. approx.
5. Major R. H. Carr, A.F.C., D.C.M. Grahame-White "Bantam." 80-h.p. Le Rhône. 90 m.p.h. approx.
12. Major C. H. C. Smith, D.S.C. Bristol Monoplane. 110-h.p. Le Rhône. 110 m.p.h. approx.
19. Capt. D. H. Robertson, A.F.C. Avro. 110-h.p. Le Rhône. 80 m.p.h. approx.
20. Lieut. G. R. Hicks, D.F.C. Avro. 110 h.p. Le Rhône. 80 m.p.h. approx.

It is expected that Mr. Prodger will take part in the contest, and also Capt. G. Gathergood, A.F.C., who will probably use the same machine on which he won the Aerial Derby.

The usual passenger flights and special looping displays will take place during the afternoon, and also on Sunday afternoon.

[One doubts whether the majority of the machines mentioned can safely be allowed to race round pylons on such a restricted course as that at Hendon.—ED.]

B.T.H. MAGNETOS.

The winners of the first and second prizes in the Aerial Derby, the Airco D.H.4R, with a 450 h.p. Napier engine, and the Martinsyde F.4, with a 275 h.p. Rolls-Royce engine, were both fitted with magnetos manufactured by the British Thomson-Houston Co., Ltd.

THE B.L.I.C. REMOVAL.

The head office and works of the British Lighting and Ignition Co., Ltd., have been moved from 204, Tottenham Court Road to Cheston Road, Aston, Birmingham.

The London Depot and Repair Works have been established at 201, Tottenham Court Road.

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AIRCRAFT FINANCE

THE ATLANTIC FLIGHT AND THE SHARE MARKET.

If any mercenary enthusiast had expected the successful Atlantic flight to inspire a boomlet in aircraft and kindred shares, he must be very disappointed with the Stock Exchange. The effect on the securities in question has been negligible, if not exactly nil. *Autres temps, autres moeurs.* Events of infinitely less importance have frequently worked wonders in the boosting of share prices.

An Opportunity Missed.

One is thankful in a way, without being really surprised, that the opportunists missed the chance of manipulating a boomlet. It would have been short-lived, and with the pernicious effect inseparable from a five days' wonder of this kind can very well be dispensed with by the Industry. Indeed, one suspects that a revision of the old gag to the effect that no home is complete without a few aircraft shares would sound more cynical than convincing.

Loan Campaign Not to Blame.

It is no use maintaining that the War Loan campaign militated against any spectacular stock market display by aircraft shares. That disability would have proved quite trivial had the promoters and experts in manipulative finance determined to act. They realise that the psychological moment has not arrived, else they would not have allowed the opportunity to slip away.

The Public Attitude Is Responsible.

It may be wondered why this is so, and for answer it is only necessary to consider the attitude of the public towards investing money in aviation ventures. The public has been convinced, principally by the air raids and secondarily by the pleasure shows, of the effectiveness of flying, but as yet the public has not been convinced of the commercial soundness of aerial transport.

Simple Reasoning.

If 5 per cent. is obtainable on British Government loans, which we have all been told constitute the finest security in the whole world, and the investment basis of the rest of the financial structure has been correspondingly changed until a thing you used to consider cheap if it yielded 4½ per cent. on the money laid out, now offers about 6 per cent. or more, what would you demand on an aircraft share?

What the Public Want.

The average investor maintains that in the present stage of development, and in view of the uncertainties of the reconstruction period, the risk attaching to an investment of money in an aviation venture is worth at least 10 per cent., with possibilities. He needs the possibilities badly, and is not at all sure of the 10 per cent. risk, and would squeal loudly if he suffered from a temporary fit of nerves. He is not unreasonable.

The Demonstration of Commercial Possibilities.

Of course, one is referring to an essentially aviation proposition, dependent exclusively on aircraft, and not one of the composite undertakings, or any of the big armament giants who can afford to experiment and develop aircraft in anticipation of the possibilities of the future. This pioneering may be expensive, but they would not take it on seriously unless they were convinced that within the immediate future it will pay.

How long it will be before the shares of purely aircraft ventures will gain in popularity amongst the general public will depend mostly on the conviction driven home by actual commercial success. If, when this eventuates, the popularity was a bit overdone, it would not be a surprise.—W. J. DAVIES.

CURRENT TOPICS.

The Protection Society.

It makes one hopeful to watch the various phases of the development of the commercial side of aviation. The formation of the Aeronautical Intelligence Bureau is a good thing, and means much. A company limited by guarantee, with not more than 150 members, each liable for £1 in a winding-up, the objective is to write for mutual advancement and protection, to obtain and distribute status information, to promote and oppose legislation, etc.

Some Well-known Members.

If the policy is carried out efficiently the benefits must be substantial. Among the subscribers are R. H. Tetley (Palmer Tyre Co.), F. M. Luther (Beardmore Aero engine), G. A. Mansfield (Motor and Aircraft Supplies Co.), R. Delpech (Triplex Safety Glass), J. F. Inshaw (Auster); and the registered office is 30, Bedford Row, W.C.

Stock Markets Restricted.

Everyone hopes that the big loan operation will be a brilliant success and a speedy one, but somehow there is not the same degree of enthusiasm as when the war was in progress. This is a pity. Probably it would have been better policy for the authorities to prohibit temporarily the amount of other borrowing, most of which is not of the indispensable type. However, if one excludes a few gambling specialities, the Stock Exchange is moribund.

Some Useful Propaganda.

By the way, it is pleasant to note that a financial daily paper has blossomed out with an Aviation Supplement. This is not, strictly speaking, propaganda work, but it should serve the useful purpose of keeping aviation to the fore, and in the course of time results should be beneficial.

Ruston and Hornsby Results.

Ruston and Hornsby is the amalgamation of Ruston, Proctor and Co. and Richard Hornsby and Co., carried through not so long ago, and they have been concerned with aircraft. After providing £40,697 for depreciation of buildings, plant, etc., a dividend of 8 per cent. is to be paid, and £40,000 goes to reserve, leaving £41,000 to be carried forward.

Whitehead Affairs: Winding-up Petition.

In the Companies (Winding-up) Court, before Mr. Justice P. O. Lawrence, a petition for the winding-up of Whitehead Aircraft (1917) was presented by New Pegamoid Co., 134, Queen Victoria Street, E.C., and Hobday Bros., 25, Great Eastern Street, E.C. The petition is to be heard on July 8th.

NEW COMPANIES.

Larkin-Sopwith Aviation Co. of Australasia, Ltd. Private company. Registered June 5th. Capital, £31,500 in 30,000 preferred ordinary shares of £1 each and 60,000 deferred ordinary shares of 6d. each. Objects: to enter into an agreement with H. J. Larkin and to carry on in Australia or elsewhere the business of manufacturers of and dealers in aircraft and accessories, etc. The subscribers (each with one share) are:—A. E. Fisher, 11, Glenarm Road, E. (5), and H. G. Butler, 19, Colfe Road, S.E. (23), both solicitor's clerks. First directors: H. B. Larkin, R. J. Turner, and J. T. Leete (all permanent). Registered office: 4, St. Mary Axe, E.C.

Knox and Co., Ltd. Private company. Registered June 6th. Capital, £2,000 in £1 shares. To manufacture and deal in motor-cars, internal-combustion engines, aeroplanes, airships, boats, and conveyances of all kinds. The subscribers (each with one share) are:—H. Knox, 10, Lower Grosvenor Place, S.W.1, aeronautical engineer; T. R. Kitchen, 10, Adolphus Road, Finsbury Park, N.4, manager to Elias Wild and Sons, Ltd. Directors: H. Knox and T. R. Kitchen. Registered office: 180, Piccadilly, W.1.

AIRCRAFT IN PARLIAMENT

The following oral answer was given on June 4th :—

MISS DOUGLAS-PENNANT.—GOVERNMENT DECISION.

Sir ROBERT THOMAS : On the suggestion of the Leader of the House, I beg to repeat the question which I put yesterday as to whether the Government are now prepared, in view of what occurred in the other House last week, to agree to set up a Committee of Inquiry in respect of Miss Douglas-Pennant's dismissal ?

Mr. BONAR LAW : The Government have given most careful consideration to the opinion expressed by the House of Lords that a judicial inquiry should be held into the circumstances in which Miss Douglas-Pennant was removed from her appointment under the Air Ministry in August of last year. The Government see no sufficient reason for departing from the decision already taken by them. The responsibility of instituting such an inquiry must rest upon the Government. It would involve a large expenditure of public money, it would be contrary to the general principles of Departmental Administration, and it would establish a very undesirable precedent, for if an inquiry were agreed to in regard to this lady, who has great personal influence, it would be difficult to justify the refusal to take a similar course in the case of many others who are not in an equally influential position. In these circumstances, His Majesty's Government have decided that they cannot assume the responsibility of setting up this tribunal.

Sir R. COOPER : Is it not a fact that in this case there has been made public the suggestion that there are grave irregularities in this particular Department, and, if that is so, will not the right hon. Gentleman's answer rather confirm the belief, which holds very widely in the public mind, that there is something very bad behind it ?

Mr. BONAR LAW : I am not the least afraid of that belief being entertained. The reasons I have given are quite sufficient. If such a precedent were established, I cannot see where it would end.

An HON MEMBER : Does not the decision of the Government mean that a Minister has the right, in the exercise of his authority, to destroy, set aside, and abrogate entirely the personal rights and safeguards which are given under the Regulations under which people are serving.

Mr. BONAR LAW : It means nothing of the kind, but it does mean that the head of a Government Department, like the head of every other administrative business, must be free to make changes in regard to those who assist him, if for reasons which seem to him good a change is necessary.

Brig.-Gen. CROFT : Is it not a fact that Miss Douglas-Pennant was not superseded, but was dismissed, which is a very different thing ?

Mr. BONAR LAW : I do not think it is possible to argue the question. I believe it was admitted, and Lord Weir had to apologise, as to the method in which the decision was announced, but the point goes far beyond that, and it is whether the officer responsible for the Department is justified in making a change.

Sir R. THOMAS : In view of the very unsatisfactory nature of the right hon. gentleman's reply, and having regard to the very important and even vital letters which have been omitted from the White Paper which has been laid on the Table of the House, letters which affect very materially this case, I beg to ask permission to raise this matter at a quarter-past eight this evening as a matter of definite public importance.

Mr. SPEAKER : The hon Member has omitted one of the most important words in connection with that Standing Order—namely, the word, "urgent."

Sir R. THOMAS : I beg to add that word

Mr. SPEAKER : The hon. Member can hardly ask me to say this is an urgent matter, because it has been before the House for the last two or three months, and has been discussed here more than once. Therefore, I could not accept a Motion of that sort as being within the Rule which says these matters must be urgent.

Sir R. COOPER : May we give notice that we shall raise this on the Adjournment of the House ?

Mr. SPEAKER : Yes, as often as you like.

* * *

The following written answers were given on June 4th :—

CIVIL AVIATION.—KENT COASTAL DISTRICT.

Mr. JOYNSON-HICKS asked the Under Secretary of State to the Air Ministry whether there is any accommodation for civilian aviation in the South-East corner of England lying between Margate and Deal; whether he is aware that the coast towns there are looking forward to the possibilities of such aviation during the summer; and whether arrangements can be made to utilise a portion of the Manston aerodrome for this purpose.

Major-Gen. SEELY : The answer to the first question is in the affirmative. No requests for aerodrome accommodation in the area mentioned have been received and there have been no special representations as to the possibilities of civil aviation there this summer. There would be no objection to the use of part of Manston aerodrome for civil aviation this summer.

SCOTLAND.

Mr. STURROCK asked the Under Secretary of State to the Air Ministry whether he can now publish the plans formed for the development of civilian flying at stations in Scotland situated to the North of the Lowland line at which the lately issued diagram stopped; whether he is aware of the local feeling on the East Coast of Scotland against the threatened closing down of the aerodrome at Montrose; and whether, in view of the geographical suitability of this station for North of Scotland and Scandinavian traffic, he will, before coming to a decision in this matter, make a personal investigation into the question at Montrose.

Major-Gen. SEELY : The Air Ministry will, of course, gladly examine and endeavour, if possible, to assist any suggestions put forward for the development of civilian flying north of the line in question. At present no such suggestions have been received, with the exception of an inquiry from Dundee. Although the aerodrome at Montrose is being closed down as a service station, it will be available for use later as a civil station. Should the demand warrant it Montrose might become a centre for Scandinavian traffic, but it is premature to make a pronouncement on the matter as yet.

YATE AERODROME (GLOUCESTER).

Mr. RENDELL asked the Under Secretary of State to the Air Ministry whether girls and women who volunteered for work at the Yate (Gloucester) aerodrome have been recently discharged, and why; whether a yet larger number of women not before employed have been taken on in their stead, and why; whether those discharged are receiving out-of-work donation as the result of this method of procedure; if those discharged were regarded as inefficient, how long had they previously been employed without such defect being discovered; why, if the work has diminished at the aerodrome there are now employed a greater number of women than were employed a month ago; and what was the reasons for the unusual methods of business adopted by the Air Ministry at Yate.

Major-Gen. SEELY : I have now received a further report on this matter. The numbers of women discharged and enrolled since April 1st last are as stated in the reply which I gave my hon. friend on May 29th; but I am now able to explain more fully the reasons for the action taken. In April last the work in connection with the construction of aeroplanes at Yate had greatly diminished, and this opportunity was taken to recommend the demobilisation of certain women who were considered inefficient, but with whose services it had not been possible previously to dispense. These women's places had to be filled. A further twelve of the "yet larger number" referred to by my hon. friend were taken on to replace women discharged on compassionate grounds; six were merely converted from the status of civilian subordinate to that of member of the Women's Royal Air Force. At the same time the growth of salvage work has tended to more than counterbalance the diminution of construction work. In reply to the third part of the question, I have no information as to how many of the women discharged are receiving the out-of-work donation. In reply to the fourth part of the question, the answer is that they had an average service of six months.

* * *

The following oral answers were given on June 5th :—

AEROPLANES (GIFTS TO OVERSEA DOMINIONS).

Lieut.-Col. MOORE-BRABAZON (*by Private Notice*) asked the Under Secretary of State to the Air Ministry if he could now state how many surplus aeroplanes now in possession of the Air Ministry, and under what conditions, will be presented as a free gift to the Dominions, India, and the Crown Colonies.

Major-Gen. SEELY : I am glad to say that His Majesty's Government have approved a proposal of the Air Council that a gift of aeroplanes should be made to each Dominion and to India, and that corresponding action should be taken in the case of any Colonial Government or Protectorate requiring machines. The object of His Majesty's Government is to assist the Dominions and India and the Colonies and Protectorates in the establishment of air forces, and thereby develop the common defence of the Empire by air.

Lieut.-Col. MOORE-BRABAZON : Can the right hon. gentleman say if this will apply to any particular types of machines or to all types of machines now in use ?

Major-Gen. SEELY : We hope to be able to meet all the requests for free gifts on the part of the Dominions. It may be that in some cases they will ask for types of which we have none available, but we hope that will not occur and that we shall be able to meet all their requests.

* * *

The following written answers were given on June 5th :—

DEMOBILISATION.—APPLICATIONS FOR RELEASE.

Mr. LUNN asked the Secretary of State for War why the air mechanics attached to No. 20 Balloon Base, Kirkwall, who have been registered for early release since January last, are still kept in the Service; and, seeing that these men are not doing work, and are being kept at the public expense, will he see that their release for civil employment is immediately carried out.

Major-Gen. SEELY : I have called for a Report on the matter, and will communicate with the hon. Member as soon as it is received.

ROYAL AIR FORCE.—PROTECTION CERTIFICATE LOST

Col. GREIG asked the Under Secretary of State to the Air Ministry whether a substitute Protection Certificate or preferably a proper discharge certificate can be issued at once to Joseph Deighan, No. 131463, 30, M'Dowall Street, Johnstone, Renfrewshire, who has lost his temporary Protection Certificate, given him on April 8th, 1919, at Blandford Camp when discharged from the Royal Air Force on medical grounds (his eyes having been injured as a result of blacksmith's training at Hazlton Camp, Wendover), and who has applied for one without results and who, being unemployed and having a wife and four children, cannot draw either his twenty-eight days' pay and ration money or the out-of-work grant unless he obtains such a certificate.

Major-Gen. SEELY : The letter of application referred to in the question has not been traced, but instructions are being issued to No. 131463 J. Deighan, to report the loss of his Protection Certificate to the Pension Issue Office, Baker Street, W.1, forwarding at the same time his temporary pension allowance book. The Pension Issue Office will then arrange for a fresh Protection Certificate to be issued to him. In the meantime he should apply to the local war pensions committee for financial assistance, and he is being advised to do this.

SENT TO RUSSIA (W. SUTTON).

Mr. T. GRIFFITHS asked the Secretary of State for War whether he was aware that W. Sutton, No. 155451, Royal Air Force, recently at Blandford Camp, has been dispatched to Russia although he never volunteered; and whether he will make inquiries into this case.

Major-Gen. SEELY : This airman was under orders for Russia before the ruling was given that only Regular airmen and volunteers were to be sent. Arrangements are being made to release, at an early date, all airmen (other than Regular airmen) who did not volunteer for Russia.

ALDERGROVE AERODROME (C. McGRUB).

Capt. C. CRAIG asked the Parliamentary Secretary to the Ministry of Munitions whether he was aware that Charles McGrub was lately discharged from the Aldergrove Acrodrome, county Antrim, after having worked there for twelve months; that McGrub had served with the Colours throughout a considerable portion of the War; that many men who did not join the Colours have been kept on at the aerodrome; and whether, in view of the pledges of the Government that they would do all they could for ex-Service men, he will see that McGrub is reinstated in his position at the aerodrome at Aldergrove.

Major-Gen. SEELY : I find that Charles McGrub, after being engaged at the Aldergrove Aerodrome on June 5th, 1918, left work on September 5th. He came back on the 12th of that month, but was discharged with 150 others on May 17th last, as there was no longer work for these men to do. Of the 150 men who have been retained preference has been given in every possible case to ex-Army men.

REGENT'S PARK.

Sir WILLIAM PEARCE asked the Under Secretary of State to the Air Ministry when the completion of the transfer of standard stocks from Regent's Park to Ruislip is completed in September will the buildings in Regent's Park be then removed and the land now occupied be restored to the public.

Major-Gen. SEELY : I regret that I am unable to add anything on this question to the reply which I gave to my hon friend on May 19th. Perhaps he will address a question to the Parliamentary Secretary to the Ministry of Munitions at a later date.

The following written answers were given on June 6th :—

ROYAL AIR FORCE (W. MUMMERY).

Mr. JOHN JONES asked the Under Secretary of State to the Air Ministry whether he is aware that W. Mummery, No. 220892, 1A.C. (attached 99th Squadron, Royal Force), joined the Royal Naval Air Service in 1916, was in France till May 14th, 1919, and on that day was sent from Marscilles to India without any leave, that this man and others with him were never medically examined before being sent to India; and whether it is the practice to transfer men to distant stations in tropical climates without medical examination and without leave.

Major-Gen. SEELY : Inquiries are being made in this case, and I will communicate the result to the hon. Member very shortly

REGENT'S PARK.

Sir W. PEARCE asked the Parliamentary Secretary to the Ministry of Munitions if he will remove the Air Ministry store buildings in Regent's Park immediately the standard stocks are transferred to Ruislip, and restore this open space for public use.

Mr. KELLAWAY : No store buildings in Regent's Park have so far been notified to the Disposal Board by the Air Ministry as being surplus to their requirements.

COMPENSATION FOR DAMAGE BY AEROPLANES.

Sir PHILIP MAGNUS asked the President of the Board of Trade whether he is considering the measures necessary to provide compensation for damage to private property or loss of life caused by any kind of aeroplane, whether in use for commercial, experimental, or other objects.

Major-Gen. SEELY : It is considered that, for the present, compensation for damage to private property or life should be dealt with by the ordinary law affecting damage to persons and property until further experience is gained. The question of compulsory insurance will be considered fully before the new Act is framed, to take effect from January 1st, 1920.

* * *

The following oral answers were given on June 25th :—

WOMEN'S ROYAL AIR FORCE

Lieut. KENWORTHY asked the Under Secretary of State to the Air Ministry what was the numerical strength of the Women's Royal Air Force, officers and other ranks, respectively, on November 1st, 1918, and on June 1st, 1919.

The UNDER SECRETARY of STATE for AIR (Major-Gen. Seely) : The figures are as follows :—

November 1st, 1918, 496 officers, 25,062 other ranks.

June 1st, 1919, 442 officers, 20,419 other ranks.

The figure for November 1st includes 24 officers and 1,543 other ranks Women's Royal Naval Air Service serving at Women's Royal Air Force stations and subsequently transferred to that force.

Lieut.-Comdr. KENWORTHY : Will the right hon. gentleman consider the hastening of the demobilisation of these ladies, in order to give employment to discharged unemployed soldiers ?

Major-Gen. SEELY : Yes, Sir; that is being borne in mind. The process of reduction is continuing. Of course, the hon. and gallant gentleman will understand that during the very rapid demobilisation of the men of the Royal Air Force we depend principally upon women to carry us through this difficult period.

Mr. HOGGE : Is the right hon. and gallant gentleman aware that the numbers he has given us of those transferred from the Admiralty are different from those given by his right hon. friend the Prime Minister ?

Major-Gen. SEELY : I do not think that is so. Of course, there is the difference in date. I think he will find that they are correct. I have gone through the figures myself very carefully.

Colonel ASHLEY : Is the Women's Royal Air Force to be a permanent service or is it to be done away with shortly ?

Major-General SEELY : The Women's Royal Naval Air Force does not now exist as such; these were ladies transferred on November 1st to the Women's Royal Air Force.

* * *

The replies to the following questions were not received in time for inclusion in the OFFICIAL REPORT, June 24th :—

ROYAL AIR FORCE.—POST-WAR CONDITIONS OF SERVICE.

Mr. RAPER asked the Under Secretary of State to the Air Ministry if he could now make a statement as to post-war conditions of service in the Royal Air Force.

The UNDER SECRETARY of STATE for AIR (Major-Gen. Seely) : The final consideration of this question is now proceeding and will, I hope, be completed very shortly.

Mr. RAPER : Is the hon. and gallant gentleman aware of the fact that the uncertain state of the future conditions of the Air Force prevents a large number of ex-officers of the Air Force arriving at a decision as to their future career ?

Major-Gen. SEELY : I am fully aware that it is a most urgent matter to come to a decision on this question. If my hon. and gallant friend will put down a question in a fortnight's time I hope to be able to give him a full statement.

AIR MINISTRY (STAFF).

Mr. ARNOLD asked the Under Secretary of State to the Air Ministry the number of the staff of the Air Ministry on May 31st, 1919, as compared with the number on the date of the Armistice, November 11th, 1918.

Major-Gen. SEELY : The number of persons of all types employed in the Air Ministry at the Armistice was 4,646 and on May 31st 3,289. It will be understood that the large amount of work due to demobilisation has necessitated the retention of a large clerical staff.

* * *

On June 24th, Mr. KELLAWAY (Deputy Minister of Munitions), in the course of a speech introducing the Estimates for the Ministry of Munitions said :—

At the outbreak of war the British Army had in its possession about 100 aeroplanes. The Ministry became responsible for aeroplane production on September 12th, 1917, when the production had increased to 500 aeroplanes per month.

At the date of the Armistice, that is to say, a period of little more than eighteen months, production had been increased to 4,000 per month. I should like to have dwelt on that figure and what it means.

There is a very romantic story behind this story of aeroplane production, that at a time when raw material and machinery was very largely engaged on other essential war production this country was able, thanks to the ingenuity of its craftsmen and the far-sightedness of its captains of industry, to make so great a step forward in its aircraft production as that, and the improvement in the fighting quality and the safety of the machines was just as great as the increase in the numbers. I think there is no question amongst informed men that during the latter stages of the war this country held the supremacy over her enemy in the air.

That was due not only to the extraordinary fighting spirit and ingenuity of the men who flew and fought the machines, but also to the ingenuity and patriotism of the craftsmen and the employers engaged in that great industry.

Concerning various criticisms upon experimental supplies, Mr. Kellaway said :—

Many of these experimental supplies had never been made in this country; they were absolutely foreign to our industrial practice. They included such things as poison gas, anti-aircraft bullets and tanks.

Let me take two examples. I have here sections of bullets which stopped the German air raids on this country. There are six of them, from the first crude bullet, indistinguishable from the bullet that the infantrymen fired out of his rifle, up to this one which to the ordinary layman does not differ on casual examination from the first, but that bullet used only once, on Whitsunday of last year, prevented any further air raids on this country.

Were we right to scrap the earlier bullets when we found a better one ? Were we not right to stop the contract for the earlier bullet and to pay compensation to the contractors ?

I would not have liked to have been the Minister to stand up in this House on one of those nights when London was being raided, and when questioned as to whether we had not a bullet to stop the raids to have said, "Yes, it is true, but the contractor is engaged turning out the earlier form of bullet, and we must not turn them off that in order to make the new bullets, otherwise the Comptroller and Auditor-General, the Public Accounts Committee and the Press will denounce the Department as being wasteful muddlers."

I remember standing in my garden at Blackheath—I think it was on the occasion of the first raid—watching a Zeppelin which was hovering over Woolwich Arsenal and apparently dropping its bombs with complete impunity. Our poor little pom-poms and anti-aircraft guns did not get within miles of their objective; they could not fire more than two miles in those days.

We have now anti-aircraft guns which can fire effectively at objects five miles in the air. I watched that Zeppelin, and I do not think that I ever had a greater sense of humiliation than when I thought that it was possible for Germany to attack the very heart of this Empire to do its best—and it did a great deal—to check the moral of our people, and interfere with production, without our being able effectively to reply.

When the Zeppelin raids were stopped, as they were, by the heroism of our airmen, and the engines of defence which we were able to provide, a new problem presented itself, because the bullet that had been effective against the Zeppelins was not so effective against the heavier-than-air machines, and our men had to go on with their experimentations, trying to devise a bullet which would be equally effective.

As the Committee knows, that bullet was found, and during the later months of the war we had not the dread of air raids. But if you are going to put it on the ground of money alone, and consider the loss of money on these contracts on the one hand, surely you ought to compare it with what would have been the loss if those raids had gone unchecked.

On the day after Whit Sunday last year it was known that Germany had prepared for air raids on this country, by heavier-than-air machines, greater in magnitude than had ever been attempted before. Why did they not come ?

They did not come because the reception that their airmen got that Sunday night made it impossible to get men to face such risks.

On the mere ground of money alone, if that ground is taken, then on these contracts the Department can claim to have acted justly and properly in the action which it has taken.

Captain WEDGWOOD BENN : During the war I was interested in the Air Force, and I can still remember the real feeling of pleasure and relief it was to me when I visited home during my leave and my right hon. friend the President of the Local Government Board (Dr. Addison) was able to show how the appalling deficiency in the supply of aircraft was being made good by the new programme which the Munitions Board was preparing at that moment. But it does seem to me essential, looking at the Department as one dealing with munitions of war, to realise that it is not in the heaping up of things we have got that we can make any preparation of things whatever for any future conflict in which we might be engaged. That, really, is the answer to the hon. gentleman's tirade against the Free Trade position of this country.

* * *

The following oral answers were given on June 26th :—

ROYAL AIR FORCE.—AIR NAVIGATION.

Capt. WEDGWOOD BENN asked the Under Secretary of State for Air (1) whether any sextant suitable for taking bearings in the air is in use or being experimented with; (2) what liaison exists between the Air Ministry and the Admiralty with a view to applying to air navigation the experience of the Navy; (3) what is the staff of the Air Navigation School; and whether it includes any qualified marine navigators; (4) what progress is being made in instruction in taking bearings in the air.

The UNDER SECRETARY of STATE for AIR (Major-Gen Seely) : At the moment the whole system of instruction in aerial navigation is being revised, and the schools of aerial navigation re-organised; and in this process we shall certainly keep in close touch with all those whose experience of aerial or marine navigation is likely to be of assistance, and endeavour to perfect, as far as possible, all mechanical aids to navigation, such as sextants. Experiments with various types of sextant are already being carried out with this object

At the present moment there is great hope of the early development of a satisfactory artificial horizon sextant and experiments are now being carried out at the Royal Air Force experimental establishments with a view to its early perfection. I would add that the officers who are dealing with this question will be very glad if my hon. and gallant friend will give them the benefit of his advice and criticism.

Capt. BENN : Is the Air Force taking full advantage of the navigating experience of the Admiralty ? That is the point.

Major-Gen. SEELY : Yes, Sir. I think we may say we are working in absolutely close co-operation with them, and many of the officers dealing with this matter have themselves sea experience.

Capt. BENN : Are any of the instructors in the navigation schools naval officers ?

Major-Gen. SEELY : Speaking from recollection, many of them are or have been in the Navy. I should like to have a precise question on that point

Capt. BENN : The question is on the Paper.

Lieut.-Comdr. KENWORTHY : Are there any navigating officers among the instructors ?

Major-Gen. SEELY : I must have notice as to the precise number of navigating officers My hon. and gallant friend is aware that many of our Air Force officers guiding us in this matter are naval officers.

Capt. BENN : Are they naval officers or members of the Royal Naval Air Service, which is different ?

Major-Gen. SEELY : Both

AERONAUTICS and The LAW

CURIOSITIES OF AIR LEGISLATION—(*Continued.*)

By "THE LINCOLN IMP."

Impenitent Impudence.

Having already brought about one amendment of the 1919 Regulations and hoping to be in time with the rest for the Air Bill, 1920, the Imp feels in good fettle. He offers no apology for his impudence recently in offering to improve upon Regulation-pattern definitions, and has several more improvements to suggest. The *advocatus diaboli* is a most useful member of society, and as much a part of our constitution as "His Majesty's opposition." To proceed, therefore :—

What is an Aerodrome?

"*Aerodrome*" means any definite and limited ground or water area intended to be used and capable of being used either wholly or in part for the landing or departure of aircraft. So say the Regulations.

Will some official please tell us? What is an area which is definite but not limited? Or limited but not definite? The definition excludes ships' decks and the roofs of buildings, although used as aerodromes, and seems to include the whole area of the enclosed camp and hangars of an aerodrome, and not merely the landing surface. The ambiguity leaves a useful loophole for persons infringing the circuit and other regulations. Another ambiguity lurks here in the word "aircraft" in its context. Which is meant—"an" aircraft (singular) or "all" aircraft (plural)? A kite is "an" aircraft, and most tennis lawns are "capable of being used for the landing of kites." But "all" aircraft would include giant airships and seaplanes, as well as Avros, etc., and few aerodromes cater for such a miscellaneous clientèle as this. If aircraft does not mean "any" and does not mean "all" what does it mean? When is an area not an aerodrome because not "capable of being used . . . for the landing . . . of aircraft"?

What, again, do the words "intended to be used" mean? Intended by whom? Suppose that you intentionally land in my field to serve a writ on me and I intentionally acquiesce in your immediate departure by air—*anglicé* turn you out!—my field, it seems, has now become "an aerodrome" to which any minion of Mr. Churchill has right of access!

What an Aerodrome Is.

"*Aerodrome*," suggests the Imp, means a surface (a) habitually used (b) for the landing or taking off of flying machines, (c) or purposely adapted (d) for such use.

(a) The neutral term "surface" draws no unnecessary distinctions between land and water, and includes decks and roofs as naturally as sea or soil.

(b) "Habitually used" is intentionally elastic; it is sufficiently elastic to enable common sense to be applied to each case as it arises.

(c) "Flying machines" not "aircraft." The attempt to include under one term the landing-grounds of airships, balloons, kites, and flying machines is too difficult, and can only lead to confusion.

(d) "Purposely adapted." This excludes meadows and other open spaces which, however admirably adapted by nature to be used as aerodromes, are not in fact so used by man nor adapted for such use by their owners or others.

Clear as Mud!

"No aircraft shall fly," "Right to land," "To fly aircraft," "To navigate aircraft," "The flight proposed," "Unable to land," "A flying machine when in the air," "To take off," "Alighting aircraft," "Aircraft in the air," "About to land," "When an aeroplane starts," "Aeroplanes flying," "Trick landings," "When taking off or alighting," "Approaching for the purpose of landing," "Landing zone," "Commence to take off," "Night landings," "Shall be elevated," "On land," "Dangerous to flying," "At which he lands," "Arriving or departing by air."

The Regulations regard such phrases as these as too clear to need definition. Let them tell us then who flies—the pilot or the craft? How should one distinguish "to take off" from "to start," "to commence to take off," "to elevate," or "to depart by air"? When is an aircraft which is "compelled to land" "unable to land" although it has "a right to land" at the aerodrome "at which he lands"? How can you tell whether it is "about to land" or only "approaching for the purpose of landing" or merely "arriving by air"? Is a kite balloon which has been elevated an aircraft in the air, and if its pilot has not been licensed to navigate aircraft is it flying in contravention of the regulation "no aircraft shall fly, etc."?

What Is Flight?

"To fly," "To land," "To take off." Not until the reader has tried his own hand at the game will he realise the difficulties inherent in the attempt to define these simple ideas in clear and suitable language. The Imp has to apologise for the seeming pedantry of the definitions he is about to offer, and can only hope that some reader will quickly displace them by better ones.

"*Flight*" in relation to an aircraft includes motion and rest in the air, but does not include the motion or rest of a flying machine between the acts (a) of coming into contact with and of leaving the surface. "To fly" has a corresponding meaning.

"*In the air.*" An aircraft is in the air when it is off every surface (b).

How to Take Off and Land.

"*Taking off*" in relation to a flying machine (c) includes the act of leaving the surface (a) and the sequence of acts and events (d) immediately preceding and succeeding that act. "To take off" has a corresponding meaning. Aircraft designed to be lighter than air and lifting kites are taken off by the act of freeing them from the restraint which keeps them on or in comparative proximity to the surface (e).

"*Landing*" in relation to a flying machine (c) includes the act of coming into contact with the surface (a) and the sequence of acts and events (d) immediately preceding and succeeding that act. "To land" has a corresponding meaning. Aircraft designed to be lighter than air and lifting kites are landed by the act of subjecting them to a restraint which keeps them on or in comparative proximity to the surface (e).

Nota Bene.

(a) A flying machine which is taking off does not begin to fly until it leaves the surface, but is still taking off after it has begun to fly and may be beginning its landing while it is still flying and continuing it after it has come into contact with the surface, although it has then ceased to be in flight. Is that clear?

(b) This is not superfluous. A scout-craft on an airship is not in flight except as part of the airship. Otherwise an offence is committed if the scout pilot has his licence in his pocket and is on the airship!

(c) Flying machines "take off," other aircraft "are taken off," one speaks of "flying a kite" but not of a kite "taking off."

(d) An "event" is here used in the sense of that which happens or may happen without human intervention and an "act" in the sense of that which happens by human intervention and is intended to happen or is deemed by law to have been intended to happen. Hence it seems that a bad landing resulting in a crash is a landing, but a stall and unintended nose dive into the ground is not, although the stall was intentional; conversely, an unintentional stall converted into an intentional (though compulsory) landing is a landing. Similarly, a "forced" landing is a landing if the pilot lands the machine but not if for any reason the machine lands itself. A bumpy landing is one landing, not several. But to bump in a fog may be no landing at all. At a few feet from the ground a machine will be landing if it goes on and touches, although it takes off again, but if it "lands six feet up" and goes round again it will not have been landing, but only "attempting to land."

Carried away by the exuberance of his own verbosity, the Imp is forgetting to be a devil and to pin-prick the minions of the Minister for Air! To it, Teazer! Go for them, Gadfly!

Regulation Bloomers.

1. If a test pilot may be defined as a pilot who flies aircraft for experimental purposes within the precincts of an aerodrome, then a test pilot needs not a licence. Any fool can test is the argument one supposes! (Sect. 1 (3) and proviso (b)).

2. Aircraft owned by aliens can—nay, must—be registered (it seems) if the applicant is British—though a man of straw not worth a shilling (Sched. I., Regs. 1 and 2).

3. A company which is registered and has its principal place of business in the United Kingdom can own aircraft which ply for hire over England although every one of its shareholders and directors is an alien (Sched. I., Regs. 1 and 2).

4. A navigator who applies for a licence is required (*inter alia*) (a) to have no moral defect (b) not to have more than two (2) dioptres of latent hypermetropia (c) to have a degree of auditory acuity compatible with the efficient performance of his duties and (d) to calculate azimuth. But cheer up, my hearty! Who said you needed a licence to navigate aircraft? The Regulations don't say it, so why apply for one?

5. An airship having voluntarily stopped its engines in a dead calm is "under way," and must be treated by other aircraft as being not under control. An airship being towed by a ship is not under way, and for the purposes of the rules of the air is classed as a free balloon (Sched. vii., Interpretation, Rules (6) and (20)).

6. An aeroplane flying below 6,500 ft. and at 900 yds. distance from the nearest point of a licensed aerodrome must conform to the circuit law. Not so a similar aeroplane which is 500 yards nearer the aerodrome, unless it is (a) about to land or (b) leaving or (c) starting (Rules of the Air 34, 32, and 33).

By way of a final piece of impudence let us conclude with Section 1 of the Air Bill, 1920, as the Imp would have it drawn as at present advised. The italicised words have either already been defined by the Imp or are to be defined in the sequel.

AIR BILL, 1920.

1. Within *the realm* no *aircraft* and whether within or without the realm no *British aircraft*.

(1) Shall *fly*:
- (a) Without being marked in the *prescribed* manner, or
- (b) over any *prohibited area* or
- (c) So as to endanger any person unnecessarily, or

(2) Shall *take* or *be taken off*,
- (a) Having on board otherwise than in pursuance of the prescribed permission:
  - (i.) A *postal packet* or
  - (ii.) Radio-signalling apparatus or
  - (iii.) Photographic apparatus or
  - (iv.) A *trade passenger* or
- (b) Not having on board:
  - (i.) The prescribed persons licensed in the prescribed manner to control that aircraft in the air; and
  - (ii.) Means of displaying and making the prescribed lights and signals; and
  - (iii.) The prescribed *flying papers*; or
- (c) From a *public aerodrome* otherwise than in the prescribed manner and from the prescribed place.

(3) Shall *land* or *be landed*:
- (a) After entering the realm by air without first reporting at an *appointed aerodrome*; or
- (b) At a public aerodrome otherwise than in the prescribed manner and at the prescribed place.

(4) While *in the air* shall eject or let fall any person or article except:
- (a) Ballast; or
- (b) A prescribed signal; or
- (c) An article or a person supported in the prescribed manner.

THE LINCOLN IMP.

THE CODE OF THE AIR.

The Paris correspondent of THE AEROPLANE writes:—

The Code of the Air, created by the Peace Conference, is still in a large measure secret, although certain individual items have leaked out, giving the impression that it has been composed with care and foresight. The British influence is apparent in all that concerns aerial transport or circulation in general, that is to say, in its general provisions it follows closely the air regulations already in force in the British Isles.

It first deals with day and night identification of machines: national colours of each country and green and red lights. All aerobuses must be fitted with wireless, although aircraft having less than a certain passenger-carrying capacity must obtain special permission to carry a wireless installation. The reason for this is not clear, because whatever the number of passengers carried a pilot will always be glad of the wireless to obtain his bearings or to ask help.

Every machine will be registered, and will figure on its national register. This registration will necessitate the observance of certain rules. Machines will be forbidden to carry explosives or persons suffering with contagious diseases, and must abide by the postal and customs regulations to which the practical application of aerial navigation has given new duties.

TRAFFIC CONTROL.

Machines will overtake on the left and cross on the right, but there is no ruling for overtaking when climbing! which is extraordinary, seeing that so many collisional accidents have occurred, starting with the Thomas-Dickson one in Italy.

COMMUNICATION IN THE AIR.

Pilots will have to conform to one method of communication whilst in flight, and the system must be international. Thus there will be a new use for the Morse code.

The medical requirements of the Air Code as formulated by the Peace Treaty in Paris are summarised as follows:—

1. No licence to fly will be accorded without a medical certificate of fitness.

2. Every candidate, before receiving authorisation to fly, either as pilot, officer (navigator?), or mechanic of a public transportation service must present himself, and undergo an examination before a competent medical authority selected by the State or acting under its authority.

3. Such medical examinations for the selection of pilots and navigating personnel must have special regard to the physical and mental aptitude of the applicant.

(a) Absence of all mental trouble, and of any physical or moral defect in so far as same would affect the security of navigation.

(b) The minimum age of pilots and navigating personnel engaged in the transport of passengers and cargo is nineteen years.

(c) GENERAL SURGICAL EXAMINATION.—The aviator must not suffer from any wound, have undergone any operation, nor show any anomaly, congenital or acquired, that would interfere with his duties as an aviator.

(d) GENERAL MEDICAL EXAMINATION.—The aviator must not suffer from any disease or complaint that would render him incompetent to control aircraft. He must possess a heart, lungs, kidneys, and a nervous system capable of resisting the effects of altitude and prolonged flight.

(e) EXAMINATION OF EYES.—The aviator must possess a degree of accurate vision compatible with the necessity of his functions. Pilots and officers of aerial crews must not suffer from latent hypermetrophia to a greater extent than two dioptres; they must possess muscular co-ordination adapted to refraction. The field of vision of each eye and the perception of colours must be normal.

(f) EXAMINATION OF EARS.—The average ear must be normal. The aviator must possess a degree of accuracy of hearing compatible with the duties he will be called upon to perform.

(g) "VESTIBULAIRE" (?) apparatus must be intact and must not be hyperexcitable or hypoexcitable.

(h) EXAMINATION OF NOSE AND THROAT.—The aviator must have complete nasal permeability and be free from any affection, acute or chronic, of the upper respiratory organs.

4. Each country may decide on their own methods of examining applicants, provided that the details and the limits of the tests employed have been previously agreed upon by the authorised representatives of each nation.

5. Applicants having fulfilled the above conditions will receive a certificate permitting them to obtain a licence.

6. To assure that all navigating personnel continue to possess the above qualifications they must undergo a periodical examination at least every six months, and the results of such examination must be recorded in their dossier.

After illness or accident each aviator must undergo a new examination in order that his suitability to continue as a member of the navigating personnel be decided; such decisions being noted on the flying ability log-book.

7. All aviators who, prior to this convention, have given proof of their fitness for flying and who retain same, need not necessarily be excluded from the navigating personnel by reason of the fact that they do not fulfil all the conditions.

8. Any nation may increase the severity of the conditions; the above are the minima.

THE VICTORY LOAN.

The Air Ministry makes the following announcement:—

In order to assist the progress of the Victory Loan it has been decided to allow commercial or private aeroplanes, flying over the British Isles, to drop, subject to the undermentioned condition, small discs of paper, advertising the loan, on the towns or country over which they are passing.

Clause 2 (d) of Regulation 5 of the Air Navigation Regulations, 1919, will not apply to aircraft engaged on this special work provided that any companies or other owners of aircraft willing to undertake the work act on the instructions of the Secretary, National War Savings Committee, Salisbury House, Salisbury Square, E.C.4, from whom all further information can be obtained.

Unless this condition is complied with, action will be taken in accordance with Regulation 10 (1) of the Air Navigation Regulations, 1919.

THE IMPERIAL AIR FLEET.

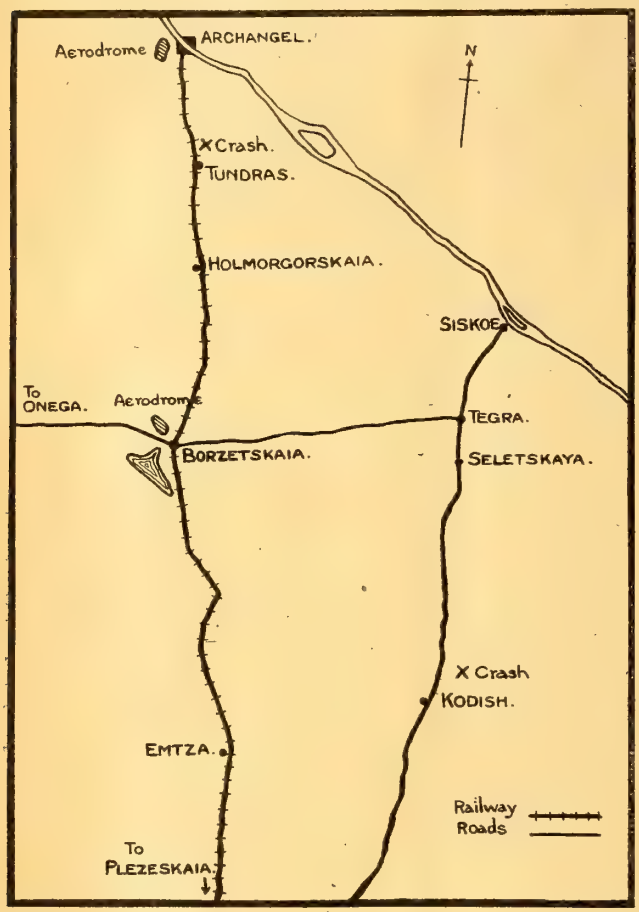
Lord Morris, ex-Premier of Newfoundland, addressed a meeting at Birmingham on June 30th promoted to stimulate interest in the project of presenting an aeroplane by Birmingham to South Africa.

There was peculiar appropriateness, he said, in Birmingham selecting South Africa for its gift, inasmuch as the late Mr. Joseph Chamberlain was probably more identified with the freedom of and the granting of responsible government to South Africa than anyone else, and the wisdom of Mr. Chamberlain's South African policy had been shown by the way in which not only British-born colonists but the Boers had rallied to the help of the Motherland in the war.

Already £1,700 has been promised towards the £2,200 required.

THE R.A.F. IN RUSSIA.

In May last I was warned to report at the Air Ministry, and everyone said "Overseas!" and the best of luck. On arriving there I reported, together with several other pilots and observers, and was asked various questions, and then told I was to obtain two suits of mufti, a civilian overcoat and cap, and a mosquito net, and report to a certain captain at Blandford. I was instructed not to mention the stunt to anyone, as it was a secret mission.



A Secret Mission.

Think of it, a secret mission with suits of mufti and a mosquito net! "Where were we going and what for?"

On arriving at Blandford I found a merry little party of three pilots and four observers who were also on this secret stunt. No one knew where we were going, so we had to wait. Next day we travelled back to town and reported at the Tower, where we were medically examined and given a slip of paper on which was the following:—

You must have two suits of mufti, etc., etc.
You must take supplies of everything for at least six months.
You must have clothing to stand a climate varying from summer on the Riviera to winter in the North of Scotland.
You must mention nothing of this to anyone.
Cameras are permitted.

There was some other advice as to kit we should obtain.

We were given leave and told we should be wired for. Well, on June 14th we entrained on a "North Special" about midnight and found we were going to Newcastle. On this train were infantry, artillery, and all other branches of the service, but no one seemed to know where we were going eventually.

On arrival at Newcastle we embarked on the "City of Marseilles," and left port on June 15th at about 5 p.m., and were escorted out to sea by De H.6's and destroyers.

The Secret Revealed.

After leaving port the secret was revealed—Russia; and then we all wondered what mosquito nets were for, but we soon found out.

We discovered that the total number of R.A.F. was one colonel, four pilots, four observers, one E.O., and about 57 N.C.Os. and men—hardly a flight, but it must be remembered that it was only a small expedition, and at that time things were none too rosy in France.

After an uneventful voyage we arrived at Murmansk, which is a little port that is never frozen up and has been built since the war. Here we commenced to unload the ship and obtained a railway truck on the quay, which was converted into an office.

Soon after landing we started to recruit for the Slavo-British Aviation Corps (S.B.A.C.) and Slavo-British Allied Legion.

Seaplanes Required.

After looking round Murmansk it was decided that an aerodrome could not be built, so a seaplane ship was wired for, as the Kola River is an ideal place for watercraft and the surrounding valleys are full of lakes where a seaplane could alight in case of engine trouble.

Recruits were coming in satisfactorily, so our C.O., Lieut.-Col. Maund, D.S.O., a man who had been in Russia before the Revolution with Col. Valentine, decided to form instructional classes for the S.B.A.C. Each of the R.A.F. officers had a subject, and the time was well spent in instructing the old Russian pilots and mechanics who had joined us.

The chief subjects were Aerial Gunnery, Contact Patrol, etc., etc., and the school was practically a miniature Reading. It must be remembered that our Russian friends had not flown or seen an aerial gun for nearly a year, so their knowledge was a trifle rusty. Also ground strafing and contact patrol were practically unknown in the Russian Flying Corps.

The Interest of Russian Pilots.

The Russian pilots were extremely interested in the Aldis Sight and the C.C. gear, and when we told them of the performances of our latest machines they were amazed, as the last machines they had before the Revolution were Sopwith 1½ strutters, a few Pups (which were liked by all who had flown them), some Nieuports, and Spads. But these machines only carried one gun, and they thought it wonderful when they heard of a Camel with two guns, and an Aldis Sight, Snipes; Bats, Bristol Fighters, etc.

Soon after this the seaplane ship, H.M.S. "Narrana," arrived, and the land R.A.F. or R.F.C. were invited to dinner by the sea R.A.F. or R.N.A.S. I think I am quite right in saying that we all had a very enjoyable evening after having lived on practically Army food for some time.

Mistaken for Devils.

The seaplanes soon got to work, and during the first flight over Murmansk the inhabitants were extremely frightened, as they had never seen an aeroplane before. One woman was crying, and could not be made to understand that the machines would not hurt her. I think she thought they were "devils from hell" (no offence to the seaplane people meant) which the Allies had brought to their aid.

Soon after this the machine-gun class were put through their firing tests, and one R.A.F. observer, complete with aerial Lewis gun, managed to get lost in some marshy ground near the range. After wandering about for an hour or so in the marsh he found us, and seemed very fed up. He was nearly bitten to death by mosquitos, and said things to me he ought not to have said, as I had chosen the range. However, all went well, and we had a very successful afternoon.

Next day we sailed for Archangel, and the Navy, who were in front, had a scrap with Bolshevik and German forces just before entering Archangel. One of our seaplanes that was up spotted

THE R.A.F. IN RUSSIA.—Centre, Lieut. Schviesnikoff, R.A.F (killed). Extreme right, Capt. Kozakoff, R.A.F. The Sopwith "Camel" was one flown by Capt Kozakoff. The Russian pilots are wearing the uniforms of private soldiers, as at that time no officers' uniforms had arrived.

THE PARK OF NO. 1 RUSSIAN SQUADRON.—This Squadron was of Russian Pilots on Sopwith 1½-strutters and Nieuports.

an enemy battery firing at our ships and dropped a 230 lbs. bomb, which caused the gunners to hop it.

On our arrival at Archangel, Backnaritza Wharf, we immediately proceeded to look for an aerodrome, and after a great deal of searching found a small field about 300 yards long by 150 wide, which served the purpose.

In Travelling Quarters.

After landing, we were told to look for a sleeping car for the officers and sleeping cars for the men, also cars we could fit up as messes and trucks for spares, as we had to live in this mobile train. It was sent up to the aerodrome, together with the machines, and when we managed to get the train in order everyone was comfortable and happy.

Work now commenced at the aerodrome—machines were rigged, the aerodrome levelled, hangars erected, and everyone was very busy. Our mess president was a very wise man and bought a considerable quantity of foodstuff from the various ships in harbour, so that we were very happy and had a change from biscuits and bully, etc., although the food supplied was very good

Early in August our first machine was ready. We landed in Archangel about Aug. 4th, and the flight commander, Capt. F. V. Robinson, D.F.C., made the first trial flight. It was good to see an aeroplane in the air again after our long wait. Flying now began in earnest, and as there were two fronts—the River Dwina and the Vologda railway—we were fairly busy.

Forest and Swamps.

What a country to fly in! Miles and miles of forest and swamp, and nowhere to land in case of engine failure.

The line was about 30 miles north of Oberzetskaia, and we had to fly 70 miles before reaching the enemy. On our first trip down, the Bolsheviks had one Archie (anti-aircraft gun) which was a huge joke, as the gunners' one idea seemed to be to put up shots round themselves so that we should not drop bombs on them.

The seaplane ship now went back to Murmansk and we carried on at Archangel.

The seaplanes (Faireys) used to do the bombing and reconnaissances before we were ready, and although they had to fly 70 to 80 miles down the railway line before reaching the lines, they had reliable engines—Eagle VIII., Rolls—and there was absolutely *no place whatever* to land during the whole of the trip. Of course there were hundreds of lakes where a seaplane might have made a forced landing, but there was no place for a De H.6, let alone a De H.4, to land.

About this time the Russian Squadron got going on Sopwith 1½ strutters, and two Nieuports which were found in Archangel, having been sent there by the Allies before the Revolution, and most of them were still in perfect condition. This squadron went up the river and established an aerodrome at Siskoe. This squadron (called a squadron, but not a squadron in strength as we know it) was composed of ex-Russian officers and men of the old Russian Flying Corps, and did very good work indeed. There was also a pilot from the "Narrana" with them, and he was flying Sopwith-Schneider machines.

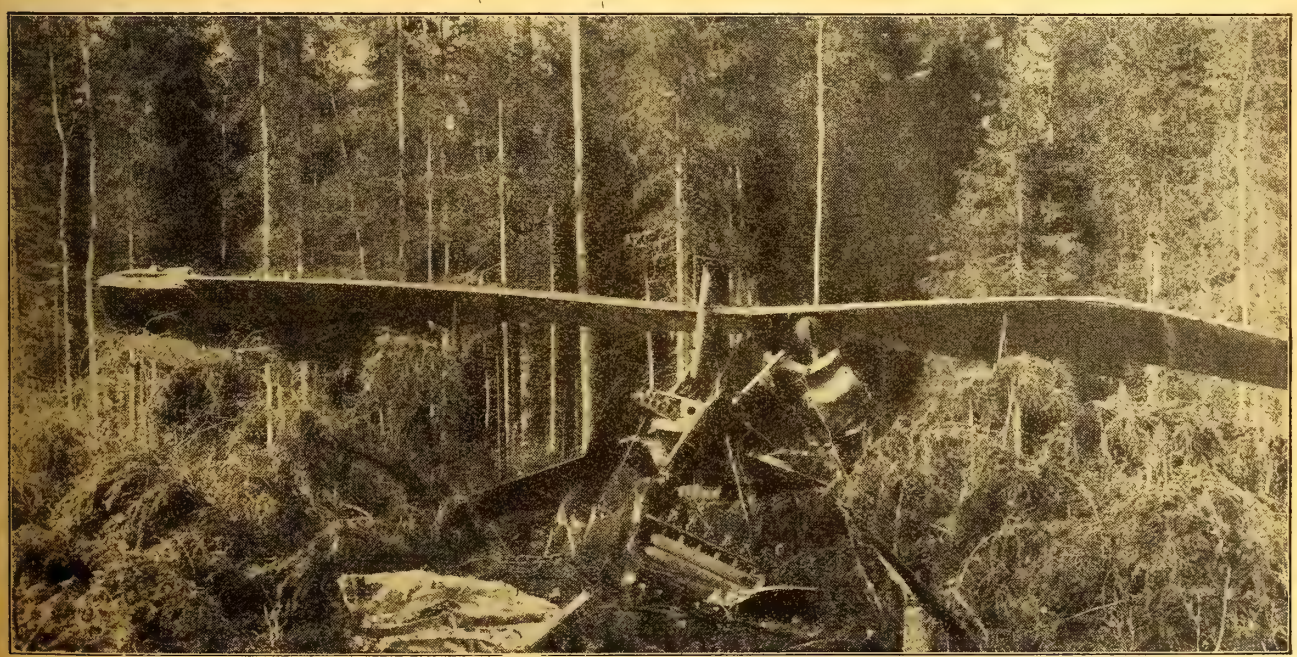
From this time we practically confined ourselves to the railway force near Oberzetskaia, and did reconnaissance, bombing, ground strafing, contact patrol, art. obs., photography—in fact, everything except night flying.

Some Useful Work.

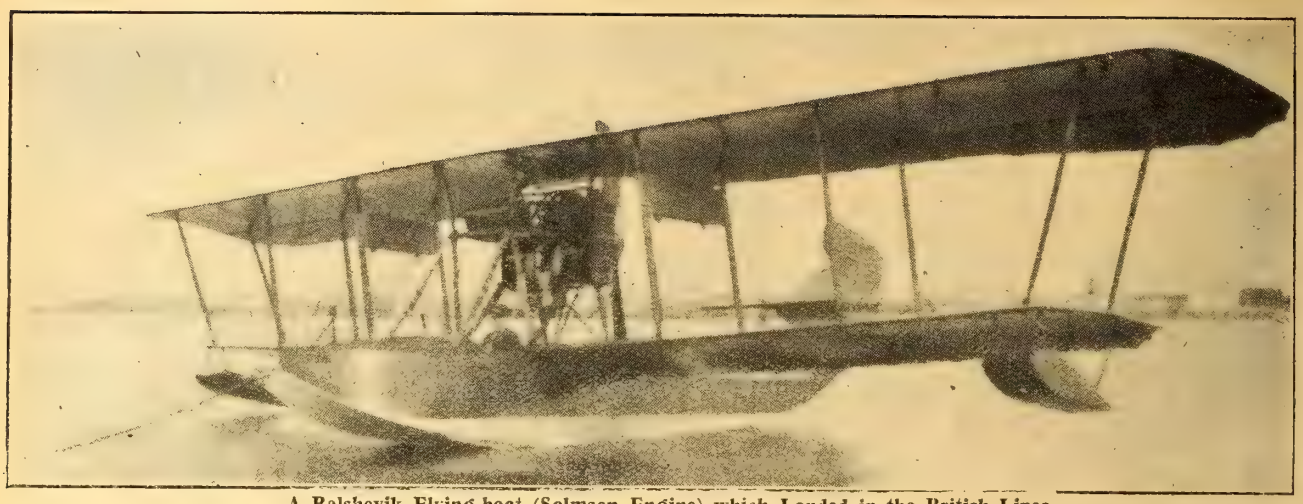
During the month of August we dropped many tons of bombs, and did a considerable amount of photography and reconnaissance, and on one occasion one bomb dropped from 150 ft. in Oberzetskaia station caused over 70 casualties.

Early in September the infantry decided to push for Oberzetskaia, so we started intensive bombing and ground strafing, and the enemy were pushed back to within about four miles of Oberzetskaia. Progress in the infantry was very slow, as when the enemy retired he blew up all the bridges, which had to be repaired before our armoured train (not the R.A.F. train) could proceed.

About this time the enemy received reinforcements in the shape of six anti-aircraft guns and some German gunners who knew



THE R.A.F. IN RUSSIA.—A Crash. This picture gives some idea of the conditions in Northern Russia.



A Bolshevik Flying-boat (Salmson Engine) which Landed in the British Lines.

now to shoot, so that Archie got very hot. Just before taking Oberzetskaia the Bolsheviks had 11 anti-aircraft guns in one small siding, and as the gunners could shoot we always had some bits of fabric or wood missing on our return home.

About Sept. 2nd the infantry made the final push for Oberzetskaia, so we went down in formation of three machines. Up to that time we had been down singly, so there was much surprise when three machines rolled up. On this occasion we each carried five bombs—two 112 lbs., two 40 lbs., and one 20 lbs. Cooper—which the observer deposited over the side.

Frightening the Bolsheviks.

After dropping our eggs we all went down low to ground strafe, and the Bolsheviks were so frightened that the infantry took Oberzetskaia without much struggle, and I think I am right when I say without a casualty.

This was attributed to the material and moral effect of the bombs and machine-gun fire from the machines overhead. We found later that the enemy had some very strong defences round Obersetskaia, but was in a terrible state of nerves owing to the presence of aircraft overhead.

After capturing Oberzetskaia we found a spot that would be suitable for an aerodrome. It was just a widening in the Oberzetskaia-Onega road, and when we had cut some of the trees down and levelled it off a bit, it measured about 50 yards by 250 yards, with trees all round, so was a very small place for De H.4s.

The R.A.F. train now moved down here, and we erected hangars and commenced work from this aerodrome. This was a relief, as the line had now moved and was about 15 to 20 miles away, so that instead of 150-mile trips to the line and the same distance back again, we only had short trips, for which we were very thankful. I forgot to say that the seaplane ship came back to Archangel just before we moved down the line, and as our mess was in order we gave them a return dinner, which was very enjoyable.

A Bolshevik Seaplane.

Also whilst at Archangel a Bolshevik seaplane came over, but as two of our machines were up at the time of his visit he wisely decided to come down and surrender.

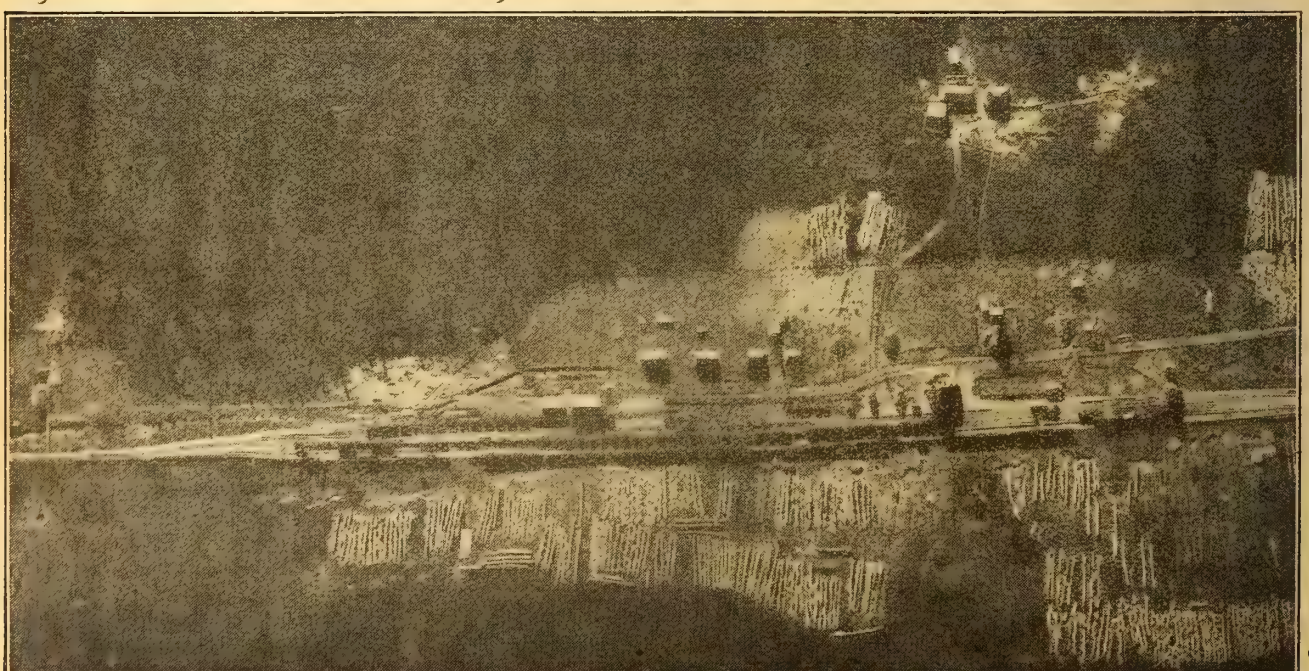
From Oberzetskaia aerodrome we commenced to bomb Emtza, about 40 miles away, and one flight was made to Plezetskaia—60 miles over—for photographic purposes. Here we discovered a Bolshevik aerodrome, but his machines, Sopwith 1½ strutters and Nieuports (Allied machines that had been sent to Russia before the Revolution), were not of much account, as they would never fight or come up when we were over.

One Sopwith came over and dropped two bombs miles wide of the mark and then crashed between the lines, and was afterwards salved by us. Another machine (enemy) was seen up in the air by one of our machines, but before a scrap could take place the Bolshevik machine caught fire in the air and crashed in flames in the forest.

Not Inclined to Fight.

I believe a Bolshevik Spad was seen on the river front near Siskoe, but it would not fight.

On one bombing raid of ours one of our pilots hit an enemy anti-aircraft gun mounted on their armoured train, and from a prisoner's statement killed six gunners.



AN AERIAL PHOTOGRAPH OF OBERZETSKAIA TAKEN DURING THE BOLSHEVIK OCCUPATION.—This shows Bolshevik Trains, Bomb Craters and surrounding Forest. The white Rows are Timber for Engine Fuel (Railway Engines). The Two Round Towers to the North of the Station are Water Towers about 60 feet high. This Photograph was taken on August 18th, 1918.

In October some reinforcements came out with R.E.8s, and Lieut.-Col. Maund, D.S.O., went home. The new C.O. was Lieut.-Col. Van der Spuy, M.C.

Whilst we were at Oberzetskaia the infantry tried to capture the enemy armoured train, and the R.A.F. was asked to cut the railway line behind the train to prevent its escape. This was done, the line being cut with a 112 lb. bomb; but unfortunately the armoured train was not captured.

A Successful Expedition.

Another trip was made by one of our machines to the River Onega. The infantry reported a large Bolshevik boat coming up the river and asked for an aeroplane to spot it and try to destroy it, so our machine went over and dropped two 112 lb. bombs, which we claimed were within 25 to 50 yards from the boat. The boat was not seen again, but we heard later that it had to be beached and then towed back, as the bombs blew its side in. That was the end of the Bolshevik boat.

Soon after this we were relieved by the reinforcements and went back to Archangel for a rest. The observers applied to go home to learn to fly, and we heard that leave was being granted, so we all got home on the same boat, and the powers that be at the Air Ministry said we need not go back to Russia unless we wished, so we have not gone back.

A Forced Landing.

I have just remembered several more incidents and hope they will be interesting.

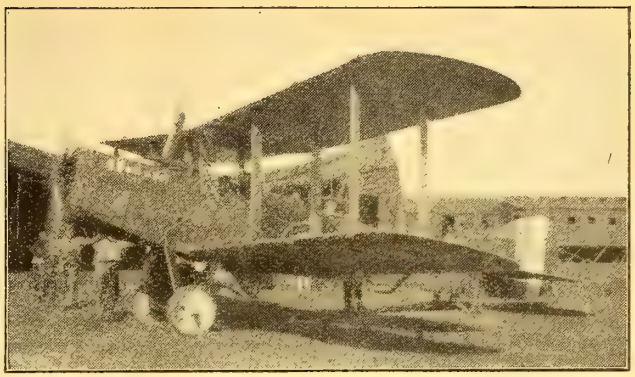
One of the machines was returning from a raid and was just north of Tundras (30 miles south of Archangel) when the engine conked, and the pilot decided to come down on a swamp to the east of the line. This was accomplished very successfully, and although the machine was damaged, both pilot and observer were unhurt. (Of course, if one's engine conks in Russia, one has either to try to land on the railway line—a single track and broader gauge than British railways—or land in the forest or swamp. In each case it means a crash, and the thing is to let oneself and the machine down as lightly as possible.)

After a Crash.

On all our trips over the lines we carried two days' rations and a pocket compass, besides military load, so when this machine crashed the pilot and observer commenced to walk westward by the compass, as they knew the railway line was to the west of them. After scrambling through thick forest and marshy ground, often knee deep in slime, for over an hour they eventually hit the railway line and saw a small hut some distance away. Here they found a Russian signalman, and tried to explain that they wanted to telephone to Archangel. After much arguing, etc., they got through to Headquarters in Archangel and said they were unhurt. Later on they caught a train to Archangel, very wet, tired, and fed up.

Next day a party went out with them to salve the machine, but after searching for hours in the thick forest they could not find it, so returned home.

After this we sent another machine up to try to locate the crashed one, and this soon spotted it, took bearings, and came home to report. The crash was about five miles from the railway line and on the edge of a swamp, so another party went down together with about 30 Russian labourers, and after struggling through the swamp and forest again, found the machine.



THE R.A.F. IN RUSSIA.—An R.A.F. D.H.4 Starting on a Bombing Expedition.

Now came a very hard task—getting a De H.4 machine through five miles of thick forest and swamp. All detachable things—planes, rudder, undercarriage, etc., etc.—were taken off and sent back to the railway line, and some of the Russians were told off to cut a road through the forest to enable the fuselage to be dragged to the line.

Other Russians began to make a sleigh to support the fuselage so that it could be pulled along. Work went on all night, and eventually the road was ready and the machine (fuselage) dragged by about 50 Russians to the railway line, where it was loaded on a truck and sent to Archangel.

Hard Work and Mosquitoes.

The time taken to make the sleigh, cut a road (the road was formed of trunks of trees cut down), and drag the machine the five miles was about five days. This was in the summer, and the mosquitoes were terrible, and as the poor pilot and observer were out superintending this work the whole of the time, we all decided that we would come down near the railway if any more engines conked.

It may be said that the machine was not worth all this trouble, but we only had eight out there and could not afford to lose any.

The Bolshevik seaplane that landed in our lines was overhauled and flown by a Russian pilot, who used to take the General (Brigadier-Gen. Finlayson) down the river to the river force. This journey by boat occupied from two to three days, but by aeroplane it was performed in about three hours, and the General and other people used always to fly down and back again

Officers of the Original R.A.F. Detachment in Russia.

—in fact, the machine was practically called the General's machine.

The only trouble with it was that there were no Salmson spares in the country, so that when the Bolshevik pilot landed on our aerodrome on a Maurice Farman with an engine of the same type, we were in luck's way, as this gave us a spare engine for the flying boat, although I don't remember the original Salmson in the boat ever breaking down.

The Result of Engine Failure.

Another incident worth relating took place when we were stationed at the Oberzetskaia aerodrome.

One of our machines—De H.4—went for a reconnaissance over Kodish, and while over the enemy's lines the engine conked (oh, these R.A.Fs. !). Running through Kodish is a wide road (the roads in Russia are just tracks covered with tree trunks), so the pilot headed for our lines (our force was on the road north of Kodish) and just managed to cross over the Bolshevik front line about 300 ft. up. He managed to get back into our lines and tried to land on this road, but where he touched the ground the trees narrowed and his wings caught in the tree trunks, thus stopping the machine, which was, however, very slightly damaged.

After getting out of the machine and walking up the road, the pilot and observer met the doctor, who was accompanied by stretcher bearers and stretcher. The doctor had seen the machine coming down and had hastened down the road to render any assistance that might be necessary. On arriving at the headquarters of our force the pilot phoned to R.A.F. Headquarters at Archangel to say he and his observer were uninjured. We at Oberzetskaia were much concerned about his non-return, and it was not till next morning that we heard he was safe.

The distance from Kodish to Archangel by road and river was a good 200 miles, so did not send help that way.

A road from Oberzetskaia ran to Tegra and joined the Kodish road there—distance about 80 miles—so we formed a party of mechanics, about eight, and started them off along this road, Oberzka to Tegra, to salve the machine. They were given one week's rations, and took a Lewis gun and two carts with Russian drivers. Owing to the state of the roads and slow travelling it was calculated that it would take the relief party at least three days to reach the crash, so the pilot went to Archangel *via* road and river and left the observer to look after the machine till the arrival of the relief party.

The observer managed to obtain a small Russian cart and a pony, so he took off the planes and packed up the fuselage on this cart, which commenced to creak and groan under the weight. However, progress was made, very slowly though, the Russian driver managing his cart very well.

An Unwelcome Visitor.

The relief party made good progress, but one evening, as they were preparing to camp for the night, a huge bear dashed out of the forest and went across the road, but was gone before the Lewis gun could be brought into action. This rather livened things up, and the next day the relief party arrived in Tegra, and was proceeding along the Kodish road when they met our friend the observer, with about three days' growth of beard and moustache, riding on a fiery steed (otherwise a Russian pony), and in the distance was the machine on its new undercarriage, the cart.

Things were now re-arranged, the other two carts taking a share of the weight, and the procession moved on to the river at Siskoe. Here provisions ran low, and our observer managed to wangle some more and also a blanket for himself. The poor fellow had been without one since landing (crashing). It might be mentioned that we sent some of the observer's personal kit (razor, toothbrush, etc.), also a bottle of whisky, with the relief party.

It was a good thing we sent the whisky, as our observer made friends with a Russian skipper, and owing to the good effect of the spirit managed to get a boat (boats were none too plentiful at that time), on which the machine was loaded and the journey up river made to Archangel, where the machine was handed over to stores.

J. I. Starbuck.

LONDON AND ITS AERIAL FUTURE.

Lord Montagu of Beaulieu presided at a dinner of the London Society at the Royal Adelaide Gallery, Strand, on June 26th, when Mr. G. Holt-Thomas read a paper on "London and its Future Aerial Transport."

The Chairman said that he took a great deal of interest in aviation in London, because so far as he read the Transport Bill now before Parliament, aviation was the only thing that was left out of it, and the only thing that would not be controlled. London must be the centre for the meteorological research of Western Europe. Meteorology and navigation were the two most important things to study in aviation to-day.

Geographically speaking, the position of London in regard to Western Europe was the most important. We were the nearest of all the big capitals to the Atlantic, and our meteorologists were, owing to the difficulties of foreseeing the variations in our changeable climate, possibly as good as, if not better than, any in the world. London must naturally become, in his opinion, the centre of meteorology in Western Europe.

Covered-in Parks.

London was the biggest capital in the world and he thought they needed above everything in winter open spaces which were not subject to the disadvantages of wintry weather. He was going to throw out an idea which might seem somewhat fantastic, but which, he thought, many of them would live to see. He thought they would live to see some of their parks roofed in. They would live to see a park like St. James's Park or the Green Park covered with a great glass roof, which would be the central landing stage of London. There would be the aeroplanes landing on the roof, light and sunshine pouring through the glass, the sides open, and the wind blowing through and underneath, so to speak, an open winter garden.

They would land all their aeroplanes, say, right in the middle of Hyde Park or St. James's Park, and right underneath the masses would be taking their pleasure. He only threw that out as an idea, but he believed that it would come, and that a landing stage in the middle of London would be practicable.

Mr. Holt Thomas, at the outset, confessed that he could not imagine, enthusiast as he was, that internal flying in London was going to render any great service; that was to say, he could not see aeroplanes conveying mails from the General Post Office in the City to the Post Offices of the West End, although it was impossible to prophesy safely as regarded flying in view of the enormous progress recently made.

In an incidental reference to the air raids on London, he urged the need of a sufficiently large Air Force being kept in existence to repel possible future attacks by air. He had no doubt that all who had read the newspapers that evening thought that a League of Nations, though very desirable, was rather doubtful, and that if we were left without an Air Force we should be in a very precarious position.

As to the general question of aerial transport, Mr. Holt Thomas alluded to the recent long-distance flights, observing that the occupants of the machine which crossed the Atlantic took considerably longer to travel by ordinary means from Dublin to London than it took them to cross this enormous space.

One could get to Paris to-day quite easily and comparatively comfortably by train and boat, but nothing but the aeroplane would carry either passengers or letters in 2¼ hours; and he saw aircraft competing much more with cables, for instance, than the train. He would go so far as to say that if he started an aeroplane, say, every two hours from London to Paris, and vice versa, no more telegrams would be sent, as they could convey words far more cheaply than any cable or telegraphic system and much faster.

£120 a Journey to Paris.

It cost 2d. per word to send a telegram from London to Paris. Assuming that it cost £120 to fly from London to Paris, and taking one of his own machines, which was to-day used on the military service between London and Paris, they could carry (he was quoting General Sykes) 672 lbs. of matter. Assuming such a low weight as 2,000 words per ounce—he thought it could safely be put at 5,000—the number of words carried would be 21,500,000, which worked out at so low a figure that one could hardly talk about the price per word. As the calculation would show, they could carry words at 700 a penny.

The same calculation showed one—and this was a subject which they had been specially studying—how the telegraphic and telephonic communication of this country could be linked up with the telegraphic and telephonic services of another country. There was another reason for talking chiefly of mail and matter, as compared with passengers—viz., the expense. Suppose it cost 10s. a mile, or £120, to fly to Paris, carrying two passengers. The price of £60 was almost prohibitive. But consider the weight, say, of two 11 stone passengers as made up of half-ounce letters, and the situation was completely changed. The two 11 stone passengers equalled 9,856 letters, and at the same price per trip, the transport of the letters cost about 3d. each. The charge would, of course, have to be much higher because one would not get 10,000 letters to deliver. Also a special form of collection and delivery would have to be arranged for, as it was no use flying from London to Paris in two hours and taking four more to deliver letters to their destination. Every one must recognise that speed must be paid for.

With regard to the possibilities of stereoscopic photography in charting unsurveyed country, Mr. Holt Thomas said that a single aeroplane had in one flight completely covered with photographs an area of 40 square miles. The cameras used for this work were quite automatic and, once started would go on taking photographs of whatever was under them, without any attention until the films were used up.

NAVAL & MILITARY AERONAUTICS

FROM THE "LONDON GAZETTE."

AIR MINISTRY, June 24th.

R.A.F.—FLYING BRANCH.—Capt. W. St. J. Scott-Scott to be Capt., from (S.O.), April 10th.

Lt. W. D. Harris to be Lt. (A.), from (O.), Jan. 8th.

Sec. Lts. to be Lts. :—J. McFarlane, April 26th, 1918 (substituted for notification in "Gazette," April 11th); L. E. O. Lounds, May 30th, 1918 (substituted for notification in "Gazette," March 7th); H. J. Fuller, June 14th, 1918 (substituted for notification in "Gazette," Feb. 4th); C. H. G. Sanders, Oct. 4th, 1918 (substituted for notification in "Gazette," March 7th); J. G. Prestwick, Oct. 18th, 1918 (substituted for notification in "Gazette," March 7th); H. R. Hill, M.C., Nov 16th, 1918 (substituted for notification in "Gazette," May 23rd).

K. E. M. Holmes (Sec. Lt., R.G.A., T.F.) is granted a temp. commn. as Sec. Lt. (A.), Sept. 19th, 1918).

C. H. Matthews (Sec. Lt., Hamps. R., T.F.) is granted a temp. commn. as Sec. Lt., (O.), Oct. 25th, 1918.

316207 Flight Cadet W. W. Brander is granted a temp. commn. as Sec. Lt. (K.B.), Oct. 6th, 1918.

The following relinquish their commns. on ceasing to be empld. :—Capt. (Hon. Maj.) J. A. Dennistoun (Maj., Manitoba R.), Nov. 25th, 1918; Lt. G. S. O'Brien (Lt., Can. Cyclist Corps), Feb. 14th; Lt. G. W. Blaiklock (Lt., Quebec R.), Lt. (Hon. Capt.) A. R. Fairbairn (Capt., C. Ont. R.), Lt. J. E. Hanning (Lt., Can. Engrs.), Lt. H. G. Kent (Lt., C. Ont. R.), Lt. N. I. Sheppard (Capt., Alb. R.), Lt. (Hon. Capt.) W. H. Shoenberger (Capt., C. Ont. R.), Maj. F. V. Woodman (Maj., Sask. R.), March 31st; Lt. C. J. L. Laurence (Lt., C. Ont. R.), April 14th; Lt. W. M. E. Chester (Lt., C. Ont. R.), April 16th; Sec. Lt. (Hon. Lt.) J. C. Snelgrove (Capt., Can. R.), April 29th; Capt. P. M. L. Edmonds (Lancers), May 19th; Sec. Lt. (Hon. Capt.) G. H. Gillis, D.F.C. (Capt., Can. A.P.C.), June 5th; Lt. A. Dodds (Lt., N. Staffs R.), June 7th; Lt. S. H. Short (Lt., Can. F. Art.), June 10th; Lt. H. Towse (Lt., Manitoba R.), June 11th; Sec. Lt. E. Hill (Lt., C. Ont. R.), June 12th.

Transferred to unempld. list :—Lt. (actg. Capt.) A. V. Milton, Feb. 11th; Lt. C. Cox, Feb. 21st; Sec. Lt. W. H. Grant, Sec Lt. K. T. Phillips, March 1st; Sec. Lt. C. R. McNeill, Lt. G. Ponsford, March 7th; Sec. Lt. (Hon. Lt.) R. S. Hall, March 11th; Sec. Lt. W. Graham, Sec. Lt. P. B. Keffer, Sec. Lt. A. V. F. Weir, April 1st; Lt. F. Little, April 3rd; Lt. A. K. Mackereth, April 5th; Sec. Lt. H. T. Barnett, April 6th; Sec. Lt. G. O. Ford, Sec. Lt. G. G. Lanc, April 8th; Lt. C. Kniveton, April 9th; Sec. Lt. R. Kelly, Lt. T. G. Lowe, M.C., April 10th; Lt. W. G. Holbrow, Sec. Lt. P. Kemp, April 11th; Lt. R. A. Kirkpatrick, Sec. Lt. C. Lambe, Lt. H. T. B. Lockwood, Sec. Lt. E. F. Phillips, April 13th; Lt. L. V. Foster (Notts and Derby R.), April 14th; Sec. Lt. L. A. Fonseca, Sec. Lt. A. G. Hamilton, Sec. Lt. R. G. Kirk, Lt. H. Laycock, Sec. Lt. M. Phillips, April 15th; Lt. C. H. Davies, April 16th; Lt. (actg. Capt.) H. R. Griffin, Lt. G. L. O'Neill, April 17th; Sec. Lt. S. H. Batty, Sec. Lt. L. C. Phillips, April 18th; Sec. Lt. J. W. Grooms, Lt. H. A. Laurie, Lt. T. Longman, Lt. A. L. McKay, Sec. Lt. H. S. D. Wooley, April 19th.

Lt. L. G. Kettlewell, April 20th; Lt. A. F. Organ, April 21st; Lt. N. S. Robson, Sec. Lt. R. Teakle, April 23rd, Lt. C. G. Lee, Lt. B. C. Moody, April 24th; Sec. Lt. (Hon. Lt.) F. L. S. Kelman, Lt. S. G. Knock, April 25th; Sec. Lt. C. J. Knight, Sec Lt. V. O. Knowles, Sec. Lt. P. Phillips, April 29th; Lt. T. Guigan, Sec. Lt. F. W. Harrison, Capt. N. D. M. Hewitt, Sec. Lt. J. Harrington, Sec. Lt. W. F. Lane, April 30th; Lt. R. H. Hemmens, May 1st; Capt. G. L. Lloyd, May 2nd; Sec. Lt. J. E. Gordon, Lt. J. H. Hartley, May 3rd; Capt. H. G. White, May 4th; Lt. E. E. Morgan (R.G.A.), May 5th; Sec. Lt. (Hon. Lt.) B. M. Storey, May 6th; Lt. W. L. Grech, Sec. Lt. W. Leith, May 7th; Sec. Lt. F. E. Hall, Sec. Lt. R. S. McCall, Sec. Lt. C. G. Paul, Sec. Lt. H. N. F. Pearson, Sec. Lt. (Hon. Lt.) P. Pyne, May 8th; Sec. Lt. L. Hudson, May 9th; Sec. Lt. E. C. Collymore (substituted for notification in "Gazette." March 28th), Lt. T. M. G. Lamb, May 10th; Lt. E. C. Burton, May 11th; Sec. Lt. H. Kershaw, May 12th; Lt. (Hon. Capt.) T. W. P. Chaloner (Yorks. R., T.F.), Lt. C. H. Collins, May 13th; Lt. H. Haywood, May 14th; Sec. Lt. J. W. Pickering, May 15th; Sec. Lt. E. W. Berry, Lt. S. P. J. Yeates, May 16th; Capt. A. Morrison, Sec. Lt. R. Mugford, May 17th; Sec. Lt. E. J. Bannister, Sec. Lt. J. H. W. Haswell, Sec. Lt. M. G. Haight, May 18th; Sec. Lt. J. G. Lethbridge, Sec Lt. L. C. Phippen, May 19th; Sec. Lt. J. Carter, Sec. Lt. M. D. McTaggart, Lt. C. F. Putwaine, Sec. Lt. J. E. H. Rogers, Lt. E. I. Sutcliffe, Lt. C. A. Stewart, May 20th; Sec. Lt. G. R. Whamond, May 21st; Sec. Lt. H. C. Biard, May 22nd; Sec. Lt. (Hon. Lt.) C. K. Johnston, M.C., Capt. C. T. MacLaren, O.B.E., Lt. S. Norman (Lond. R., T.F.), Sec. Lt. G. A. Raybone, Sec. Lt. G. V. Snell, Lt. L. F. Wheeler, May 23rd; Sec. Lt. R. L. Lawson, Lt. S. C. Young, May 24th; Sec. Lt. H. R. Hayden, Sec. Lt. P. F. Keevil, Lt. the Hon. J. S. Parker, May 25th; Lt. B. E. Taylor, May 26th; Sec. Lt. C. H. Foot, May 28th; Sec. Lt. W. E. Catton, Sec. Lt. W. A. Gallon, Lt. W. M. R. Gray, Sec. Lt. (Hon. Lt.) C. C. Hirst, Sec Lt. L. M. Robinson, May 29th; Lt. H. H. Mawer, Lt. C. D. McGurk, Sec. Lt. C. Wilson, Sec. Lt. J. H. A. Wilmot, May 30th; Lt. C. H. Adamson, Lt. F. B. Baker, Lt. E. E. Dafforn, Lt. E. T. Evans, Lt. J. B. Fenton, Lt. P. I. Lewis, Sec. Lt. F. C. Maugham, Sec. Lt. T. S. Platten, Lt. S. F. P. Polkill, June 1st; Lt. H. A. Hay, M.C., Lt. R. C. Milne, Sec. Lt. (Hon. Lt.) N. W. G. Wilkinson, Sec. Lt. W. Wilson, June 2nd; Sec. Lt. F. Massom, Lt. D. A. Parrott, Sec. Lt. N. A. Richardson, Sec. Lt. L. J. Ryall, Lt. R. G. Torrance, Lt. F. S. Wilkins, June 3rd; Sec. Lt. A. W. Ansell, Sec. Lt. A. Drummond (Rifle Bde.), Lt. A. Glynne, Sec. Lt. (Hon. Lt.) V. Soper (Dorset R.), Lt. B. Truscott, Sec. Lt. P. E. J. Thomas, Lt. D. S. Walsh, June 4th; Capt. B. E. P. Gregg, D.S.C. (Yorks. R.), Lt. G. E. B. Lawson, Lt. D. Lindley, Lt. H. E. Pryce, June 5th; Sec. Lt. L. F. Gross (North'd Fus.), June 6th; Lt. A. W. Ellis, June 7th; Lt. E. T. Cosslett, Sec. Lt. F. W. Dodman, Lt. C. J. M. Evans, June 9th; Lt. F. F. Keen, Capt. N. MacMillan, M.C., June 10th; Sec. Lt. A. G. Ely, Lt. D. F. Farrar, Sec. Lt. A. A. Maddan, Lt. T. S. Wilson, June 11th, Sec. Lt. W. L. E. Dickson, Sec. Lt. W. A. Foot, Sec. Lt. F. H. Knobel, Lt. G. E. Manning, M.C., June 12th; Sec. Lt. S. Dixon, Lt. R. W. Frean, Sec Lt. E. A. Gray, Capt. H. R. Hawkins, Sec. Lt. A. L. Matson, June 13th; Sec. Lt. F. V. Raleigh, June 14th; Sec. Lt. E. H. Edgar, June 15th; Sec. Lt. J. J. Antoncich, Sec. Lt. P. J. Dowell, Lt. G. Pilditch, M.C., June 16th; Sec. Lt. S. H. J. Garne, Lt. L. A. Hooke, June 23rd; Lt. A. E. Gates, June 24th.

Maj. F. E. Sandford, A.F.C., is temporarily transferred to unempld. list, June 16th.

Sec. Lt. (Hon. Capt.) A. Cumming relinquishes his commn. on account of ill-health, and is permitted to retain the rank of Capt., May 29th.

The following Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank :—J. A. Chubb, W. Gaunt (contracted on active service), G. R. Halliday, June 12th.

Lt. C. F. Wolley-Dod (Lt., Notts. and Derby R.) resigns his commn., and is permitted to retain his rank, May 16th.

Lt. C. B. R. Macdonald (Capt., R.E.) resigns his commn., June 18th.

Sec. Lt. J. S. McGeown relinquishes his commn. on account of ill-health contracted on active service, and is permitted to retain his rank, June 12th.

Sec. Lt. C. E. Irving is antedated in his appointment as Sec. Lt. (A.), June 1st, 1918.

The date of appointment of Sec. Lt. T. Mundy and Sec Lt. E. A. Murray to be Lts. is March 8th, and not May 8th, as stated in "Gazette," May 23rd.

The rank of Sec. Lt. C. D. Clark is as now described, and not as stated in "Gazette," May 30th.

The initials of Lt. L. G. Hail are as now described, and not as stated in "Gazette," April 4th.

The surname of Maj. (actg. Lt.-Col.) A. K. Tylee, O.B.E., is as now described, and not "Tyler" as stated in "Gazette," May 9th.

The notifications in "Gazette," March 7th, concerning the undermentioned Officers are cancelled :—Sec. Lt. A. Holdsworth, Sec. Lt. C. W. Phillips, Sec. Lt. T. D. Sykes.

The notification in "Gazette," March 18th, concerning Capt. D. Plaistowe is cancelled (notification in "Gazette," April 4th, to stand).

The notification in "Gazette," March 28th, concerning Lt. J. Ll. Davies is cancelled.

The notification in "Gazette," April 11th, concerning Sec. Lt. C. D. Metcalfe is cancelled (the notification in "Gazette," April 29th, to stand)

The notification in "Gazette," April 29th, concerning Lt. W. G. Barlow is cancelled.

The notification in "Gazette," May 16th, concerning Sec. Lt. M. D. McTaggart is cancelled.

The notification in "Gazette," June 3rd, concerning Lt. A. R. Cowan is cancelled.

ADMINISTRATIVE BRANCH.—Capts. to be graded for purposes of pay and allowances of Majs. whilst empld. as Majs. :—W. R. Mackenzie, D.S.O., P. J. Wiseman, May 1st.

Capt. (actg. Maj.) J. Selwyn to be Capt., from (S.O.), and relinquishes the actg. rank of Maj. on reduction of estbt., March 24th.

T. I. Birch (Capt and Qtr., R.W. Surr. R.) is granted a temp. Commn. as Capt., Oct. 30th, 1918, with seny. from April 1st, 1918.

Lt. E. R. Wilkinson to be actg. Capt. whilst empld. as Capt., from July 21st to April 30th.

Lt. D. H. Macintyre to be Lt., from (A.), June 4th.

Sec. Lt. J. Cobley to be Lt., April 25th, 1918 (substituted for notification in "Gazette," Feb. 14th).

Sec. Lts. to be actg. Lts., without pay and allowances of that rank, whilst empld. as Lts. :—E. J. Gordon, from Feb. 5th to Feb 28th; T. Caine, from Feb. 20th to April 30th; Sec. Lt. J. W. A. Legge-Willis to be Sec. Lt., from (K.B.), May 2nd.

F. V. Russ is granted a temp. commn. as Sec. Lt., June 20th.

Transferred to unempld. list :—Lt. W. G. Barlow, Feb. 26th; Sec. Lt. (Hon. Lt.) C. A. Lace, March 4th; Lt. F. R. Hatch, March 14th; Sec Lt. R. Laurier, March 15th; Capt. F. A. Forde, March 25th; Sec. Lt. W. E. Lindsay, April 2nd; Sec. Lt. J. Macintosh, April 13th; Sec. Lt. E. J. Lainchbury, April 16th; Sec. Lt. R. W. King, April 23rd; Lt. W. Hunt, April 26th; Lt. R. S. Hay, Lt. R. B. Lane, April 29th; Capt. H. S. Kelly, May 11th; Sec. Lt. (Hon. Lt.) A. C. E. F. Kennish, May 17th; Sec. Lt. (Hon. Lt.) I. A. N. Beadle, May 21st; Lt. T. A. E. Layborn, May 23rd; Sec. Lt. S. W. Lewis, May 26th; Lt. (Hon. Capt.) P. S. Mumford, Sec. Lt. W. H. Seward, May 28th; Capt. J. S. Macgrath, May 30th; Sec. Lt. O. C. Dinorman, Lt. (Hon. Capt.) A. Herbert, May 31st; Lt. B. Burton, Sec. Lt. H. F. Griffiths, June 1st; Sec. Lt. J. M. Bannerman, June 2nd; Lt. F. C. Staines (R. West Surr R.), June 3rd; Sec. Lt. J. W. V. Payne, June 4th; Sec. Lt. W. Roxburgh, June 6th; Maj. C. F. Steele, June 7th.

Maj. Sir J. Eardley-Wilmot, Bt. (Rifle Bde., Spec. Res.), relinquishes his commn. on account of ill-health caused by wounds, June 20th.

Capt. L. E. Eeman relinquishes his commn. on account of ill-health contracted on active service, and is permitted to retain his rank, March 8th (substituted for notifications concerning this Officer in "Gazettes." March 7th and 28th).

Lt. (Hon. Capt.) H. J. Petty relinquishes his commn. on account of ill-health contracted on active service, and is granted the rank of Capt., May 31st.

Lt. H. P. L. Gardner (Norfolk R., Spec. R.) relinquishes his commn. on account of ill-health contracted on active service, June 21st.

The notification in "Gazette," April 1st, concerning Lt. J. K. Line is cancelled.

The notification in "Gazette," June 13th, concerning Sec. Lt. (Hon. Capt.) A. N. Wyatt is cancelled.

TECHNICAL BRANCH.—Lt.-Col. H. Blackburn to be Lt.-Col., from (S.O.), April 2nd.

Capt. A. Garrard to be actg. Maj. whilst empld. as actg. Maj., Grade (A.), from April 1st, 1918, to April 30th.

Capt. (actg. Lt.-Col.) G. Waddell to be Capt., Grade (B), from (S.O.), and to relinquish the actg. rank of Lt.-Col., Sept. 22nd, 1918.

Lt. W. J. Bunting to be actg. Capt. while empld. as Capt., Grade (A), from Nov. 1st, 1918, to April 30th (substituted for notification in "Gazette," May 9th).

Lt. E. W. Chatterley to be actg. Capt. while empld. as Capt., Grade (B), from Oct. 2nd, 1918, to April 30th.

Lt. W. G. Stuart to be Lt., Grade (A), from (Ad.), Aug. 19th, 1918.

Sec. Lt. S. G. Newport to be Lt., March 24th (substituted for notification in "Gazette," April 11th).

Sec. Lt. (Hon. Lt.) D. R. Mitchell to be graded for purposes of pay and allowances of Lt. while empld. as Lt., Grade (B), from May 1st to May 14th.

Lt. N. A. Ayres to be Sec. Lt., Grade (A), from (Ad.), Nov. 1st, 1918, and to be Hon. Lt. (substituted for notification in "Gazette," Nov. 22nd, 1918).

Sec. Lt. W. W. Hammond to be Sec. Lt., Grade (B), from Grade (A), June 25th (substituted for notification in "Gazette," June 13th).

Sec. Lt. (Hon. Lt.) E. A. Horan (Lt., N.Z. Forces, Otago R.) relinquishes his commn. on ceasing to be empld., June 4th.

Transferred to unempld list :—Sec. Lt. (actg Lt.) P. Merrivale, March 7th; Lt. C. D. Fairweather, April 1st; Capt. M. O. Illingworth, April 9th; Sec. Lt B. F. T. Hare, April 17th; Lt. H. B. Lee, April 18th; Maj. A. K. Hall, O.B.E., April 30th; Lt. H. D. Legge, May 2nd; Lt. S. E. G. Lees, May 4th; Capt. A. W. Gillespie, May 16th; Lt. F. T. McSorley, May 17th; Lt. S. R. McLaren, May 18th, Sec. Lt. W. Hill, May 20th; Lt. S. H. Miller, May 21st; Lt. G. Glen, Sec Lt. J. H. C. Harrold, Sec. Lt. W. Muir, Sec. Lt. A. R. Mutter, May 28th; Lt. W. W. Foster, May 29th; Sec. Lt. H. J. Amery, Lt. F. C. Elstob, Lt. T. W. Franks, Sec. Lt. L. E. Pool, May 31st; Lt. B. H. Davies, June 1st; Capt. W E Dommett, June 3rd; Sec. Lt. L. Russell, June 4th; Lt. F. A. W. Braine, Sec. Lt. G. T. Godfrey, Sec. Lt. S. A. Read, June 5th; Sec. Lt. A. Gill, June 11th; Sec. Lt. B. Greig, June 23rd.

Lt. J. H. Lester relinquishes his commn on account of ill-health contracted on active service, and is permitted to retain his rank, May 26th (substituted for notification in "Gazette," June 6th)

Lt. P. N. Shone (Lt., S. Staffs. R.) resigns his commn., and is permitted to retain his rank, June 25th.

The notification in "Gazette," May 7th, 1918, concerning Lt. G. P. Harding, M.C , is cancelled.

MEDICAL BRANCH.—Transferred to unempld list :—Capt. F. A. Hampton, April 23rd; Capt. N. S. Gilchrist, April 30th; Lt. F. S. Drewe, May 30th.

The notification in "Gazette," April 18th, concerning Sec Lt. L. W. Jones is cancelled.

CHAPLAINS BRANCH.—Principal Chapln. for Presbyterians.—Rev. W. Moffat (A.C D.) is granted a temp. commn. as Chapln., with the relative rank of Lt.-Col., and is granted the relative rank of Col. while empld. as Principal Chapln., March 7th, seny. Jan. 1st (substituted for notification in "Gazette," Feb 4th)

MEMORANDA.—Sec. Lt. (Hon. Lt.) R. V. J. S. Hogan to be Lt., April 2nd, 1918.

The following Overseas Cdts. are granted temp. commns. as Sec. Lts. :—184247 H. D. Abraham, L. Brown, 171525 N. J. McDonald, 316832 J. H. Simmers, Feb. 15th.

The following Cdts. are granted hon. commns. as Sec Lts. :—175106 C. Barker, 13822 C. J. Bucknell, 13813 F. T. Hollingsworth, 1807 V. V. Johnson, 203257 D. McDonald, 128431 H. C. Sharp, 137491 R. J. Summers, 137506 G. P. Tate, 137505 R. J. B. Tiernay, 49303 B. Watson, 50083 I. M. Williams, April 10th; 1039 G. A. B. Best, 36452 J. C. Brown, 67879 C. J. Bufton, 1617 H. A. Cust, 651302 E. M. Cubison, 22313 R. E. Duggan, 890267 L. H. Green, F. V. Griffen, 128982 G. W. Norris, 795861 H. F. Oliver, 71448 W. J Paton, 100431 R. S. Preston, 23/147080 W. J. Sandford, 5299 T. E. Taylor, 137054 E. A. Webb, 13/60916 L W. Widdocks, 37191 R. W. Worthington, 5032 A. B Waldron, April 16th; 154164 J. G. Leask, April 19th; T.R.13/59177 J. Gray, April 20th; 66285 G. W. Keeble, April 22nd; 538104 J. Alderton, 175112 R. V. Crook, 20071 W. W. Currie, 27149 A. E. Lupton, 117323 J. M. Matthieson, 55512 L. Motley, 100639 C. B. Pinnock, 137537 E. J. Seaward, 42880 G. O. Thomson, 250591 F. Veall, April 25th; 194919 L. H. Wilmot, April 26th; 13/5428 C. H Aley. 110962 E. C. Davies, T.R./8/3289 G. H. Piercey, 2943 H. E. Waite, April 28th; 44310 M. E. Curlender, 11969 E. M. T. Gritton, 25443 W. C. Gubbins, 20176 W. R. Lewis, 117737 R. B. Swindell, May 5th; 460883 A. J. Potter, May 12th.

Maj. J. F. Dyer (Capt., Bt. Maj., E. Lancs. R.) relinquishes his commn. on ceasing to be empld., June 9th.

Lt.-Col. (Hon. Col.) L. Munro (Col., Spec. List) relinquishes his commn. on ceasing to be empld., and is permitted to retain the rank of Col., June 16th.

The following relinquish their Hon. commns. on ceasing to be empld. :—Temp. Hon. Capt. F C. Lea, March 31st; Temp. Hon. Lt. J. L. Napier, June 16th; Temp. Hon. Lt. H. P. Dickinson, June 25th

Transferred to unempld. list :—Capt G. Aste (Lt., R A.S.C.), from (S.O.), May 1st; Lt. G. H. H. Lyall, M.B.E., from (S.O.), May 1st; Maj. E. C. Hatcher, May 6th; Capt. W. B. Adams, from (S.O.), June 1st; Capt. (actg. Maj.) S. G. Rome, M.C. (Lt., A. and S. Highrs.), resigns his commn. and is permitted to retain the rank of Maj., June 25th.

The initials of 123869 Cdt. A. H. Reed are as now described and not C. H. Reed, as stated in "Gazette," May 9th.

The notification in "Gazette," April 1st, concerning Capt. F. A. Ford is cancelled.

ADMIRALTY, June 27th.

The King has been pleased to give orders for the following promotion in and appointments to the Most Excellent Order of the British Empire, in recognition of the services of the following officers during the war :—

O.B.E. (MILITARY DIVISION).

Lt. (actg. Lt.-Cmdr.) G. E. Mills, R.N.V.R.—For valuable services as 2nd in Command, R.N.V.R., Anti-Aircraft Corps.

Lt.-Cmdr. G. E. Nathan, R.N.V.R.—For valuable services whilst attached to the Anti-Aircraft Branch at General Headquarters, Great Britain.

Lt. H. J. Wagg, R.N.V.R.—For valuable services as 2nd in Command of the Anti-Aircraft Telephone Staff at General Headquarters, Great Britain.

WAR OFFICE, June 27th.

The King has been pleased to approve of the following award of the Distinguished Service Order to the following Officers in recognition of their gallantry and devotion to duty in the Field :—

Capt. G. A. Hill, M.C. (4th Bn. Manch. R., and R F.C.) (N. Russia).—He has since early December, 1917, been constantly working between the north of Russia and Rumania and Southern Russia He has attended Bolshevik meetings at night when street fighting was at its height, passing back and forth through the Bolshevist fighting lines, and has been almost daily under fire without protection He has conducted himself with courage and coolness and rendered valuable service.

Lt. H. O. Loug (No. 2 Sqdn., R.F.C., now R.A.F.).—For most conspicuous gallantry and ability during June and July, 1916. He initiated low-flying attacks on troops, transport, and trains far beyond the enemy lines. He also brought down several enemy aeroplanes. These flights were carried out alone and unescorted. He did splendid work.

AIR MINISTRY June 27th.

R.A.F.—The following temp appointment is made at the Air Ministry :—Deputy Director.—Lt.-Col. I. M. Bonham-Carter, O.B.E., and to be actg. Col. whilst so empld., June 8th, vice Col. B. C. H. Drew, C.M.G.

The following temp. appointments are made :—Staff Officer, 1st Class. —(Air) Lt.-Col. G. I. Carmichael, D.S.O., June 23rd.

Staff Officers, 3rd Class.—(P.) Capt. A. M. Waistell, D.S.C , Jan. 21st; (T.) Lt. C. T. Inman, May 16th, vice Lt. D. C. Sutherland.

FLYING BRANCH.—Capt. W. R. Read, M.C., A F C., retains the grading for purposes of pay and allowances of Maj. whilst empld as Maj., (A.), June 5th.

Capt. J. S. Wheelwright, D S.C., to be Capt., (A'ship.) from (T.), May 1st.

Lt. (Hon Capt.) I. G. Roberts to be actg. Capt. whilst empld. as Capt (A.), from Dec. 18th, 1918, to April 30th.

Sec. Lt. L. Michell, M.C., to be Lt., June 8th, 1918 (substituted for notification in "Gazette," March 7th).

The following Sec Lts. (late Gen. List, R.F.C , on prob.) are confirmed in their rank as Sec. Lts. (A.) :—C H Swan, July 13th, 1918; P. H. Leigh, Aug. 24th, 1918.

The following relinquish their commns. on ceasing to be empld. :—Lt. R. L. Tribe (Lt., R.G.A.), June 20th, 1918; Lt. W. J. Blitch, D.C.M. (Lt., W. Ont. R), Oct. 19th, 1918; Lt. G. T. Henderson (Lt., R.A.S.C.), Nov. 1st, 1918; Lt. H. E. Merritt (Lt., Northumb Fus.), Feb. 26th; Sec. Lt. (Hon. Lt.) E. A. Bradshaw (Lt., C.A.S.C.), April 14th; Sec. Lt. (Hon. Lt.) L. S. Dell (Lt., R.F.A.), May 14th; Capt G O. Johnson, M.C., May 15th; Sec. Lt. (Hon. Lt.) J D. Le Grove (Lt., W. York R.), Lt. J. P. Nickalls (Lt., R.F.A.), June 2nd; Lt W. H. S. Towell (R.N.), June 6th; Lt. N. Partridge (Lt., Manitoba R.), June 9th; Capt. F. W. I. V. Fraser, O.B.E., M.C. (Capt., Sea. Highrs.), June 12th; Sec. Lt. J. Brewster (Sec. Lt., R. Berks R.), June 13th.

Transferred to unempld. list :—Sec. Lt. J. McD. Moore, Feb. 2nd; Sec. Lt. G. H. B. Smith, Feb. 12th; Lt. R. C. Crowden, M.C., March 6th; Sec. Lt. A. A. Phillips, March 10th; Sec. Lt. H. C. Jepson, March 11th; Sec. Lt. J. W. Richards, March 18th; Sec. Lt. T. S. Gordon, Sec. Lt. H. N. Hyslop, Sec. Lt. W. S. Horne, April 1st; Lt. A. E. Ellis, April 9th; Sec. Lt. E. Munro, April 10th; Sec. Lt. J. S. Houston, April 11th; Sec. Lt. H. Howes, Sec. Lt. P. B McCowan, Sec. Lt G. A. A. Le Moine, April 13th; Sec. Lt. J. Ker, Sec Lt. J. Sayner, April 15th; Lt. H. M. Hoskins, April 16th; Sec Lt. E. G. Hamilton, Lt. J. H. Morris, Sec. Lt. T. H. Welch, April 19th; Lt. R. H. Davison, Sec. Lt A. Galt, Sec. Lt. J. M. MacDonald, April 22nd; Sec. Lt. R. H. Hofmeyr, April 23rd; Lt. S. Jennings, April 24th; Lt. H. C. Jones, Sec. Lt. P. C. Molland (King's R.R.C.), Lt. A. Niven, April 25th; Sec. Lt. J. Morton, April 26th; Capt. J. S. Maitland, April 28th; Sec Lt. (Hon. Lt.) F R. Daniel, M.C. (R.F.A.), Lt B. Holding, April 29th; Capt. A. C. Horsbrugh, Sec. Lt. E. Jolley, April 30th; Sec. Lt. R W. Kellett, May 1st; Lt. E. A. Coghlan, Lt. G. C. Stead, May 5th; Lt. A. Buchanan, D.F.C., Lt. M. R. James, D.F.C., May 6th; Lt. E. McIver, May 7th; Sec. Lt. R Boyle, Sec. Lt. P. W. Johnson, May 10th, Sec. Lt. D. R. Hoon, Lt. F. D. J. Silwood, May 12th; Lt. A. Howard, May 14th; Lt. H. A. W Hopson, Lt. J. K. S. Smith, May 15th; Lt C. W. E. Browse, Sec. Lt. (Hon Capt.) W. A Moore, Sec. Lt. H. B. Smith, May 17th; Sec. Lt. S. Saxon, May 18th; Capt. H. Hulbert, May 19th; Sec. Lt. L. Bennett, Sec. Lt. A. E. Eastes, Lt. A. T. Glanville, Sec. Lt. S. A. Jefferd, Lt. H. O. McDonald. Sec. Lt. D. Turnbull, May 20th; Capt. H. L. Tracy, May 23rd; Capt. A. H. George (Ches. R.), Lt. S. H. Preston, May 27th; Lt. E. G. Amatt, Capt. H. H. Maddocks, M.C., Lt. H. W. Norman, May 28th; Lt. D S. Judson, Capt. W. G. McMinnies, A.F.C., May 29th; Sec. Lt. A. N. Abbott. Lt. Y. H. Sowter, Sec. Lt. F. G. Wall, Lt. L. Walmsley, M.C , May 30th; Sec. Lt. I. Holliday, Lt. E. G. Latham, May 31st; Sec. Lt. C. E. J. Dingle, Sec. Lt. C. R. French, June 1st; Sec. Lt. C. Ashworth, Lt. L. C. Biddle, Sec. Lt. T. L. Elliott, Sec. Lt. M. Hinshelwood, Lt. L. W. King, Lt. R. H. Lemon, Capt. A. M. Wyatt, June 2nd; Sec Lt. E. J. Ashby. Lt. A. J. del Chopin (R.F.A., T.F.), Sec. Lt. J. C Campbell (W. Yorks. R.), Sec. Lt. (Hon. Lt.) J. L. G. Fasham, Lt. A. G. Freeman, Lt. R. K. Wilson, June 3rd; Sec. Lt. A. W. Amson, Sec. Lt. H. J. Ashley (South Lancs. R.), Lt. T. F. Clarke, Sec. Lt. H. M. Green, Sec. Lt. T. A. Priestly, Sec. Lt. P N. G. Whitlam, June 4th; Lt. C. H. Connab, Capt. J. E. A. Hoare, D.S.C , Lt. W. C. Mars, Lt. R. C. Purvis, Capt. A. I. Riley, June 5th; Lt. H. E. A. Reynolds, June 6th, Sec. Lt. A. E. Betts, Lt. E. J. Collins, Sec. Lt B. T. Humphreys, Lt. H. J. Hussey, Sec. Lt. A. E. Haylett, June 7th; Lt. F. W. Knox, June 9th; Sec. Lt. T. H. Heald, June 10th; Sec. Lt. E. J. W. Addington, Sec. Lt. H. A. Gill, Sec. Lt. J. F. Houchin, Sec Lt. H. Kellman, Lt. R. C. Kean, Capt F. J. Miller, Sec. Lt. R. N. Palmer, Sec. Lt. J. Stopford, June 11th; Lt. S. P. Ball. Lt. A. S. Keep, M.C., Lt. A. G. Lambert, Sec. Lt R. W. Paulger, Sec. Lt. (Hon. Lt.) A. P. Quaife (Dorset R.), Lt. L. G. Warren, Capt. D. C. Woods, June 12th; Sec. Lt. K. J. S Boardman, Sec. Lt. W H Bruce, Lt. R. H. S. Hunter, Sec. Lt. C. P. King, Lt. C. J. Ramsbottom, Sec. Lt. V. O. Reid, Lt. M. H. Scott, Sec. Lt. R. W. G. Le Sueur, Sec. Lt. J. E. S. Tennant, Lt. A. W. Thompson, June 13th; Capt. J. P. Findlay, Sec. Lt. L. G. Green, Sec. Lt. J. F. Gourlay, Lt. C. G. Salmond, Sec. Lt. N. McL. Steeples, Sec. Lt. H. H. Thesen, June 14th; Sec Lt. R. R. Hill, Lt. W. J. M. Tomson, June 15th; Lt. E. O. Amin, Sec. Lt. C. C A Clark, Sec. Lt. J. M. S. Conning, Sec. Lt. G. W. Hockey, Sec. Lt. A E Mallinson, Sec. Lt. H. A. M. Miller, Lt. C. F. Straughan, Sec Lt. N C. Tanner, June 16th; Lt. N. C. F. Nailer, Lt. R. L. Paine, Capt. W. Waugh, June 17th; Sec. Lt. G. F. Fountain, June 23rd; Capt N. Brearley, D.S.O., M.C., A.F.C. (King's L'pool R.), Sec. Lt. G. M. Finlayson, Sec. Lt. G. R. Gibbons, June 26th.

Maj. A. D. Bell-Irving, M C. (Gordon Highrs.) relinquishes his commn. on account of ill-health contracted on active service, June 24th.

Maj A. C. Clarke (Capt., Welsh R.) resigns his commn. and is permitted to retain his rank, June 28th.

Maj. A. Leamon-Berry is cashiered by sentence of General Court Martial, June 6th.

The following Capts. relinquish their commns. on account of ill-health and are permitted to retain their rank :—J. E Brewin, June 13th; L. H. F. Irving (contracted on active service), June 18th.

The following Lts. relinquish their commns. on account of ill-health and are permitted to retain their rank :—S. F. Napper, June 12th (substituted for notification in "Gazette," March 21st); L. R Sinclair (contracted on active service), June 17th; L. F. Cocks (contracted on active service), June 19th; C. W. G. Ratsey (contracted on active service), June 23rd.

The following Sec. Lts. relinquish their commns. on account of ill-health and are permitted to retain their rank :—J. R. Johnson, May 9th (substituted for notification in "Gazette," Feb. 21st); W. N. Mathews, June 10th.

Sec. Lt. A. F. V. Clark is removed the Service, May 9th

The appointment of Sec. Lt. G. P. Kells is antedated to Aug. 26th, 1918.

The initials of Lt. G. A. Brooke are as now described, and not "G M." as stated in "Gazette," April 29th.

The rank and initials of Sec. Lt. H. Gatfield are as now described and not "Lt. H. H. Gatfield" as stated in "Gazette," April 29th.

The initials of Lt. R. W. P. Goodwin are as now described and not as stated in "Gazette," May 2nd.

The Christian names of Lt. Harvey Allan Miller are as now described and not "Harry Allan" as stated in "Gazette." June 17th

The Christian names of William George Edwards are as now described, and not "William Edwards," as stated in "Gazette," Aug. 6th, 1918.

The surname of T. C. Beeken is as now described, and not "Becker" as stated in "Gazette," Feb. 14th.

The surname of Lt. S. A. Oades, M.C., is as now described, and not "Oudes" as stated in "Gazette," April 29th

The surname of Lt. P. C. Norton is as now described, and not "Morton" as stated in "Gazette," April 29th.

The surname of Sec. Lt. W. K. J. Shirlaw is as now described, and not "Shirlam" as stated in "Gazette," April 29th.

The surname of Lt. L. C. Jarrett is as now described, and not "Janett" as stated in "Gazette," May 2nd.

The surname of Lt. A. R. Browne is as now described, and not "Brown" as stated in "Gazette," April 29th.

The surname of Sec. Lt. J. J. Comerford is as now described, and not "Comerfield" as stated in "Gazette," May 6th.

The notification in "Gazette," June 6th, concerning Lt (actg. Capt.) H. C. Southerin is cancelled.

The notification in "Gazette," Feb 4th, concerning Lt. A G. Niven is cancelled

The notification in "Gazette," April 15th, concerning Sec. Lt. W. T. Neilson is cancelled ("Gazette" notice of May 27th to stand).

ADMINISTRATIVE BRANCH.—Sec. Lt. C. E. Yates to be actg. Capt. whilst empld. as Capt., from Jan. 15th to April 30th

Capt. J. F. Hay to be graded for purposes of pay and allowances of Lt., from (S.), Jan. 8th (substituted for notification in "Gazette," Feb. 25th).

Lt. A. S. Budge to be Lt., from (K.B.), April 17th.

Lts. to be Lts. from (S.O.) :—G. Verden, May 18th; (Hon Capt.) P. V. G. Van der Byl, M.C., June 1st.

Sec. Lt. E. A. Williams to be actg. Lt. whilst empld. as Lt., from Sept. 16th, 1918 to April 30th.

Sec. Lt. J. H. Blackey to be Sec. Lt., from (A.), June 5th.

Sec. Lts. to be Sec. Lts., from (K.B.) :—H. F. Turner, R. G. Smith, April 17th.

Sec. Lts. to be Sec. Lts., from (O.) :—H. S. Gargett, and to be Hon. Lt., June 3rd; C. W. Clutson, June 4th.

The following are granted temp commns as Sec. Lts. :—W. Brown, T. G. Cemery, C. L. Helsdon, T. H. Jolley, R. N. Tomkins, H. J. Vale, June 24th

The following relinquish their commns. on ceasing to be empld. :—Sec. Lt. M. Landless (Sec. Lt., Gloster R.), April 20th, 1918; Lt. (Hon. Capt.) P. W. McLean (Capt., Sea. Highrs.), March 14th; Capt. G. A. Revington (Lt., R.N.), June 25th; Capt. G. R. Turner (Capt., E. Kent R.), June 27th.

Transferred to the unempld. list :—Lt. (Hon. Capt.) J. MacNeil, Jan. 15th; Sec. Lt. H. G. Murray, April 14th; Lt. H. V. M. Hoskins, April 22nd (substituted for notification in "Gazette," May 6th); Lt. W. Hopps, April 29th; Sec. Lt. A. J. Brown, Capt. L. C. Coates, May 1st; Lt. E. H. Hereford, May 2nd; Sec. Lt. W. S. B. Northover, May 4th; Lt. R. E. Roberts (Welsh R.), May 15th; Sec. Lt. (Hon. Capt.) R. Falcon-Cooke, May 20th; Sec. Lt. O. C. McCaw, May 22nd; Lt. K. J. B. Munro, May 30th; Sec. Lt. E. A. Burden, May 31st; Sec. Lt. S. A. V. Austin, June 1st; Sec Lt M Cooper, June 4th; Lt W D. Boehrer, June 9th; Lt. H. C. Calvert, Lt. C. D. Kirkbride, June 11th; Sec Lt. F. T. Beer, Lt. E. Hichens, Lt. C. F. J. North, June 12th; Sec. Lt. R. D. Cheveley, June 13th.

Sec. Lt. G. P. Forbes relinquishes his commn. on account of ill-health and is permitted to retain his rank, May 18th.

Sec. Lt. E. R. Tremlett to take rank and precedence as though his appointment as Sec. Lt. bore date March 26th

The initial of C. Howard (Capt. and Qtr., Gen. List) is as now described, and not "G." as stated in "Gazette," Feb. 14th

The surname of Sec. Lt. H. J. Cutler is as now described, and not "Cutter" as stated in "Gazette," April 26th.

The surname of Capt. S. Walters is as now described, and not "Watters" as stated in "Gazette," May 2nd.

The notifications in "Gazette," Aug. 16th and Nov. 29th, 1918, concerning Lt. H. Tilley (D.L.I.) are cancelled.

The notification in "Gazette," Jan. 31st, concerning Lt. J. N. Mackay is cancelled.

The notification in "Gazette," May 13th, concerning Capt. (actg Maj.) L. C. Coates is cancelled.

The notification in "Gazette," May 27th, concerning Sec. Lt. C. B. Dick-Clealand is cancelled

The notification in "Gazette," June 13th, concerning Sec. Lt. J. Dale is substituted for notification which appeared in "Gazette," May 27th.

TECHNICAL BRANCH.—Capt. A. Belton is to be graded for purposes of pay and allowances of Maj. whilst empld. as Maj., Grade (A) May 1st.

Capt. E. Holloway, O.B.E., to be Capt., Grade (A), from Grade (B), May 22nd.

Lt. S. W. Davies to be actg. Capt. whilst empld. as Capt., Grade (A), from Feb. 1st to April 30th

Sec. Lt. (Hon. Lt.) F. W. Day to be actg. Capt. whilst empld. as Capt., Grade (B), from July 24th, 1918, to April 30th.

Lts. to be Lts., Grade (A), from (Ad.) :—Lt. A. L. C. Hartland-Rowe, Sept. 3rd, 1918 (substituted for notification in "Gazette," April 18th); Lt. D. A. Parker, June 23rd; Lt. R. Macfarlane to be Lt., Grade (B), from (Ad.), May 13th (substituted for notification in "Gazette," June 17th).

Sec. Lt. F. J. F. English to be Lt., Dec. 30th, 1918 (substituted for notification in "Gazette," Jan. 3rd).

Sec. Lt. (actg. Lt.) A. J. Macnab, M.C., to be Lt., Grade (A), June 26th, 1918.

Sec. Lts. to be Sec. Lts., Grade (A), from (Ad.) :—R. Lyne, Jan. 1st; MacD. Goodall, June 13th.

Transferred to unempld. list :—Capt. G. K. G. Kerr, Feb. 2nd (substituted for notification in "Gazette," Feb. 21st); Capt. L. B. W. Jolley, March 8th; Sec. Lt. W. Neilson, April 2nd; Capt. C. G. Nevatt, April 13th; Sec. Lt. T. Hodgson, April 17th; Capt. J. Pegg, April 19th; Maj. T. B. Hornblower, April 29th; Lt. G. S. Holloway, April 30th; Capt. M. G. Jones, Lt. A. L. Jurd, May 1st; Capt. R. G. MacNaughton, May 2nd; Sec. Lt. J. A. H. Hood, Lt. G. R. Thorne, May 7th; Lt. C. J. Couchman, May 8th; Maj. G. Dixon-Spain, M.C., May 15th; Lt. J. P. Lawes, May 16th; Sec. Lt. A. E. S. Baker, May 17th; Sec. Lt. H. Chaplin, Lt. H. L. Gradon (R.N.V.R.), May 26th; Maj. A. P. Hartley, Lt. W. M. Stace, June 4th; Lt. R. H. Semmence, June 7th; Capt. S. Allenby, June 11th; Lt. (Hon. Capt.) S. Hooper, Sec. Lt. H. B. Norris, June 12th; Lt. R. C. S. Jamie, June 16th; Lt. W. S. Tapson, June 23rd, Sec. Lt. F. G. Farrell, June 26th.

Lt. C. S. Willmott relinquishes his commn. on account of ill-health, and is permitted to retain his rank, June 10th.

Lt. G. H. C. Crooke-Rogers (Lt., Worc. R.) resigns his commn., and is permitted to retain his rank, June 28th.

Lt. (actg. Capt.) R. Stephenson, D.F.C. (temp Sec Lt., Ches. R.), resigns his commn., and is permitted to retain the rank of Capt., June 28th.

Sec. Lt. H. J. C. White (Sec Lt. in Army) resigns his commn., and is permitted to retain his rank, June 28th.

The rank of Lt.-Col. A. S. Hellawell, O.B.E., is as now shown, and not "Maj" as stated in "Gazette," April 4th

The Christian name of Lt. Henry Smith is as now described, and not as stated in "Gazette," March 4th.

The surname of E. G. Davison is as now described, and not E. G. Davidson as stated in "Gazette," Oct. 22nd, 1918.

The notification in "Gazette," March 5th, concerning Lt. C. A. Elliott is cancelled.

The notification in "Gazette," March 11th, concerning Sec. Lt. H. A. Creswell is cancelled.

The notification in "Gazette," May 23rd, concerning Lt. H. H. Ballard is cancelled.

CHAPLAINS BRANCH.—The Rev. A. J. N. Saunders is transferred to unempld. list, May 28th.

MEMORANDA.—Capt. E. J. Sayer, M.C., is granted the hon. rank of Maj., June 3rd.

Sec. Lt. C. F. Kearns (A. and S.) is granted the hon. rank of Lt., April 1st.

The following Overseas Cdts. are granted temp. commns. as Sec. Lts. :—60527 G. F. Evans, 171428 F. C. Miller, Feb. 15th.

Temp. Hon. Lt. S. H. Troughton relinquishes his hon. commn. on ceasing to be empld., June 16th.

Transferred to unempld. list :—Maj. J. M. Voyd, from (S.O.), May 1st; Capt. E. V. Andreini (Beds. R., T.F.), from (S.O.), May 29th; Lt. H. J. G. Newman, M.B.E., from (S.O.), May 30th; Lt. J. W. Jennings, from (S.O.), June 14th.

Lt. J. E. B. Thornely, O.B.E., relinquishes his commn. on account of ill-health contracted on active service, and is granted the rank of Maj., June 20th.

The notification in "Gazette," May 9th, concerning Sec. Lt. F. T. L. Avis is cancelled.

FROM THE COURT CIRCULAR.

BUCKINGHAM PALACE, June 26th.

The King held an Investiture in the Quadrangle of the Palace at 11 o'clock this morning.

The following were severally introduced into the presence of His Majesty, when The King invested them with the Insignia of the respective Divisions of the Orders into which they have been admitted :—

THE MOST HONOURABLE ORDER OF THE BATH (MILITARY DIVISION).—Companion.—Brig.-Gen. Philip Game, R.A.F.

THE MOST EXCELLENT ORDER OF THE BRITISH EMPIRE.—Officers.—Military Division.—Major Ion Cooke (Connaught Rangers), attd. R.A.F., Major Frank Gray, R.A.F.

His Majesty then conferred decorations as follows :—

THE MILITARY CROSS.—Lieut. Eric Forsyth, R.A.F.

The King and Queen, accompanied by the Princess Mary, honoured the Royal Naval, Military, and Air Force Tournament at Olympia with their presence this afternoon

BUCKINGHAM PALACE, June 28th.

The King held an Investiture in the Quadrangle of the Palace at 11 o'clock.

The following were severally introduced into the presence of His Majesty, when The King invested them with the Insignia of the Division of the Order into which they have been admitted :—

THE DISTINGUISHED SERVICE ORDER AND THE MILITARY CROSS AND BAR.—Major Arthur Peck, late R.A.F.

THE DISTINGUISHED SERVICE ORDER.—Major Wilfred McClaughry, Aus. F.C.; Capt. Edgar McClaughry, Aus. F.C.; Major Franks Robinson, R.A.F.

His Majesty then conferred decorations as follows :—

THE MILITARY CROSS AND BAR.—Lt. Hamilton Hervey, R.A.F.

THE MILITARY CROSS.—Major Lacey Mills (E. Surrey Regt., attd. R.A.F.).

BUCKINGHAM PALACE, June 30th.

The Prince of Wales and the Prince Albert, attended by Captain the Lord Claud N. Hamilton and Major Louis Grieg, were present at the Royal Naval, Military and Air Force Tournament at Olympia.

ADMIRALTY APPOINTMENTS AND PROMOTIONS.

THE HALF-YEARLY PROMOTION LIST.

Lieut.-Commander to be Commander.—J. G. Bower, D.S.O.

* * *

The following appointments have been made :—

June 27th.—Wt. Elect.—J. Bryant, to "Furious," June 26th.

June 28th.—Payr. Lieut.—J. F. Stephens, to "Empress," in charge, June 27th.

Actg. Payr. Sub-Lieut.—R. W. Pearse, to "Vindictive," June 15th.

Payr. Mid.—E. J. Foster, to "Furious," June 25th.

OFFICIAL COMMUNIQUE.

RUSSIA (BOLSHEVIK).

June 24th.—The incursions of enemy aeroplanes have been definitely stoped by the measures adopted by us.

PERSONAL NOTICES.

NAVAL.

MARRIAGE.

KERSHAW—MARSHALL.—On June 24th, at All Saints, St. John's Wood, N.W., Major Ronald Hargrave Kershaw, R.A.F. (late Sqd. Comdr., R.N.A.S.), son of the late E. E. Kershaw, Staff Surgeon, R.N., and Mrs. Selby Hall, of Sliema, Malta, was married to Iris Claire, second daughter of Mrs. Jack Marshall, of Seacourt, Hayling Island, Hants.

BIRTHS.

BREDIN.—On June 24th, 1919, the wife of E. Chichester Bredin, R.N.A.S., of a son.

BUSS.—On June 21st, at a nursing home in London, the wife of Major H. A. Buss, O.B.E., D.S.C., of a daughter.

MILITARY.

ENGAGEMENTS.

ASHMORE—PARSONS.—The marriage of Major-General E. B. Ashmore, C.B., C.M.G., M.V.O., R.A., to Betty, daughter of the Rev. F. W. and Mrs. Parsons will take place on July 17th at Holy Trinity Church, S. Kensington.

KNIGHT—DITKOWSKI.—The marriage arranged between Captain A. Knight, M.B.E., N. Lancashire Regt., and R.A.F., and Charlotte Beatrice, only daughter of Dr. and Mrs. Ditkowski, of Paris, will take place at Brompton Oratory on Tuesday, July 8th, at 2 p.m. All friends welcome at the church or at the Hyde Park Hotel.

NORTHOVER—PAPSONS.—The engagement is announced between Captain Roland Northover, 4th Lancashire Fusiliers, late R.A.F., and Dorothy, only daughter of Mr. and Mrs. Charles Parsons, of 110, Park Street, Grosvenor Square, W.

MARRIAGE.

FAITHFULL—REYNOLDS.—A marriage has been arranged, and will take place at the Brompton Oratory at 2.30 p.m. on

Thursday, July 17th, between Major G. F. H. Faithfull, Indian Army and R.A.F., son of the Rev. A. F. Faithfull and Mrs. Faithfull, of Storrington, Sussex, and Leila, daughter of Lieut.-Colonel J. P. Reynolds and Mrs. Reynolds, of Dove Park, Woolton, Liverpool.

BIRTH.

MARSH.—On June 26th, 1919, at a nursing home in London, to Eileen, wife of the late Capt. P. E. G. Marsh, M.C., R.A.F., of Wethersfield, Essex—a daughter (posthumous).

AIR FORCE.

DEATHS.

DARE.—Cpl. Samuel Dare, R.A.F., who died on June 18th at the Central Flying School, Upavon, Wilts, was the husband of Isabel Dare, and only son of the late Samuel and Eliza Dare, of 16, Paragon Road, Hackney.

FRY.—Capt. Alfred Andrew Fry, Adjutant, 22nd Wing, R.A.F., late 3rd Monmouthshire Regiment and 2nd South Wales Borderers, died suddenly on June 27th at Ventis Villa, Wolsley Road, Esher, while on leave from France.

ENGAGEMENT.

GARSTIN—OSSORIO.—The engagement is announced between Capt. N. L. Garstin, R.A.F., son of Mr. F. C. Garstin, C.C. and R.M., Stutterheim, Cape Province, South Africa, and Maria Ossorio (Babs), only child of the late F. de P. Ossorio, of Manila, and Mrs. F. de P. Ossorio, 2, Boyne Park, Tunbridge Wells.

MARRIAGES.

EVANS—AYLING.—On June 25th, Capt. Donald Singleton Evans, R.A.F., son of Mr. and Mrs. W. H. Evans, of Buntingford, Herts., was married to Gladys Katie, daughter of the late Mr. and Mrs. Thomas Ayling, of Southsea, Hants.

TAYLOR—NAYCE.—The engagement is announced between Lieut. W. E. Taylor, R.A.F., second son of Mrs. M. Taylor, of Wondau Road, Wigram, and Millicent, eldest daughter of Mr. and Mrs. H. F. Nayce, The Sycamores, Andover.

TYSOE—FERNYHOUGH.—On June 24th, at Christ Church, Lancaster Gate, W., Donald F. Tysoe, R.A.F., was married to Ethel Milne Fernyhough.

BIRTH.

MILES.—On June 23rd, at Dalkey, co. Dublin, the wife of Lieut. J. L. Miles, R.A.F., of a son.

* * *

It is reported that the two British aviators who were forced to make a landing at Astrakhan and were made prisoners are Lieut. Ingram, R.A.F., and Lieut. Mantle, R.A.F.

THE PEACE TERMS.

The following is the full text of the Aerial and Aerial Navigation Clauses of the Peace Treaty :—

PART V.—MILITARY, NAVAL, AND AERIAL CLAUSES.

In order to render possible the initiation of a general limitation of the armaments of all nations, Germany undertakes strictly to observe the military, naval, and air clauses which follow.

SECTION III.—AIR CLAUSES.

ARTICLE 198.

The armed forces of Germany must not include any military or naval air forces.

Germany may, during a period not extending beyond October 1st, 1919, maintain a maximum number of one hundred seaplanes or flying boats, which shall be exclusively employed in searching for submarine mines, shall be furnished with the necessary equipment for this purpose, and shall in no case carry arms, munitions, or bombs of any nature whatever.

In addition to the engines installed in the seaplanes or flying boats above mentioned, one spare engine may be provided for each engine of each of these craft.

No dirigible shall be kept.

ARTICLE 199.

Within two months from the coming into force of the present Treaty the personnel of the air forces on the rolls of the German land and sea forces shall be demobilised. Up to October 1st, 1919, however, Germany may keep and maintain a total number of one thousand men, including officers, for the whole of the cadres and personnel, flying and non-flying, of all formations and establishments.

ARTICLE 200.

Until the complete evacuation of German territory by the Allied and Associated troops, the aircraft of the Allied and Associated Powers shall enjoy in Germany freedom of passage through the air, freedom of transit and of landing.

ARTICLE 201.

During the six months following the coming into force of the present Treaty, the manufacture and importation of aircraft, parts of aircraft, engines for aircraft, and parts of engines for aircraft, shall be forbidden in all German territory.

ARTICLE 202.

On the coming into force of the present Treaty, all military and naval aeronautical material, except the machines mentioned in the second and third paragraphs of Article 198, must be delivered to the Governments of the Principal Allied and Associated Powers.

Delivery must be effected at such places as the said Governments may select, and must be completed within three months.

In particular, this material will include all items under the following heads which are or have been in use or were designed for warlike purposes :—

Complete aeroplanes and seaplanes, as well as those being manufactured, repaired or assembled.

Dirigibles able to take the air, being manufactured, repaired or assembled.

Plant for the manufacture of hydrogen.

Dirigible sheds and shelters of every kind for aircraft.

Pending their delivery, dirigibles will, at the expense of Germany, be maintained inflated with hydrogen; the plant for the manufacture of hydrogen, as well as the sheds for dirigibles, may, at the discretion of the said Powers, be left to Germany until the time when the dirigibles are handed over.

Engines for aircraft.

Nacelles and fuselages.

Armament (guns, machine guns, light machine guns, bomb-dropping apparatus, torpedo-dropping apparatus, synchronisation apparatus, aiming apparatus).

Munitions (cartridges, shells, bombs loaded or unloaded, stocks of explosives or of material for their manufacture).

Instruments for use on aircraft.

Wireless apparatus and photographic or cinematograph apparatus for use on aircraft.

Component parts of any of the items under the preceding heads.

The material referred to above shall not be removed without special permission from the said Government.

PART XI.—AERIAL NAVIGATION.

ARTICLE 313.

The aircraft of the Allied and Associated Powers shall have full liberty of passage and landing over and in the territory and territorial waters of Germany, and shall enjoy the same privileges as German aircraft, particularly in case of distress by land or sea.

ARTICLE 314.

The aircraft of the Allied and Associated Powers shall, while in transit to any foreign country whatever, enjoy the right of flying over the territory and territorial waters

of Germany without landing, subject always to any regulations which may be made by Germany, and which shall be applicable equally to the aircraft of Germany and to those of the Allied and Associated countries.

ARTICLE 315.

All aerodromes in Germany open to national public traffic shall be open for the aircraft of the Allied and Associated Powers, and in any such aerodrome such aircraft shall be treated on a footing of equality with German aircraft as regards charges of every description, including charges for landing and accommodation.

ARTICLE 316.

Subject to the present provisions, the rights of passage, transit and landing, provided for in Articles 313, 314, and 315, are subject to the observance of such regulations as Germany may consider it necessary to enact, but such regulations shall be applied without distinction to German aircraft and to those of the Allied and Associated countries.

ARTICLE 317.

Certificates of nationality, airworthiness, or competency, and licences, issued or recognised as valid by any of the Allied or Associated Powers, shall be recognised in Germany as valid and as equivalent to the certificates and licences issued by Germany.

ARTICLE 318.

As regards internal commercial air traffic, the aircraft of the Allied and Associated Powers shall enjoy in Germany most favoured nation treatment.

ARTICLE 319.

Germany undertakes to enforce the necessary measures to ensure that all German aircraft flying over her territory shall comply with the Rules as to lights and signals, Rules of the Air and Rules for Air Traffic on and in the neighbourhood of aerodromes, which have been laid down in the Convention relative to Aerial Navigation concluded between the Allied and Associated Powers.

ARTICLE 320.

The obligations imposed by the preceding provisions shall remain in force until January 1st, 1923, unless before that date Germany shall have been admitted into the League of Nations or shall have been authorised, by consent of the Allied and Associated Powers, to adhere to the Convention relative to Aerial Navigation concluded between those Powers.

THE ROYAL NAVAL, MILITARY, AND AIR FORCE TOURNAMENT.

The Royal Naval and Military Tournament of former years is revived this year, and owing to the progress of aviation, is known as the Royal Naval, Military, and Air Force Tournament. It is open at Olympia every afternoon and evening from June 26th to July 12th.

The Army are the people who can and do perform most of the events, for they are in their element on the ground, and for their biggest shows, so far as scenery goes, only require a certain amount of wood and coloured canvas, with the addition of a "jazz orchestra" performing on old tins and pieces of corrugated iron.

The Navy are not so lucky, for they cannot bring their ships with them, but they can bring their guns, and make a noise, and with the Marines, can drill and show how they make raids on enemy coasts and such small wars.

THE R.A.F.'S PART.

Something more than drilling and groundwork is expected of the R.A.F., but they are more handicapped still, for to attempt to fly in Olympia would be very bad for the illuminations thereof, and also probably for the machine, not to mention the pilot.

The only possible interesting thing to do is to assemble and dissemble a machine, and that is what is done this year, although a little story is woven round it in the programme, viz. :—

ROYAL AIR FORCE.

AFTERNOON DISPLAY.—An Aeroplane is proceeding by road; orders are received for the machine to reconnoitre.

For this display a machine is brought into the arena packed on a float. The machine is erected and prepared for flight. Immediately it is ready for flight an orderly arrives with fresh instructions that the machine is to proceed at once by road to another aerodrome.—[Truly artistic verisimilitude.—Ed]. These instructions are carried out by dismantling and packing the machine ready to move off to its new destination.

EVENING DISPLAY.—The arena is in darkness; a hostile machine is located crashed near a French village. The workshop lorry and transport lorry arrive and dismantle the machine. Ambulance party also arrives to attend to the injured pilot.

In this display the salvage party are working under light provided by the workshop lorry; and, having dismantled the machine, it is loaded on to the transport lorry ready for departure.

THE 2.30 P.M. R.A.F. SHOW.

In the Afternoon Display, two heavy lorries lumber into the arena, each complete with a Sopwith "pup" fuselage with detached wings. One "pup" is painted white, and the other a brown and white check. In each case a serjeant assisted by four men and two W.R.A.Fs. proceed to wheel the machine off the lorry and then attach the wings with tremendous speed, and succeed in making the machine look like a Camel, as the struts are not lengthy enough to give any dihedral to the top plane.

Whilst the wings are being attached, the pilot, knowing he will not have to fly the machine, or to illustrate the usual carelessness shown by most pilots, gets aboard in complete flying kit without inspecting the machine.

The engine is then run up and successfully fires on about three cylinders, the pilot taking great care not to accelerate it above 500 r.p.m., apparently in case the wings should be blown off.

The machine is then dissembled, although not in the quickest way, which would be to attempt to fly it, but in the orthodox fashion by serjeant and mechanics (male and female).

It is then pushed back into the lorry and away they go.

THE 8 P.M. R.A.F. SHOW AND THE REST.

The evening performance is more thrilling owing to the darkness, and is also more realistic, perhaps owing to the darkness; besides an injured pilot, although a Hun for the purpose of the story, must appeal to those people who go to aerodromes, not to see the flying—but in order that they may not miss a crash in case one occurs.

The attempt is a good one, but displays many weak points, which would hardly be noticed by the general public, to whom the sight of an aeroplane at close quarters on the ground still gives a thrill; also if the engine is run up and they see the wheels go round they expect it to take off immediately.

The rest of the Tournament is quite usual, numbers of horses, gorgeous displays of uniform, and much noise, and one pays to see exactly what one does see. The tanks are an innovation and cause much interest. The "Attack" is the grand finale, explosions all over the trenches, clouds of smoke, tanks and infantry firing in all directions; in fact, so much noise, that there might almost be a war on.—G. L. D.

RESULTS.

Among the competitions held during the afternoon of June 26th was a series of tugs-of-war between Navy, Army, and Air Force teams, resulted as follows:—

Railway Construction Troops, R.E., beat No. 2 (N) A.R.D., R.A.F.

Headquarters, E.R.S., R.A.F., beat R.N. Barracks, Chatham.

3rd Group, R.A.F., beat team from British troops in France.

No. 1 S, A.R.D., R.A.F., beat 3rd West Yorks Regiment.

On June 27th, in the tug-of-war, No. 1 (S) A.R.D., R.A.F., was scratched.

On June 28th, the following in the tug-of-war (110 stone) 3rd Batt. Leinster Regt. beat 3rd Group R.A.F. by two pulls to nil.

On June 30th the 1st Irish Guards beat No. 1 Co. A.R.D. R.A.F., by two pulls to nil in the Tug-of-War.

THE CANADIAN AIR BOARD

A Canadian Air Board has been appointed to control all civil and commercial flying in the Dominion.

Mr. A. L. Sifton, Minister of Customs, is Chairman, and General Mewburn, Minister of Militia, and Mr. C. C. Ballantyne, Minister for Naval Affairs, are members. Lieut.-Colonel Biggar is Vice-Chairman. Dr. Coulter, Deputy Postmaster-General is a member of the Board, which seems to indicate the possibilities of a Canadian aerial mail in the near future.

ZEPPELINS AGAIN.

It is rumoured that a Zeppelin airship has been shot down by Esthonian troops. Documents found upon the bodies of the crew are stated to have proved that soldiers of the German "Iron Division" are fighting with the Landswehr.

THE BROCK BULLET.

Among the claims before the War Inventions Commission on June 30th, was that of the widow of the late Commander Brock, R.N.A.S., for compensation in respect of the bullet invented by her husband. This bullet as is well known, was instrumental in the destruction of the majority of enemy airships brought down in England.

AIR RAIDS ON LONDON.

On June 27th, Colonel H. de Watteville delivered a lecture on "London Air Raids" at the annual meeting of the London Topographical Society, held in the rooms of the Society of Antiquaries at Burlington House. The Earl of Kerry was in the chair.

Colonel de Watteville said there was no doubt that long before the war the Germans had made up their minds that the new air-arm was to be a decisive factor in it. The airship was being developed as a counterblast to sea supremacy, but the technical difficulties at the outset of the war had not been overcome to the extent which enthusiasts had desired.

The German Army had then a greater number of Zeppelins than had the German Navy, but five of them came to grief in the early weeks, and the naval airships were then brought forth. During the war some 120 great airships had been constructed by the Germans, but out of that total there were never more than twelve or sixteen ready to take the air at one time.

Dealing with the German naval airships, he said that wireless telegraphy played a considerable part in their navigation. There were some officers in London who knew half an hour before the airships left their sheds in Germany that a raid was to be made on these shores.

The lecturer described the failure of the German military airships based on Belgium, but remarked that the German naval air service was of stiffer metal. Larger airships which would rise to higher altitudes were constructed, and attacks were made on England and on London.

They were, however, met with more effective defensive methods, and the bringing down of the Zeppelin at Cuffley by Capt. Leefe Robinson proved to be the moral turning-point of the air attacks on London by airships. It was witnessed by ten other raiders, and the sight of the burning airship dropping to earth was too much for them.

With the bringing down at Potter's Bar of Commander Matthi, who was a marvellously clever navigator, the sting was taken out of the attack on London.

Colonel de Watteville repudiated the suggestion that the amount of damage done in these raids was suppressed. "Our communiqués of the damage done by the airship raids were absolutely correct," he said. "Every single casualty and every single bit of damage that was done by a German raider throughout the war was recorded."

Some of the airship commanders boasted when they returned to Germany of their exploits in "bombing London," when, in fact, they had never reached it. One, by name Buttlar, had lectured in Germany about his fine attacks on London, and also had written a book. His airship had never been nearer it than forty miles.

Colonel de Watteville also described the aeroplane raids on London from their bases in Belgium. It was still a mystery to him why the Germans did not collect their best pilots to raid it, after some of the demoralisation produced in the east of London in 1917. But both airships and aeropalnes had been defeated. Illustrations were shown on the screen giving the courses taken by aircraft in raiding London. In one case Colonel de Watteville said two enemy airships, entering the country at different points, almost came into collision near London.

R.A.F. OFFICERS CHARGED.

A verdict of guilty was returned by the jury at Middlesex Sessions on June 24th in the case of the two R.A.F. officers, Lieut. Charles Hankey and Lieut. Charles Joseph Young, who were charged with selling property belonging to the Government. William John Twigg and Thomas Oswin, motor engineers, of Hampton, were found guilty of receiving the property.

It was alleged that when left to superintend the transfer of certain stores from Hurst Park to other depots, Lieut. Hankey sold a pair of lorry wheels and magneto parts to Oswin for £20, and 10 barrels of lubricating oil for £40 to Twigg, and also other accessories to Twigg for £15.

Lieut. Hankey, who gave evidence, said that he honestly believed he had a right to sell the goods, and it was his intention to hand over the money he received to the Air Ministry, but he was arrested before he could do this.

In the case of the two officers, Mr. Sharpe said it was a most painful sentence that he had to pass. Both the accused were in positions of trust. He ordered Lieut. Hankey, who was the superior officer at Hurst Park, to prison for 12 months, and Lieut. Young to prison for nine months, both in the second division. It was stated that both officers would, as a result of the conviction, lose a considerable gratuity each.

ONE RESULT OF PEACE.

During the night of Saturday, June 28th, the searchlight station on the summit of Parliament Hill, Highgate, was destroyed by fire caused by a bonfire celebrating the announcement of the signing of the Peace Treaty being lighted too near the wooden fencing. Four fire engines were promptly on the scene, but the following morning the place was a complete wreck.

MORE GRIEVANCES OF CADETS.

Sir,—I have read for the last few months, with great interest, your "Cadets' Grievances," and see no reason why my case shouldn't be brought to light.

I was personally introduced to Major —— at the "Cecil" early in 1917, and, as a result, was accepted for service as a cadet in the R.F.C.

I received my papers calling me up for August, 1917, ordering me to proceed to Farnborough. I was there about a fortnight and was then sent with the first batch of cadets that were sent to No. 1 Wing at St. Leonards. Eventually, I was sent to the "Cecil" for my medical examination, and was passed as an observer. A fortnight later, together with the others, who were passed as observers, I was sent to No. 5 Wing at Wendover, and we were told that we had been sent there to wait until we were 19. A month later the whole Wing was removed to Hastings, and there all the observers were kept until February, 1918, when we were sent for another "Air Board," this time at Hampstead. With several others I was passed as a pilot, and after another month was sent to the S. of M.A. at Oxford.

You will see that instead of a six weeks' course at Hastings, I had six months'.

I arrived at Oxford to see the last lot of cadets given their commissions. After passing the examination there, I was sent to the School of Armament at Uxbridge, and under the new Air Force arrangement, after passing the examination there, I was made a Flight Cadet "A," and posted to an aerodrome.

For an instructor I was given an "old woman"—one always nervous about getting his pupils off solo—and when I was ready to get off myself, the aerodrome was closed down, and the instructors and pupils sent to another one, and some time had elapsed before we could do any more flying, which meant starting again. This was near the end of July.

This aerodrome was full, with new pupils always arriving, so there was a continual shortage of machines, with the result that when the Armistice was signed I had just passed Category "A," and managed to get on Scouts.

Shortly afterwards the aerodrome was condemned, and flying ceased, and in time we were all drafted off to other aerodromes, there to be demobilised without any chance to do any flying, however eager one was.

I suppose, being English, I shall, with many others, just have to tolerate ie—with several big unpaid clothing bills. I would certainly rather do this than go whining to those whose influence got me into the Air Service, or ask the Air Ministry to look into my case, even though I know that if I had gone into the Infantry I should probably have had my commission from some time past, and now have a decent-sized gratuity to look forward to, as well as knowing my clothing bills were paid.

I am a Public School fellow, and unhappily, much as I tried before I was 18 to join up and get overseas, I was unsuccessful, and now, thanks to the Air Force, I cannot boast of any service overseas.

Surely there must be some Englishman of position who is ready to take up such cases and get things fixed for us in some way or other—either by getting us gazetted as officers, with so many days' pay and clothing allowance, or at least an officer's gratuity.

"Hard-Touched Cadet."

FIRST TRIP OF DUTCH SEAPLANES.

Seaplane and flying-boat flights between England and Holland are becoming relatively common, and on several occasions recently Dutch official visitors have chosen the aerial route as speediest and most convenient.

In each case previously it has been British machines which have been provided for such passengers—notably in the case of the Dutch Aviation Mission which made the return journey in British flying-boats. Recently, however, Dutch seaplanes made the flight for the first time to British shores, arriving at Felixstowe for the purpose of taking back to Holland two Dutch medical officers who had been visiting this country to investigate the British system of medical examination of pilots.

On the return journey as neither of the Dutch seaplanes—two-seater float machines of the Friedrichshafen type—were equipped with wireless, a British F.5 flying-boat with two Eagle VIII Rolls-Royce engines was detailed to escort them as far as Scheveningen. At this place the Dutch seaplanes turned inland and following the canals reached Amsterdam where they alighted safely, while the British machine returned to Felixstowe. Both the out and return journeys occupied 1 hour and 55 minutes, and throughout the whole trip the F.5 was in wireless communication with its base at Felixstowe.

FRENCH LONG-DISTANCE FLIGHTS.

The French Aeronautical Department has arranged for a series of long-distance flights to be made by war pilots over various capitals. London, Madrid, Constantinople, Prague, Warsaw, Vienna, Brussels, Amsterdam, and Cairo (*via* Constantinople) are included. Trips will also be made to Tunis, Algiers, and Dakar (West Africa).

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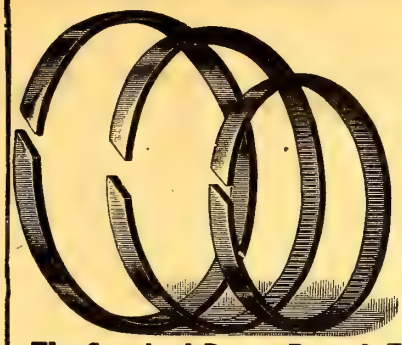

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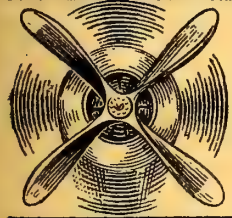

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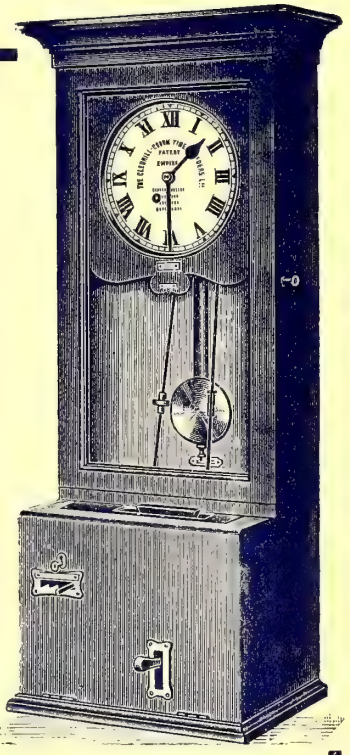

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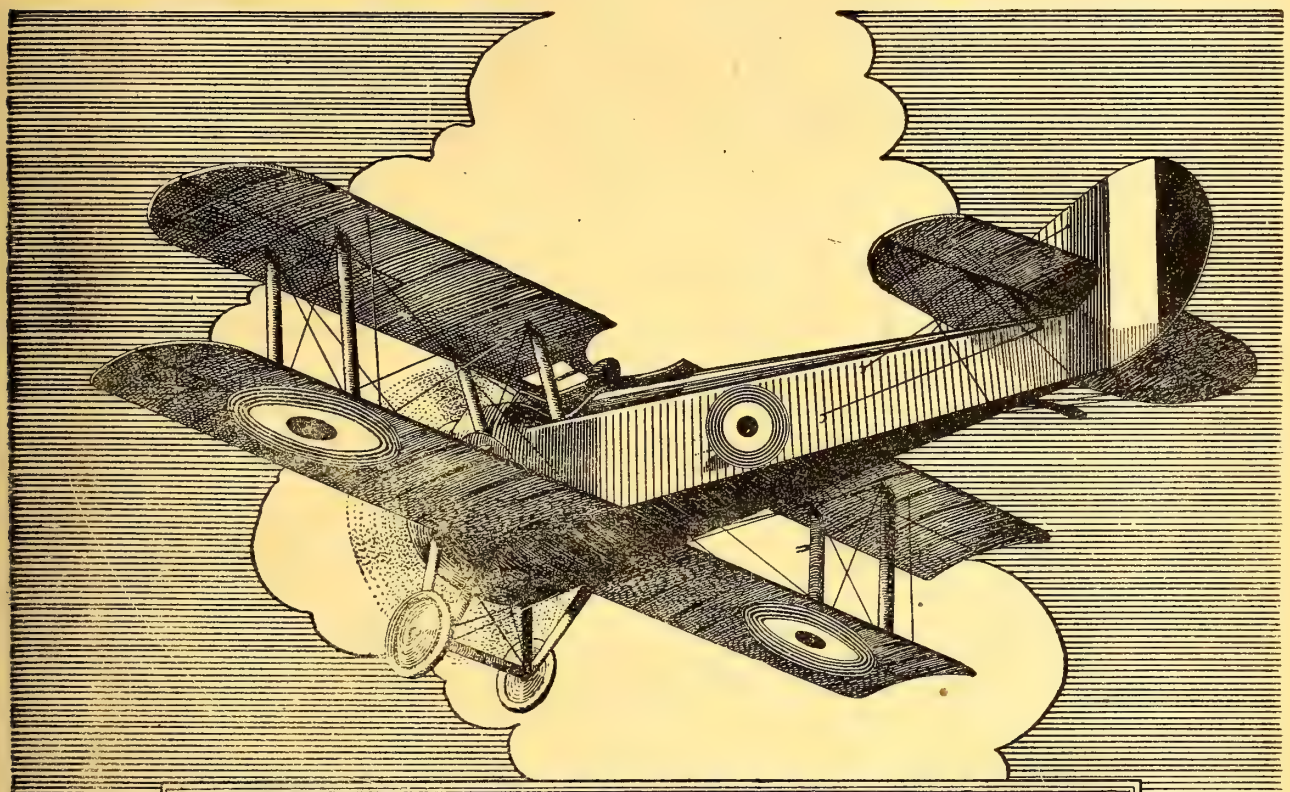

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ON R 34.

A full account of the voyage of R.34 from Edinburgh to New York will be found in the later pages of this paper, where Brigadier-General Maitland's log is given in full, together with a complete record of the signals made by the ship during her voyage. Meantime the feat calls for a certain amount of editorial comment.

In the first place all writers on the subject seem to have forgotten how much of the success of R.34 is due to the pioneers of airship work in this country. The impression seems to exist that airships have been developed entirely during the war. As a matter of fact very much good work was done long before the war.

Much as we all admire the industry and the engineering ability of those who produced the excellent Zeppelin airships, of which R.33 and R.34 are frequently supposed to be merely very good copies, it must not be forgotten that the Zeppelins themselves owed much to British experiments. At a time when the Zeppelins were ugly slab-sided, ill-shaped craft, we in this country produced, at the Vickers works at Barrow, a ship which was of good streamline shape, with symmetrical rudders, elevators, and fins, very like the Zeppelins of six or seven years later.

This ship, which was jestingly nicknamed the "Mayfly," was a failure because of structural weaknesses due to sheer inexperience, but if those responsible for the ship had had money placed at their disposal, as had the makers of the Zeppelins, there can be no doubt that by the outbreak of war our airships would have been as far in advance of the German craft as were our Trade-designed aeroplanes in advance of German aeroplanes. As in all our other preparations for war, our airships suffered from the meanness of self-seeking politicians, and we paid in blood during the war for the money we saved before the war.

The Pioneers of Rigid Airships.

The men to whom the credit is due for what was good in that early ship were Captain Murray Sueter, R.N., Commanders Masterman and Schwann, R.N., Lieuts. Boothby and Neville Usborne, R.N., and Engineer-Lieut. Randall, R.N.

Captain Sueter, who became, later, a Commodore and a C.B., never lost his faith in airships, but, as Director of the Air Department at the Admiralty, being limited as to the money he could spend and being extraordinarily far-sighted, he, in association with Mr. Winston Churchill, spent what money was available in building many aeroplanes and seaplanes instead of one or two big airships, and thereby saved the British Aircraft Industry from extinction, thus saving the Royal Flying Corps in the Field at its most critical periods, and so saving the British Army from heavy losses. To him in his retirement we as a nation owe a deep debt of gratitude for his work in helping us to our present position as the leading Air Power, both in airships and aeroplanes.

Commander Masterman became Brigadier-General, R.A.F., and was given a C.B.E. and an A.F.C. for airship work. Commander Schwann became Brigadier-General Swann, C.B., R.A.F., and did much excellent seaplane work, besides being for a period Deputy Chief of the Air Staff.

Lieut. Usborne was killed in a combined aeroplane and airship accident about half-way through the war, and Engineer-Lieut. Randall is lost somewhere in the wilderness of the R.A.F. Lieut. Boothby, now Lieut.-Col. R.A.F., has remained faithful to airships, and has done much valuable work during the war, both in training personnel and in experimenting with airships, to assist the airship section of the R.A.F. in attaining success. One regrets that he, as the sole pioneer of British rigid airships who is an active airship officer, had not the reward of commanding R.34 on her historic voyage. None the less he has the satisfaction of seeing his life's work crowned with success, and of being justified in his faith.

Another Pioneer.

The senior officer on board R.34, Brig.-General E. M. Maitland, C.M.G., D.S.O., though not one of the pioneers of rigid airships, is at any rate a pioneer of British aeronautics, for one first met him when he was making strenuous efforts to induce a Voisin biplane to fly at Doncaster in 1909, and long before that he was an ardent balloonist. He continued to experiment with aeroplanes, and in 1910 or 1911 he smashed both his ankles in a crash with a machine of his own.

Not at all disheartened, he continued to fly, and joined the R.F.C. at its formation, being then a Captain in the Essex Regiment. Eventually he took his aeroplane pilot's certificate in France. Then he transferred to the little non-rigid Army airships, and commanded No. 1 Squadron R.F.C. (Airships and Balloons) at Farnborough until the Navy took over the airships, when he transferred, along with several other Army officers, to the service of the Admiralty.

While serving with the Army airships he acquired the distinction of being the first person to leave a moving airship by parachute. Later on he became the chief apostle of parachutes in this country, and it is to his determination in preaching parachutes and his continual personal demonstrations of their reliability and utility that many of our officers and men owe their lives to-day. And, but for the obtuseness and obstinacy of those who refused to fit parachutes to aeroplanes, in spite of General Maitland's advocacy, many other lives might have been saved during the war.

General Maitland, then a Wing-Commander R.N.A.S., was also responsible—jointly with Lieut.-Colonel (then Squadron-Commander) DelaCombe—for the introduction of kite-balloons to the British Navy and Army. Some day one will tell the whole of the story of that introduction, which is one of the funniest of the whole war, but meantime it may be accepted as history that but for General Maitland's appreciation of the military possibilities of K.Bs. and Colonel DelaCombe's appreciation of their naval possibilities, and their ability in overcoming obstructionists in both Services, we should have remained for a very long time without those useful if inelegant aids to war.

For a long time General Maitland was in charge of all K.B. work for the R.N.A.S., but eventually he came back to airships as such. To-day he is Director of Airship Equipment, a post which, if not quite big enough to give his ability full scope, does at any rate assure that some of his knowledge is turned to good account.

His presence on R.34 as representative of the Air Ministry is eminently satisfactory, for if not one of the pioneers of rigid ships he is at least in the direct apostolic succession, and is a pioneer.

Congratulations.

One has not the honour of knowing any of the operating crew of the ship, so one cannot write of their Service records, but their selection for the voyage is a guarantee of their experience and their success is proof of their ability. To Major Scott, as skipper, one offers the heartiest congratulations on having commanded the first airship to cross between the Old and New Worlds.

Also one congratulates Major Pritchard on being the first to set foot on American soil after arriving by air from Europe. One hopes that these officers and the whole crew of R.34—including the stowaway—will be suitably decorated on their return to England.

Some Minor Reflections.

It is true that R.34 was only some 6 hours faster from shore to shore than the record voyage of the s.s. "Aquitania," and one believes that she was considerably slower than the super-battle-cruiser (said to be "Glorious") which took Mr. Balfour to America in 1917, and is reported to have done the journey from Queenstown to Sandy Hook and back inside six days. But it must be remembered that the whole journey was an experiment, and no risks were taken. It was better to go slow and get there than to drive all out through whatever weather might occur and risk running the engines to death or shaking the ship to pieces. Now that the trip has been done, other airships can start going for trans-Atlantic records, as the steamships did.

Also it is a fact that the distance covered was very much less than that covered by the Zeppelin which flew from Bulgaria to a point far south of Khartoum and back, in November, 1917. The time spent in the air by R.34 was also, apparently, less. But here again the whole trip was an experiment, and North Atlantic weather in July is less settled than North African weather in November.

Future Developments.

With further experience the speed of the airship will become higher and higher, and its range will become longer and longer, till it becomes the recognised vehicle for high-speed, long-range passenger transport. It will probably be true always that the speed of the fastest aeroplane will be double that of the fastest airship, but when the airship attains a speed of 100 miles an hour it will be fast enough for practical purposes, and it will have the advantage as a load-carrier.

At an early date one proposes to publish a Special Airship Issue of The Aeroplane and to give therein as much information as is available concerning the world's airships. It will there be shown that the airship is a much more practical vehicle than many people think. Meantime it may be taken that the voyage of R.34 is merely a demonstration to the populace of the future possibilities of airships. One congratulates the officers and crew of the ship again on the success of their demonstration.—C. G. G.

PEACE CELEBRATIONS.

The Air Ministry made the following announcement on July 3rd:

In order to prevent useless applications and to avoid disappointment it is made known that it will not be possible to permit Service aircraft to be lent for the purpose of giving exhibition flights during the Peace and other celebrations.

A SUCCESSFUL WAR CHARITY.

The Royal Air Force Aid Committee and R.A.F. Prisoners Fund, which has Lady Henderson, D.B.E., for its President and Chairman, has issued its final report, of which the following is a brief resumé.

Lady Henderson began this work on Oct 9th, 1914, and immediately raised £9,000, which sum was expended upon small necessities for every man in each squadron in France, until those articles could be bought at canteens, when the C.Os. of the squadrons requisitioned comforts in bulk.

Hundreds of flying suits and goloshes were sent out during the first winter, and mackintoshes, gum boots and oilskins were dispatched, until they became a Government issue.

The following statistics show the articles sent during the war to all Fronts:—

4,000 books, 5,700 Cardigans, 615 footballs, 5,000 games, 160 gramophones, 1,000 records, 5,160 gum boots, 26,250 handkerchiefs, 6,800 helmets, 9,500 mittens and gloves, 11,800 mufflers, 6,550 oilskins, 850 shirts and vests, 202,335 small parcels, 70,000 socks, and 15,000 sundry articles.

Early in 1915 "first capture" food parcels were sent to each R.A.F. prisoner. In many cases relations of prisoners asked the Committee to buy the food and send out parcels. This led to the institution of a department where inquiries about the missing could be made. Clothing, supplied by the War Office, and food parcels, were sent to all N.C.Os. and men prisoners

In October, 1914, a Fund was inaugurated by Mrs. Sueter for supplying comforts for the men of the Royal Naval Air Service, and for three and a half years the ratings at all the R.N.A.S. Stations, both at Home and abroad, were provided with warm garments, books, games, gramophones, cigarettes, etc., about 200,000 articles being distributed. On the amalgamation of the two Flying Services, it was thought advisable that there should be only one joint Fund for dispensing Comforts; so in June, 1918, the R.N.A.S. Comforts Fund combined with the R.A.F. Aid Committee.

AIR MINISTRY WEATHER BULLETINS.

The Air Ministry issued the following on July 3rd:—

An interesting testimony to the accuracy of the official bulletins, compiled by the Air Ministry, of the weather conditions along the Atlantic course, is furnished by a comparison of the Air Ministry weather charts with those which were formulated independently by the United States Navy in conjunction with the flight of the N.C. Flying-boats to Europe.

Considering the size of the Atlantic and the small number of weather observations received, it might have been expected that there would be considerable differences between the two sets of charts. This, however, has not been the case; in fact, the close agreement obtained is extraordinary.

This result is equally gratifying to the Air Ministry and U.S. Navy forecasters, and it is all the more noteworthy when it is realised that the amount of information at the disposal of the Air Ministry was much less than that available to the U.S. Navy from the fleet of destroyers and battle ships engaged in the operations involved in the U.S. trans-Atlantic flight.

It should be understood, so far as the Atlantic area was concerned that in the case of the Air Ministry, the information on which the bulletins were based was obtained gratuitously, through the Marconi Wireless Telegraphy Company, from the reports of liners and cargo ships, and these observations were at times inclined to be erratic and incomplete, whilst the U.S. meteorologists had the benefit of data obtained from warships provided primarily for the purpose. Observations of the weather on both sides of the Atlantic had also to be taken into consideration, and this information was available both to the Air Ministry and to the U.S. Authorities.

The results secured by the Air Ministry indicate that trained meteorologists can in most cases give as accurate information of the Atlantic weather from reliable weather reports received from merchant vessels and liners as from those received from a string of destroyers. The future of civil aviation will undoubtedly see a great development of this system of obtaining observations for the compilation of weather reports.

THE PORTRAIT SUPPLEMENT.

No doubt, many readers of this paper will wish to purchase copies of the photograph of General Trenchard which appears in this issue of The Aeroplane. Inquiries as to prices should be sent (together with an intimation as to the size of photograph required) to the owners of the copyright, Messrs. J. Russell and Sons, 51, Baker Street, W.1.

MAJOR-GENERAL SIR HUGH MONTAGUE TRENCHARD, K.C.B., D.S.O.,

Chief of the Air Staff.

MAJOR-GENERAL SIR HUGH MONTAGUE TRENCHARD, K.C.B. D.S.O..

Chief of the Air Staff.

The WORLD of AERONAUTICS

NEWS OF THE WEEK FROM ALL QUARTERS

An American Bolo.

The aircraft industry of America is clamouring for a consolidated Air Service and an Air Ministry on the British lines.

Now that the war is over perhaps no very great harm would be done.

Official News.

Major-General the Right Hon. J. E. B. Seely, C.B., C.M.G., D.S.O., M.P., Under Secretary of State for the Air, contributed an article to the "Times" of July 4th. It is 16 inches in length, and it states that "America was the first birthplace of practical flight." One regrets that its second birthplace is not mentioned.

The Gentlemanly Thing.

The following letter appeared in the June issue of the "Chloride Chronicle." One believes it is to be taken with a little chloride of sodium :—

Dear Sir,—I am always anxious to do the gentlemanly thing, but, though I have looked through quite a number of books on "Etiquette," I cannot find anything about flying, which is what I am worried about, and I hope you won't mind my asking your advice.

I am dead keen on flying, and have saved up two guineas which is the lowest price for a flight at Hendon (no reduction for children). It has taken me ages to do it, but I don't grudge the money. The awkward part is I have just got the exact sum, and I wonder if you are supposed to give the pilot sixpence for himself like you do a taxi? That would mean waiting a little longer—perhaps a week—but I want to do the proper thing, especially if it's Grahame-White.—Yours, etc., G. T.

P.S.—All the same, I don't see how it could make any difference to the sort of flight they gave you, because the aviator wouldn't know what he was going to get till he had landed—would he?

London's Pride.

According to the "Daily Telegraph" of July 4th, at the meeting of the Westminster City Council, it was decided to erect tablets at places which were struck by bombs in air raids during the war. There are nineteen such places in the Westminster area, and according to a police return seventy-eight people were killed and 167 injured in this district during hostile air raids. The tablets will be fixed subject to the consent of the owners and occupiers of the properties affected. The cost of the tablets will be £266. Chelsea is the only other borough council affected which is in sympathy with the proposal, as Hammersmith, whilst in favour, had the agreeable fact to record that no bombs fell within the borough area. Nine other borough councils were not in favour of the proposal—Bermondsey, Camberwell, Deptford, Lambeth, St. Pancras, Shoreditch, Southwark, Wandsworth, and Woolwich. From the other seventeen borough councils and the Corporation of London no replies were received. One of the members of the council, whose house was among those struck, said he was opposed to the proposal, which he regarded as a waste of public money. The members in favour of the proposal numbered eighteen, and eleven voted against."

One presumes that it will be a great joy to those who gained honour and wealth by evading service to show these tablets to their offspring who ask : "What did you do in the great war, daddy?" They will then be able to boast that though the bombs rained down on London they refused to leave their indispensable labour of inserting currants into buns for the troops in order that they might escape to the comparative safety of the sheltered trenches in France.

One recalls that after the execution of the Spanish fleet by the American Navy at Santiago the United States men-o'-war placed commemorative tablets over the sparsely-scattered shell holes in their hulls, an idea almost as grotesque as it would be to suggest that soldiers should wear an engraved plaque over such portions of their anatomies as had been injured in the war.

The Secrets of Success.

According to the "Times" :—

"One thing is beyond doubt and that is that commercial flying should flourish in America or nowhere at all ; for the country in size and shape and terrain and distribution of population favours it to a high degree."

Whereas in this country endless fuss is caused by the aerial transport of dogs.

A Useful Warning.

The members of a certain Club where aviators do greatly congregate are notorious for the speed of their driving and for their careless habit of leaving cars about the street. The Secretary has, therefore, found it necessary to issue a warning, the final sentence of which announces that a member has recently been summoned "for leaving his car on the front of a house," which is not part of the Club's premises.

One has visions of the speed which, despite the best efforts of the brakes, resulted in a car plastering itself successfully on the front of a house like a squashed fly on a wall, and one rejoices that the driver survived to be summoned. These aviators are remarkably hard to kill.

Definitions.

The American "Aerial Age" is funniest as a rule when its humour is unintentional, but the following definitions have some merit :—

A designer is a bunch of erroneous ideas surrounded by the boss.

A data book is a collection of information nobody uses.

Tracing cloth is made to take the high spots of ink erasers.

A checker is a pessimist with a blue pencil, chronic indigestion, and no conscience, who spends his time trying to figure out the other way of doing everything.

The chief is a lucky dog, who holds his job by taking credit for the ideas of his designer.

Not a Good Comparison.

An article which most people will skip eagerly has appeared in an American paper dealing with the future of commercial aviation. The writer thinks that the "air industry" should raise the cry : "Don't ride, Fly," thus adopting the advertising methods of the telephone companies whose slogan has been "Don't write. Phone."

But since the telephones in this country became a State monopoly the injunction "Don't write. Phone" is so often disregarded by people who are in a hurry that the comparison is not a favourable one.

Sea Bathing from Aeroplanes.

According to the Liverpool "Journal of Commerce," "it appears that for commercial purposes large rigid airship stations should be established at distances of 2,000-3,000 miles apart, mainly for trans-oceanic traffic, while the aeroplane would be used for brining passengers. . . ."

But would passengers pay to be brined? Would they not prefer the old-fashioned bathing machine?

An "R.A.F. Soldier's" Revenge.

When an R.A.F. soldier was remanded at North London on Saturday on a charge of damaging a taxicab, the magistrate gave a little advice to the driver.

"Just a word of advice. If you drive a taxicab always be civil to those who wish to hire you. Of course, I know you will never stop if signalled to in the streets, but do not pass by rudely. Do it gently—a smile and a wave of the hand."

One's entire sympathy is with the "R.A.F. soldier," though this is the first time one has heard of the new rating. In future when this taxi driver is smiling and waving his hand at an "R.A.F. soldier," and consequently runs over a staff colonel, one trusts that he will raise his cap in honour of the dead.

Highly-Organised Apathy.

It is announced that 6,527 cars and lorries and 5,282 motor-cycles have been removed from Kempton Park since May 28th, and that the scandal of all these vehicles being allowed to rust in peace has come to an end. The work was carried out by a handful of civilians, after it had proved too heavy a task to be dealt with by the vast resources of highly-organised apathy of the military authorities.

A Scandal.

According to the "Daily Express" of July 4th :—"A new feature of Paris life is the aerial sandwichman. A great biplane came swooping out of the skies yesterday between heavy showers of rain, and, flying very low, dropped circulars advertising somebody's new patent fire-extinguisher. The paper drifted down like multi-coloured snowflakes, and, although the nursemaids were scared, children left their games to pick them up." One does not know what an aerial sandwichman may be, but when nursemaids are so frightened that they fall fainting to the ground and their infant charges have to pick them up really one feels that this sort of thing ought to be stopped.

The WORLD of AERONAUTICS (continued)

Summer Fashions in the R.A.F.

The "Daily Mail" understands "that a new full dress uniform for the R.A.F. is under consideration, and that it is to be somewhat lighter in shade than the present uniform." It is further understood that arrangements are being made for an early issue to non-commissioned and other ranks who have not so far been issued with clothing other than the regulation khaki field service pattern.

One feels that this is not in accordance with the best traditions of the R.A.F. Surely the present uniform should be issued to all N.C.Os. and airmen before another change is made. Strong protests are expected from the clothing contractors against the proposed gross economy.

To Indicate Vertical Gusts.

In America aircraft have been used more extensively than in this country to advertise the Victory Loan, and there have been some curious incidents. On one occasion an aviator before starting on his trip informed the Chairman of the Victory Loan Committee over the telephone that he would need a good landing field and would be glad if a landing "T" could be provided. Upon arriving at the town, he found a well laid-out landing field, but, upon getting closer, observed what appeared to be an immense cross standing upright in the centre of the field.

He found this cross to consist of a tree, the branches of which had been sawn off, and a large board which had been nailed to the top. This enormous upright "T" had been painted white.

He had to explain that as a wind vane it was a failure, unless it were intended to indicate vertical gusts.

The Royal Naval, Military and Air Force Tournament.

The following letter has been received :—

Sir,—Being deeply implicated in the inauguration of the work done by the R.A.F. in the Tournament, I venture to protest against the sarcastic article written by your "Mr. G. L. D." on the subject. The machines are not "pups," but one of the latest types of scouts produced in the war. Your writer might have noticed that they are each fitted with two machine-guns; the type is the Pumel.

It was also not recorded that the interplane wires were hooked onto the planes; this is also one of the latest ideas, and was the reason why the planes could be fitted at so great a speed. The engine was constructed to fire on three cylinders in order that its noise might not frighten the audience, and consequently it could do no more than 500 r.p.m. In conclusion, I might add that the pilot got into his machine whilst the planes were being fitted to show the complete confidence he had in his mechanics.

(Signed) .....

[The signature is illegible.—Ed.]

[This is the first time one has heard of this entertaining type of machine, the "Pumel."]

The Engine that Died.

The "Aircraft Journal" of America states that :—

"During the year of Post Office operations a very careful record has been kept of the mechanical causes of forced landings. These have been entirely connected with the motor. There have been a total of 37 forced landings due to motor trouble, which is one forced landing for every 3,460 miles flown.

"Of the motor troubles sufficient to bring down a mail plane six have been due to ignition trouble. Leaking radiators or water lines are responsible for seven forced landings. It is believed that trouble from this source will be minimised by the installation of a radiator in the wing now fastened between the propeller and the engine in a position where it catches the vibrations of both the propeller and the engine."

The information is interesting, but one feels that the last sentence is involved. One has hardly ever seen a wing fastened between the engine and the propeller.

At the end of the report there is a table showing the various causes of forced landings. One explanation reads :—"Thrust-rod broke crankcase; killed motor."

One presumes that had the trouble been merely a broken piston the report would have stated that the engine was ill

Aeronautical Fiction.

"Wing Adjutant," the well-known writer of aeronautical fiction, has contributed some to the "Daily News." With reference to the trans-Atlantic voyage of the R.34 he has written :—

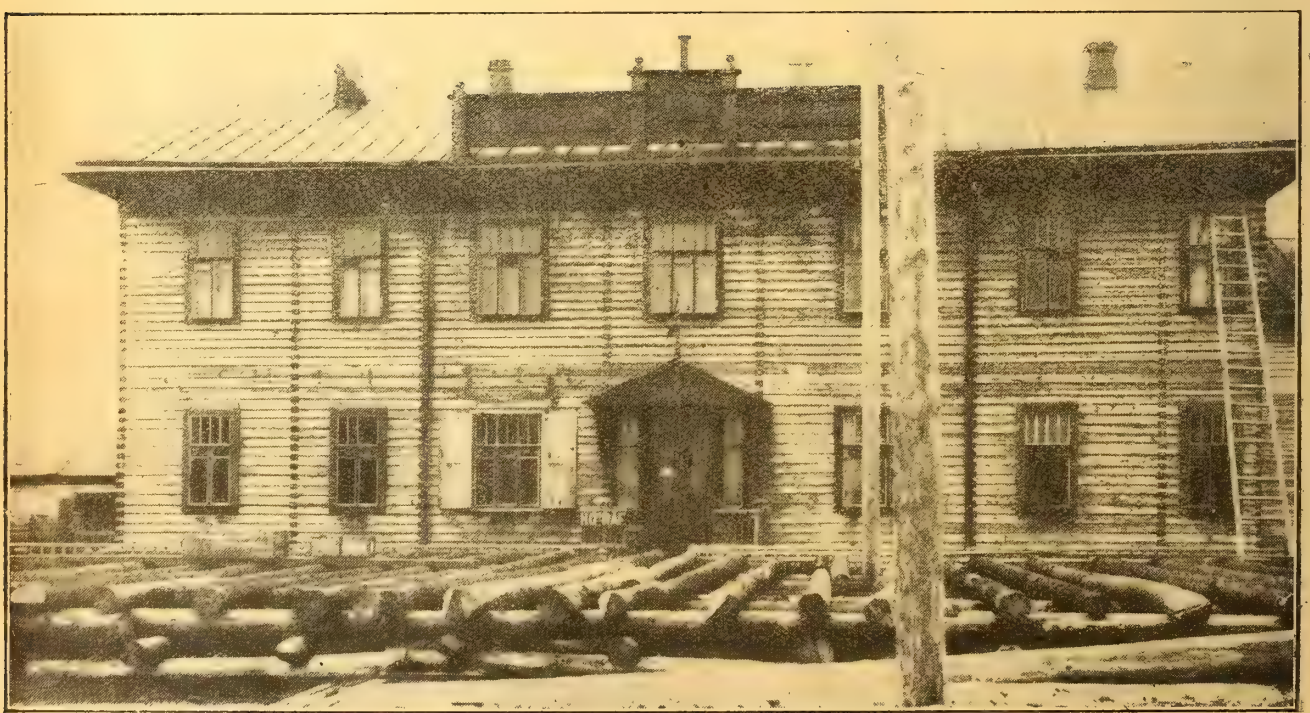
"The cost of the flight, allowing for depreciation, wages, and running costs, has been estimated at from 30s. to £2 per mile. In order to obtain revenue to cover this a charge of 6d. per ounce per journey would produce a most handsome profit if the full freight was always carried. On this scale an average load of 4½ tons, or little more than two-thirds full revenue load, would pay."

One would like to know upon what facts the estimate of 30s. to £2 per mile are based. One suggests that "Wing Adjutant" has under-estimated the depreciation of an extremely costly machine. The reasoning in the remainder of the article reminds one of the Peace of God (to quote from Mark Twain) inasmuch as it passeth understanding.

A Royal Air Force Volunteer Reserve.

The formation of a Royal Air Force Volunteer Reserve suggested by THE AEROPLANE early in 1914, and since then recommended on many occasions, has been proposed (as an entirely novel idea) by a correspondent who wrote to "The Times" on July 3rd. The following is his letter :—

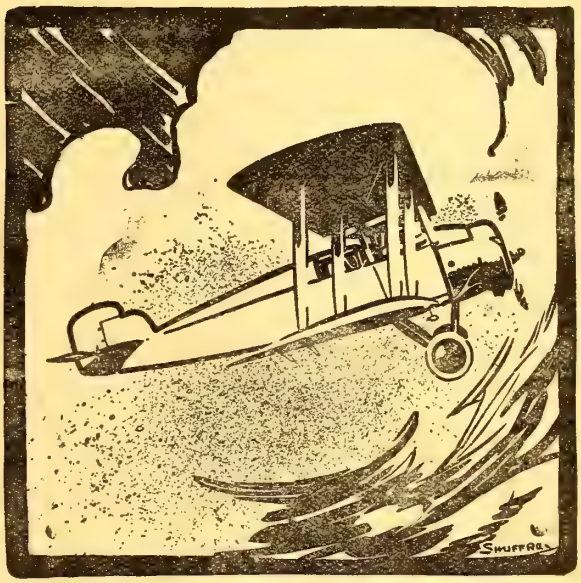
Sir,—Have the Government fully grasped the outstanding lesson of the struggle now happily concluded—namely, the superlative value of aircraft in war? The country which can command an overwhelming air force, trained and ready, will, at the outbreak of hostilities, be able to deal such blows to its enemy as will positively determine the issue of the campaign. And this within a week of the declaration of war. Do the



The H.Q., R.A.F., at Archangel.

CIVIL FLYING

WITH



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The WORLD of AERONAUTICS (continued)

Government propose to throw the onus of maintaining such a force on the League of Nations, or will they undertake it themselves?

May I, as an ex-flying officer and R.A.F. instructor, offer a suggestion? The average life of the flying man is at present about four years; therefore, to enlist an enormous number of young men as pilots in the Regular Air Force would, at the end of a few years, land the force with a big proportion of these young men, useless for war flying and with few vacancies for employment on the ground. In other words, these young men, mostly under thirty, would be "scrap." The present intention is, I believe, to offer temporary commissions, say, for five years. This, whilst ridding the country of any trouble in caring for its scrapped flying officers, offers but a poor outlook for the flying officer. Having given five of the most momentous years of his life to the service of his country, he is cast forth to earn a livelihood against competitors who have had that much start of him.

My suggestion is that a reserve of the R.A.F. be formed with aerodromes adjacent to convenient large towns. Individuals accepted for service in the reserve to attend the aerodrome every week and put in a minimum of three hours' flying and three hours' ground instruction. Two weeks a year to be devoted to annual training. Such a scheme would appeal to every athlete and adventure-lover in the country. To be taught to fly, provided with a machine, and allowed to "aviate" for three hours a week free—why, the authorities would have more young men than they would know what to do with. They could have 20,000 flying officers, the cream of the youth of the country, always in training, at the bare cost of the maintenance of the instructional staff and its equipment. So soon as a pilot or observer showed signs of becoming "dud" and thus failing to pass regularly-held tests his engagement would terminate.

Such a scheme would give to the Government a huge flying *personnel*, ready for instant use in emergencies, at a minimum cost and without interfering with the civilian careers of those it employed.

(Signed) A. W. Phillips, Capt.

A Gift to the Nation.

According to the "Times" "It is understood that Messrs. Vickers, Ltd., who built the aeroplane in which Sir John Alcock successfully flew the Atlantic, are willing to consider the proposal that the machine should be given to the nation. The aeroplane is at present at the Weybridge works undergoing repairs. She has lost her propellers, her nose is bent, and part of her fuselage broken. The engines are intact, but some of the instruments, including the main compass, were taken away at Clifden by souvenir hunters."

The R.38.

The "Evening Standard" announced last week that the Admiralty has embarked on an ambitious programme of airship construction.

"Of the six approved types which have been ordered, the R.38 is already assuming skeleton form, but of the remaining five the plans have just been finally passed. It is expected that R.38 will be launched this year, and that her sister ship will be completed next year.

"The airships, we understand, are to be built by Messrs. Vickers at Barrow; Messrs. Armstrong, Whitworth and Co., at Barlow, Yorkshire; and by Messrs. Beardmore, on the Clyde.

"While the constructional details of the new aerial giants are, for the moment, being officially kept secret, it is known, for example, that the R.38 will be a third as large again as R.33. Her capacity will be three million cubic feet, as compared with the two millions of R.33 and R.34.

"Then, again, R.33 has a total length of 670 ft., and a diameter of 80 ft. R.38, it is expected, will be at least 1,000 ft. long, with a diameter of 90 ft. to 100 ft., with a lifting capacity of 60 tons, as compared with the 30 tons of her earlier prototypes.

"While the R.33 and R.34 have five engines of 250 h.p., R.38 will have seven or eight of 400 h.p., known as the Sunbeam 'Cossack' type. Her speed is expected to be at least 10 knots greater than the 60-70 knots of R.33.

"The R.34 has started on the Atlantic voyage with 18 tons of fuel—sufficient for the double journey. R.38 will be able to carry 30 tons, sufficient for a range of over 8,000 miles. Her lifting capacity will be 60 tons, as compared with 30 tons of the existing types.

"The later ships may be even larger than R.38, and will also differ probably in important constructional details dictated by the experience gained from the performances of R.33 and R.34.

"The total cost of each vessel is expected to exceed half a million, with a correspondingly heavy maintenance charge."

Provision of Landing Grounds.

The Air Ministry issued the following on June 25th:—

"Statistics collected by the Air Ministry show that a considerable proportion of the accidents caused by forced landings due to engine trouble or other circumstances might have been avoided if suitable landing grounds had been within sight and gliding distance of the aircraft at the moment of the occurrence of the accident.

"In his speech at the luncheon at the House of Commons, on the 5th instant, the Under Secretary of State for Air referred to this and to the desirability of the provision of numerous emergency landing grounds; General Seely has since addressed a personal letter on behalf of the Air Council to all Lords Lieutenant, Lord Mayors and Governors, on the subject of the selection and allocation by private individuals and public bodies of suitable sites as such landing grounds, with a view to their being inspected, marked out and appointed for this purpose. In this matter, as an interim measure, and until further and permanent arrangements of the nature indicated can be made, Chief Constables of counties can, it is thought, in conjunction with land-owners and farmers, render great assistance.

"A personal letter has also been addressed to the Chairman of the Board of Directors of the various Railway Companies in regard to the painting of the names of places on the roofs of railway stations or other suitable spaces."

A Junior Biplane.

The "Aerial Age," of America, publishes an account of an aeroplane fitted with an ordinary "Indian" motor-cycle engine which was built by H. P. Christofferson, of San Francisco, California.

The standard "Indian" engine is fitted with deflecting plates to eliminate overheating, and its speed is reduced by gearing from 3,000 to 1,200 r.p.m.

The wing spread is 25 feet, the length 16½ feet, the chord 4 feet, and the gap 4 feet 3 inches. The fuselage is built of plywood.

It weighs only 275 lbs., has a speed of 40 m.p.h., a landing speed of 20 m.p.h., and was built to sell at about £80.

The Flying Gimlet.

According to an American paper:—

"Lieut. Alan Clark, late of the Royal Air Force thrilled throngs with the stunts he performed with a Sopwith 'Camel' scout machine, tearing through space at 130 miles an hour as one of the final tests of different type machines for commercial adaptability of the Second Pan-American Aeronautical Convention. . . . The machine spun around like a giant top for a full minute, then dipped suddenly into a nose-spin for a 2,000-foot gimlet towards earth, from which level it was permitted to go through all the stunts that made such wonderful records for the scouter on the Italian and French fronts."

What a lot of interesting facts have been suppressed by the Censorship! Until now, one has heard nothing of these gimlet stunts at the level of the earth.

43 Squadron, R.A.F.

A Dinner will be held for all members of 43 Squadron, R.A.F., at the Criterion Restaurant, Piccadilly, at 7.30 p.m., Friday, July 18th. Those who wish to attend should communicate with Captain John Trollope, Banstead, Surrey, before 15th instant, enclosing cheque for 5os. Beds will be arranged for country members.

Coming Events.

JULY.

The Royal Naval, Military and Air Force Tournament at Olympia open until July 12th.

Saturday, July 12th.—R.N. Air Station Eastbourne Dinner.

Saturday, July 12th.—Summer meeting at Hendon.

Sunday, July 13th.—Special Flying Displays at Hendon.

Friday, July 18th.—43 Squadron dinner.

Saturday, July 19th.—Martinsyde Recreation Club Sports at Woodbridge Road, Guildford.

Saturday, July 19th.—Victory Meeting at Hendon. Speed Contest for Victory Trophy.

Sunday, July 20th.—Special Flying Displays at Hendon.

Friday, July 25th.—The Amsterdam Aircraft Exhibition opens.

Saturday, July 26th.—July Meeting at Hendon.

Sunday, July 27th.—Special Exhibition Flights at Hendon.

AUGUST.

Tuesday, August 5th.—Handley Page Social and Athletic Club's Sports. Starting at 12 midday at Cricklewood Lane.

Thursday, August 21st.—R.A.F. Annual Athletic Meeting at Stamford Bridge.

Sunday, August 24th to Sunday, August 31st.—The "Avenir's" Tour de France Aérien.

DATES TO BE ANNOUNCED LATER.

Hendon—Birmingham—Manchester Air Race.

Hendon—Paris—Hendon Air Race.

Hendon—Brighton—Hendon Air Race.

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PARIS NOTES

No Feminine Records.

The sensation of the week, mild though it may seem to the ininitiated, has been the announcement that the Aero Club here, acting on instructions from the F.A.I., does not recognise women's aviation records—only world records. As France possesses quite a few active women aviators, the announcement has been received not only with consternation but with very bad grace. Thus spoke Mlle. Jane Hervieu when interviewed on the subject: "Do you think under such conditions I should waste time to attempt a record? It would be perfectly useless, and I have not hidden my opinion or my thoughts from the Aero Club, immediately I heard that the commission refused to homologate the latest record of Mme. de la Roche. I am very indignant, and you may say so."

As was to be expected, Mme. de la Roche is even less content to see her latest exploit so ill recompensed. "Nothing would ever have made me believe that such a decision was possible," she said. "The Aero Club knew of my attempt, sent me a 'commissaire-controleur,' and even gave me an official baragraph. After the flight these instruments were sent for verification, and—three weeks later, I received a letter informing me that they cannot homologate my record because I 'have not beaten the record of Casale!' Did they seriously think, when they sent me the baragraph, that I should attempt, or that it would be possible to beat the record of Casale with my little G3 Caudron?"

Certainly there would seem to be need for a little more sympathy and encouragement for aviatrices on behalf of the authorities who control the sport.

The Ligue Aeronautique Prize.

From July 15th this prize will be competed for every six months, and will be given to the French aviator making the longest flight from Paris to a French colony.

A Novel Arrangement.

The Breguet firm compete steadily with the Farman firm in new types of machines or novel modifications or adaptations to existing ones. Thus the latest development is the Breguet, type 14, 300 h.p. Renault, called the "Sanitaire," and which is so arranged that it can carry two passengers in a lying position in the fuselage on a stretcher. Entrance is obtained by means of a lateral door. The arrangement is rather crude, and one notices the absence of any compensating bracing where the entrance has been made.

The Goliath No. 2.

The Farman Frères productions are simply amazing. Surely the Goliath is the machine de luxe in the aviation world at the moment. A look at its lines invites confidence, whilst a look at the interior arrangement sets all the ladies' hearts fluttering, which accounts for the popularity of it for "joy ride parties." Goliath No. 1 is now being overhauled. Meanwhile Goliath No. 2 passed its trials satisfactorily taking up several lots of fifteen passengers; it is a trifle bigger than its predecessor. In honour of the victory fête and the decoration that will be given to Marshal Foch at Versailles, Farman is organising aviation fêtes in the neighbourhood of Versailles on July 6th, 13th, 14th, and 16th.

The Roumanian adjudant Patetif has obtained his civilian brevet at the Farman school at Toussus-le-Noble. This is the third obtained since the Armistice. In spite of war—and peace—prices the condition attaching to Farman's school remain the same as before the war. Pupils learn on a dual control machine of the latest type, and lessons are given over the country.

British Audacity.

"In honour of the Peace," as the French say, a large number of aeroplanes of all makes, sizes, and h.p. evoluted over Versailles at the moment that peace was being signed. According to the French papers the British aviators were well to the fore on account of the audacity of their evolutions: flags, streamers, oriflammes, and toy parachutes were dropped from the machines. It is expected that there will be a repetition of it on the Fourteenth, but on a more grandiose scale!

Latecoere Enterprise.

The big Toulousian firm of Latecoère have at last all their plans and organisation ready for the opening of the postal and air service between Toulouse, Barcelona, Alicante, Malaga, and Rabat (Morocco), foreshadowed in these notes some weeks back. The opening date is given as August 1st.

From Paris to Lake Chad.

It is a far cry, or, rather, a far fly, from Paris to the centre of the Dark Continent; nevertheless, the Adjudant Delalée, a remarkable war pilot, is going to attempt the trip, including the crossing of the Sahara desert. He proposes to do it in stages of 800 kilometres, each varying only according to the situation of the oases. The preliminary organisation, which is considerable for such raids, is proceeding.

Paris to Casablanca.

It is more than probable that ere these lines appear seven aviators, with Adjudant Papeil at their head, will have flown seven Breguet machines from Paris to Casablanca. It is in the nature of a trial trip, because if succcesful and the landing risks are not too great to jeopardise the project, the balance of 154 will be sent by air, and possibly another 50 after that. The northern Spanish route will be used. Although at first intended to be done in one day, it is probable that three days will be occupied, so as not to fatigue the pilots too much. Each pilot successful in flying to Casablanca is to receive 2,000 francs for each machine flown and 400 francs towards his return expenses—quite a good proposition for everyone concerned, especially as, at the moment, there are only seven pilots.

Paris-Melbourne.

Poulet, some weeks hence, will attempt to fly from Paris to Melbourne on a Caudron machine in order to avenge the death of Védrines, his particular friend. This was to be Védrines' next flight, had he succeeded in his Paris-Rome-Paris trip.

A Fonck Rumour.

A rumour, spread abroad by the Paris "Daily Mail," to the effect that Fonck had issued a challenge to all British aviators to a race, the choice to be the privilege of the accepter, is without foundation. Fonck is at the moment in Spain, taking delivery of an automobile.

Paris-Madrid.

Romanet's Paris-Madrid excursion ended prematurely at Montmorillon (Vienne) owing to fog. He was carrying also his mechanic and a Spanish journalist.

BELGIUM.

The consulting committee of Belgian aeronautics met on June 24, under the presidency of Colonel A. E. M. Van Crombrugge, commanding the military side. The president read the reply made by the Minister of the Colonies concerning the creation of an aerodrome at Elizabethville, and of a note, saying that aeronautical material seized in Germany by the Inter-Allied Commission of Control will be considered as spoils of war and will not be discounted from any indemnities due.

The committee agreed on the principle of the creation of a single organisation for civilian aviation.

The subscription opened by M. A. Michant to buy Willy Coppens a car has already reached 10,000 francs.—F. T. N.

FRENCH PROGRESS.

The Director of Aeronautics of France has issued a report on certain aerial expeditions now under contemplation by the Military Authorities. These expeditions are destined to link Paris with the capitals of Europe and with the French Colonies in Northern Africa. The routes are as follows:—

Paris-Madrid, Paris-Prague-Warsaw-Vienna, Paris-Brussels-Amsterdam, Paris-Cairo, *via* Constantinople, Paris-Tunis and back, and Paris-Dakar.

The following machines have been adopted:—

A Nieuport one-seater of 300 h.p.; an S.E.A. two-seater battleplane of 400 h.p.; a Spad one-seater battleplane of 300 h.p.; a two-motor Caudron; a two-motor Farman; a Bréguet 400 h.p., a veteran of the 1918 campaign, on which type Roget made the Paris-Rabat flight.

The following six pilots are indicated as possessing exceptional qualities:—Major Vuillemin, and Lieuts. Fonck, Marinovitch, Flachaire, de Romanet, and Lemaître.

ITALIAN NOTES.

The greatest regret is everywhere expressed at the news of the death of Major Magaldi's brother, a naval pilot, while testing the Magaldi-Rabbeno amphibious chassis on an F.B.A. at Leghorn. Naval Lieut. Magaldi, with a seaman motorist from the Venice station on board, apparently side-slipped at a very low altitude, not being accustomed to the type of machine he was flying. One hopes this sad accident will not tempt the inventors to stop further experiments.

As well as the Rome-Naples route, which has had a regular mail service with four trips a day ever since early in May, the daily service between the capital and Pisa is being run with great precision, as is also the Padua to Vienna mail. The Goia del Colle-Bari to Constantinople via Avlona and Salonica is being prospected too. The other day four Svas and a Ca made an experimental trip, the former in six, the latter in eight and a half hours, the distance being 1,200 kilometres. Major Mercanti, O.C., considers the Avlona-Salonica a most difficult section for want of landing-places. Owing to the great heat at midday at Salonica, where they stopped for an unexplained reason, the motors could not cool down, and a much longer halt had to be made than was intended.—T. S. H.

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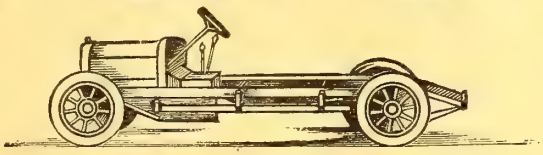

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THE CROSS-ATLANTIC FLIGHT OF R.34.

On July 1st the Air Ministry made the following announcement :—

"Permission has been given by the Air Ministry for His Majesty's airship R.34 to start during the night on her flight across the Atlantic, subject to the present weather conditions remaining unchanged."

The following day the Air Ministry announced that R.34 had left East Fortune that morning at 2.48 (British summer time) to cross the Atlantic.

Everything was ready at Roosevelt Field, near Mineola, L.I., on July 2nd, for the reception of R.34, and three new wireless stations had been erected in order to get into touch with the airship. She will be moored at Hazlehurst Field (where she landed) until ready to return to England.

Two British cruisers, "Renown" and "Tiger," patrolled part of the course, thus proving that the flight was not merely arranged to give satisfaction and copy to the sensational Press, but was in accordance with Admiralty routine.

On July 5th, H.M.A. R.34 passed over Newfoundland and dropped the mails she was carrying over St. John's. Mr. Raynham, on his Martinsyde, went up from St. John's, to meet the airship.

Unfortunately later in the day she was compelled to call for assistance, and the following message was sent to the U.S. Navy Department at Washington :—

"Could a destroyer proceed, if required, to the southern end of the Bay of Fundy to take H.M.A. R.34 in tow?—(Signed) Commander Lansdowne, U.S.N., for the commander of the dirigible."

Two American destroyers were sent. But R.34 was able to proceed to New York under her own power, and finally landed at Mineola at 2 p.m. on July 6th.

R.34 was in wireless touch with land during the whole of the flight. Ponta Delgada (Azores), St. John's (N.F.), and Clifden (Ireland), besides East Fortune, were the stations in touch on July 2nd, and on July 3rd H.M.Ss. "Tiger" and "Renown" picked up her signals.

The weather during the flight was not good. The airship, encountering bad fogs and head-winds, was forced to make a detour to avoid bad weather.

R.34's Signals.

The following signals were received from or issued concernnig H.M.A. R.34 during the voyage. The times given are G.M.T. :—

July 2nd, 5.30 a.m.—The British airship R.34 passed over Rathlin, County Antrim, at 4.30 G.M.T. (5.30 British summer time) this morning.

9 a.m.—R.34, at 8 a.m. G.M.T. (9 a.m. British summer time), was 10 deg. 40 min. W., 55 deg. 20 min. N. The airship was then taking a course due west at a speed of 40 knots.

11.5 a.m.—Going through thick fog. Everything doing well Time of dispatch 10.5 G.M.T. (11.5 a.m. British summer time).

1 p.m.—R.34 is reported by wireless to have reached at 1 p.m. to-day (British summer time) the position 55 deg. 07 N., 14 deg. 50 W. She was then proceeding at a speed of 32 knots in a thick fog. The officer in charge reports all well.

3.15 p.m.—A wireless message from R.34, at 3.15 p.m. (British summer time), gave the airship's position as 53 deg. 50 N., 17 deg. 50 W. The course then being taken was west true and the speed 31 knots.

5.30 p.m.—The following signal has been received from R.34 : "Position at 4.30 p.m. G.M.T., 53.50 N., 18 W.; all well." The Air Ministry adds : "The position given in the previous signal is probably incorrect, and may possibly have been wrongly transmitted. The position indicated in the above message is very probably correct."

7.23 p.m.—The Air Ministry announced at 6.23 p.m. G.M.T. : "In answer to a wireless message sent from East Fortune this afternoon to R.34, asking whether she was getting sufficient weather reports, the following reply has been received : 'Yes, thanks. We are in touch with Ponta Delgada (Azores), with St. John's (N.F.), and with Clifden (Ireland).'"

8 p.m.—The s.s. "Suffern" reports having sighted the R.34 at 7 p.m. G.M.T. in the position 54.30 N., 18.20 W., steering S., 80.00 W. true.

9.15 p.m.—The Air Ministry announces that Major Scott reported that at 8.15 p.m. G.M.T. R.34 was flying westward at 30 knots and at a height of 2,000 ft.

July 3rd, 4 a.m.—The Air Ministry states this morning that the British airship R.34 wirelessed at 3 a.m. G.M.T. position 52.50 N., 28.10 W.

7.11 a.m.—R.34 reported her position at 6.11 a.m. G.M.T., 52.30 N., 30 W. (Just more than half-way.)

10 a.m.—A wireless message radiated by the R.34 at 10 o'clock (British summer time) indicates that her position at that hour was approximately 52 deg. 50 min. N. and 34 deg. 30 min. W. The airship was then cruising above the fog.

1.14 p.m.—The Air Ministry announces : "The Commander-in-Chief of the Atlantic and Home Fleet has communicated the following message by wireless to the Air Ministry : 'H.M.S. "Renown" heard R.34 wireless signals strength 7 (that is, fairly loud and readable signals) at 12.14 G.M.T.'"

7.30 p.m.—A wireless station on this side of the Atlantic reports having heard H.M.S. "Tiger" speaking with R.34 in the position 54.20 N., 40 W. All apparently O.K at 6.30 p.m. G.M.T.

July 4th, 3 a.m.—48.40 W., 51.20 N.

7 a.m.—49.30 W., 48.40 N.

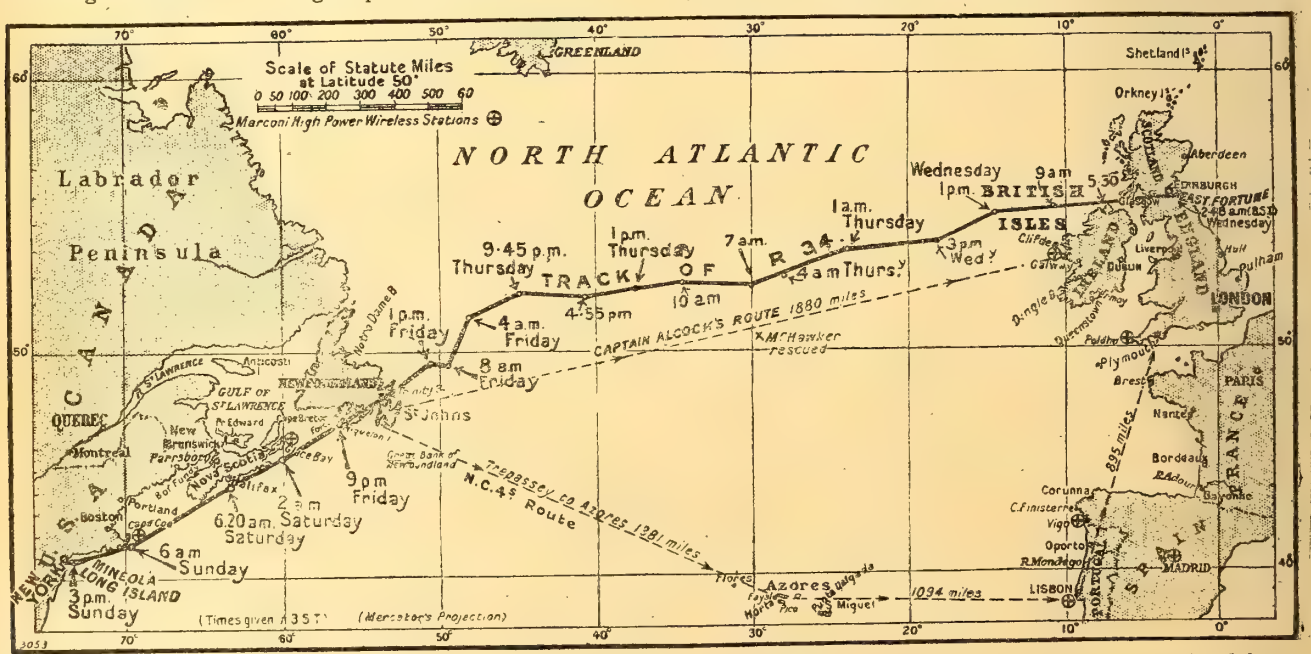
Noon.—50.25 W., 49.05 N. Clear sky, low fog. (Doubtful message; verification asked for.)

1.2 p.m.—Message from R.34, *via* St. John's : "Flying 3,000 ft. above mist. Sun shining. All O.K."

1.17 p.m.—"2,900 gallons of petrol. All engines running well. 50.20 W., 49.04 N." (Received *via* Western Union Cable Co.)

Untimed.—From R.34 *via* St. John's : "Probably be over St. John's at 4 p.m."

Untimed.—From St. John's, R.34, after making land at Notre Dame Bay, changed her course to the south, and was expected to pass at low altitude over St. John's at 5.30 p.m.



This Map of the Course taken by the R.34 on its successful flight from East Fortune, Scotland, to New York, is reproduced from the "Times" by the courtesy of the proprietors.

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8 p.m.—From R.34. 55.14 W., 46.55 N. Course west, 45 knots. All well.

Midnight.—59.40 W., 45.45 N.

July 5th, 5.20 a.m.—Going well near Halifax.

Morning.—R.34 encountered heavy electrical storms over Newfoundland and Nova Scotia.

9 a.m.—R.34 sighted over Parrsborough, Nova Scotia.

2.59 p.m.—Signal from R.34 asking for assistance received. Destroyers detailed and R.34 informed accordingly.

6.50 p.m.—R.34 sends the following wireless message:—"Position 45.21 N., 64.00 W. Course true south-west. Running out of fuel after flight (from) Britain. Please tell me if your destroyers coming."

11.9.—R.34 170 miles north-east of Boston.

11.40.—United States destroyer "Bancroft" established contact with R.34 and accompanied her across the Gulf of Maine.

July 6th, 4 a.m.—R.34 sends following wireless message: "Position of R.34 67.30 W., 43.20 N. Course S.W.S. Flying at 1.500 ft. Come and meet us. Making for Boston. Very short petrol."

5.10 a.m.—Message from R.34: "Position now approaching Martha's Vineyard."

5.30 a.m.—Message from R.34: "We are sticking it. Think we will be O.K."

5.38 a.m.—"Will land Montauk and take on petrol."

12.35 p.m.—"Passed Montauk Point; making for Hazlehurst Field, Mineola. Expect land 2, Greenwich time."

2 p.m.—R.34 landed at Mineola, Hazlehurst Field, Long Island, with only 40 minutes' petrol left.

The Arrival.

The Air Ministry issued the following report on July 6th:—

R.34 landed safely at Hazelhurst Field (Mineola, Long Island), at 3 p.m., British summer time, to-day (10 a.m. New York time).

She has thus accomplished her voyage of over 3,100 nautical miles, the longest flight ever made by any aircraft, in 108 hours 12 minutes.

R.34 completed the distance under her own power.

The destroyers which the U.S. Navy authorities dispatched to her assistance as a precautionary measure, in view of her petrol supply being nearly exhausted, were not utilised to take R.34 in tow.

His Majesty the King has sent the following message to the crew of R.34 through Major-General Sir Frederick Sykes, K.C.B., Controller-General of Civil Aviation:—

"Heartiest congratulations to yourself and crew of R.34 on your splendid achievement, and best wishes for a safe return. Your flight marks the beginning of an era in which the English-speaking peoples, already drawn together in war, will be even more closely united in peace."

The crew of R.34 were given a very good reception by the American people, and were entertained to lunch at the Garden City Hotel, Mineola, Admiral Cleaves, U.S.N., being present.

Six hours after the ship left East Fortune a stowaway was discovered. The man, whose name is Ballantine, was until two hours before the airship's departure a member of the crew, but he was then informed that it was necessary to reduce the load and that he would be left behind. He succeeded in hiding between two balloonets until forced to give himself up. It is stated that he will be court-martialled.

R.34, which was moored in the open at Mineola, very nearly met with an accident, but the damage was not serious.

At about eight o'clock on the morning of July 7th the heat of the sun had caused such an expansion of gas that the airship became almost unmanageable in the moderate wind blowing. At times the men of the landing party were lifted off their feet, and at last an urgent call was sent to the neighbouring camps to turn out all available men to man the mooring ropes.

Shortly after, the strain grew so great that the mooring ring in the nose of the vessel tore out. The nose shot straight up in the air, the airship being only held by the after-gondola. Some members of the crew climbed up through the after-gondola and succeeded in making their way forward with a rope, which was lowered to the men on the ground, who were able to pull the vessel's nose down again and make her fast.

Concerning the return of the airship there are conflicting reports, for Reuter's Agency states that the ship is leaving between midnight, July 8th, and 8 a.m., July 9th, and will fly direct to Great Britain. But the U.S. Navy Department state that the ship will go *via* Washington. The times for leaving Mineola are the same in both accounts.

General Maitland's Log.

General Maitland, the official British observer on the R.34, issued the following log history of the airship's voyage from Scotland on July 6th:—

The distances covered were as follows:—East Fortune to Trinity Bay, 2,050 sea miles; Trinity Bay to New York, 1,080 sea miles.

It was originally intended that the flight should take place at the beginning of June, but owing to the uncertainty as to the Germans signing the Peace Treaty the British Admiralty decided to detain the airship for an extended cruise over the Baltic and along the German coast. This flight occupied 56 hours under adverse weather conditions, during which time an air distance of roughly 2,400 miles was covered.

At the conclusion of this flight the ship was taken over from the Admiralty by the Air Ministry and quickly overhauled for the journey to the United States. The date and time of sailing decided upon were 2 in the morning of Wednesday, July 2nd, and Press representatives were notified by the Air Ministry to be at East Fortune the day previously. At 1.30 in the early morning of July 2nd the airship was taken from her shed, and actually took the air 19 minutes later, starting on her long voyage exactly 18 minutes in advance of the scheduled time.

The Flight.

The story of the flight itself is entered in the log as follows:—

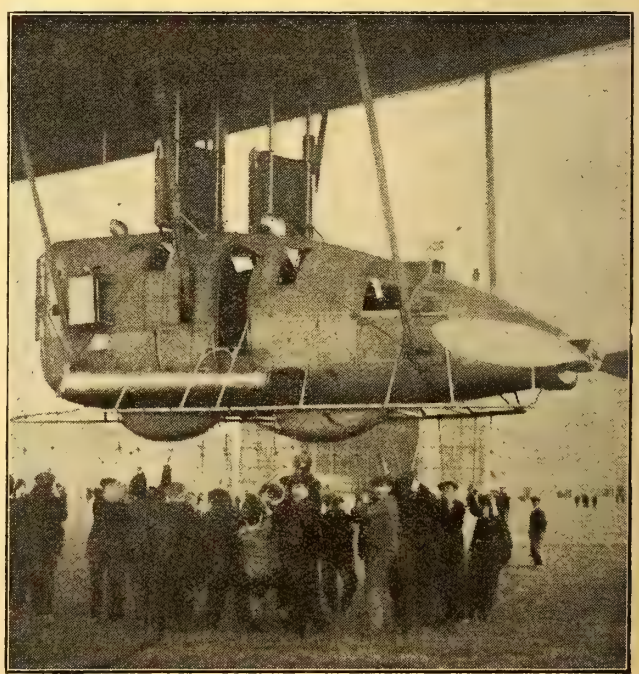
1.42 a.m., Wednesday, July 2nd.—R.34 slowly arose from the hands of the landing party and was completely swallowed up in low-lying clouds at a height of 100 ft. When flying at night, possibly on account of the darkness, there is always a feeling of loneliness immediately after leaving the ground. This sense of loneliness was on this occasion accentuated by the faint cheers of the landing party coming upwards through the mist long after all signs of the earth had disappeared.

The airship rose rapidly to 1,500 ft., at which height she emerged from the low-lying clouds and headed straight up the Firth of Forth toward Edinburgh. A few minutes after 2 o'clock the lights of Rosyth showed through a break in the clouds, thus proving brilliantly that correct allowance had been made for the force and direction of the wind, which was blowing 20 miles an hour from the east. It should be borne in mind that, when an airship sets out for a long-distance voyage carrying the maximum allowance of petrol, she can only rise to a limited height at the outset without throwing some of it overboard as ballast, and that, as the airship proceeds on her voyage, she can, if so desired, gradually increase her height as the petrol is consumed by the engine.

An airship of this type, when most of its petrol has been consumed, can rise to a height of about 14,000 ft. For this reason the next few hours were one of the most anxious periods of the flight, for Major Scott, who, owing to the large amount of petrol carried—4,900 gallons, weighing 15.8 tons—had to keep the ship as low as possible and at the same time pass over Northern Scotland, where the hills rise to a height of over 3,000 ft.

Owing to the stormy nature of the morning, the air at 1,500 ft., the height at which the airship was travelling, was most disturbed and bumpy, due to the wind being broken up by the mountains to the north and causing violent wind currents and air pockets. The most disturbed conditions were met at the mouth of the Clyde and south of Loch Lomond, which is surrounded by high mountains, and looked particularly beautiful in the grey dawn light. The islands at the mouth of the Firth of Clyde were quickly passed. The North Coast of Ireland appeared for a time, and shortly afterwards faded away as we headed out into the Atlantic.

The various incidents of the voyage are set down quite simply as they occurred, more or less in the form of a diary. No



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attempt has been made to write a connected story. It is felt that by recording each incident in this way, most of them trivial, a few of vital importance, a truer picture of the voyage will be obtained.

Time, 6 a.m., July 2nd.—The airship is running with four engines at 1,600 revolutions, the forward engine being given a rest. Air speed 38 knots. Land miles per hour made good 56.7. Course steered, 298 degrees N., 62 W. Course made good 39 N., 71 W. Wind N.E., 15⅓ miles per hour. Height, 1,500 ft. Large banks of fleecy cloud from the Atlantic gradually blotting out view of the sea. At first we were above these clouds, but gradually they rose higher and we ploughed our way into the middle of them.

7 a.m.—Nothing but dense fog. I intimated to Harris (Captain Guy Harris) that he should go down to within 50 ft. of water and up to a height of about 5,000 ft. Suddenly we catch a glimpse of the sea through a hole in the clouds, and it is now easy to see that we have a slight drift to the south, which was what was estimated by both Scott and Cooke. A few minutes later we find ourselves above the clouds. Our height is still 1,500 ft., beneath a sky with clouds of about 800 ft.

We are therefore between two layers of clouds, a condition in which Alcock and Brown found themselves on more than one occasion in their recent flight. An excellent cloud horizon now presents itself on all sides, of which Cooke at once takes advantage. These observations—if the cloud horizon is quite flat—ought to prove valuable enough to guide, but they cannot be regarded as accurate unless one can also obtain a check on the sun by day or the moon and stars by night. Cooke reckons it easy to make as much as a 50 min. error in locating one's position when using a cloud horizon as a substitute for the sea horizon.

7.30 a.m.—Breakfast, which consisted of cold ham and a hard-boiled egg each, bread and butter, and hot tea. We breakfast in two watches, generally about fifteen in each. Conversation during breakfast reverted to the recent flight up the Baltic, and in the adjoining compartment was a gramophone entertaining the crew to the latest Jazz tunes, such as the "Wild, Wild Women."

Bad Weather Encountered.

General Maitland here gives a list of the *personnel* of R34, and continues :—

11 a.m.—Still ploughing our way through fog at 1,300 ft. The sea is completely hidden by clouds, and there is no visibility whatsoever. I stopped the forward and two aft engines, and am now running only the two wing engines at 1,600 revolutions, thus giving us an air speed of 30 knots, or 33.6 miles, per hour. This is the airship's most efficient speed, as she only consumes on two engines 25 gallons of petrol per hour. The wind is blowing east at seven miles per hour, and so we make a good 40 miles per hour and are resting three engines.

Major G. G. H. Cooke is now on top of the airship taking observations from the sun and using the cloud horizon with the sextant. The sun is visible to him, but not to us, the top of the ship being 85 ft. above us down in the fore control cabin.

Our position is reckoned to be long. 55.10 N., lat. 14.40 W., which is equivalent to 400 miles from the starting-point at East Fortune and 200 miles out in the Atlantic from the north-west coast of Ireland. We are in wireless touch with East Fortune, Clifden, and Ponta Delgada, and messages wishing us good luck are received from the Air Ministry, H.M.S. "Queen Elizabeth," and others.

11.45 a.m.—Excellent lunch—beef stew and potatoes, chocolate, and cold ——? The talk as usual was mainly "Shop," dealing with such problems as the distribution of air pressure on the western side of the Atlantic, and what winds were likely to be met with, what fog we should run into, the advantage of directional wireless for navigational purposes, cloud horizons, and the like. Scott, Cooke, and Harris in comparing their experiences and expounding their theories were most interesting and illuminating.

12.0 noon.—The watch off duty turned in for their routine four hours' sleep before coming on for their next period of duty, which is two hours in this case as it is the first of the two dog watches. The sleeping arrangements consist of a hammock for each man off watch suspended from the main ridge girder of the triangular internal keel which runs from end to end of the ship. In this keel are situated the 81 petrol tanks, each of 71 gallons capacity, living quarters for officers and men, storage arrangements for lubricating oils for the engines, water-ballast, food and drinking water for the crew. The latter is quite a considerable item, as will be seen from the following table of weights :—Petrol, 4,900 gallons, equal to 35,300 lbs. or 15.8 tons; oil, 2,070 lbs., equal to nine-tenth of a ton; water, equal 3 tons; crew baggage, equal 4 tons; spares, equal to two-tenths of a ton; drinking water, equal to 800 lbs. or .42 tons, making a total of 24.32 tons.

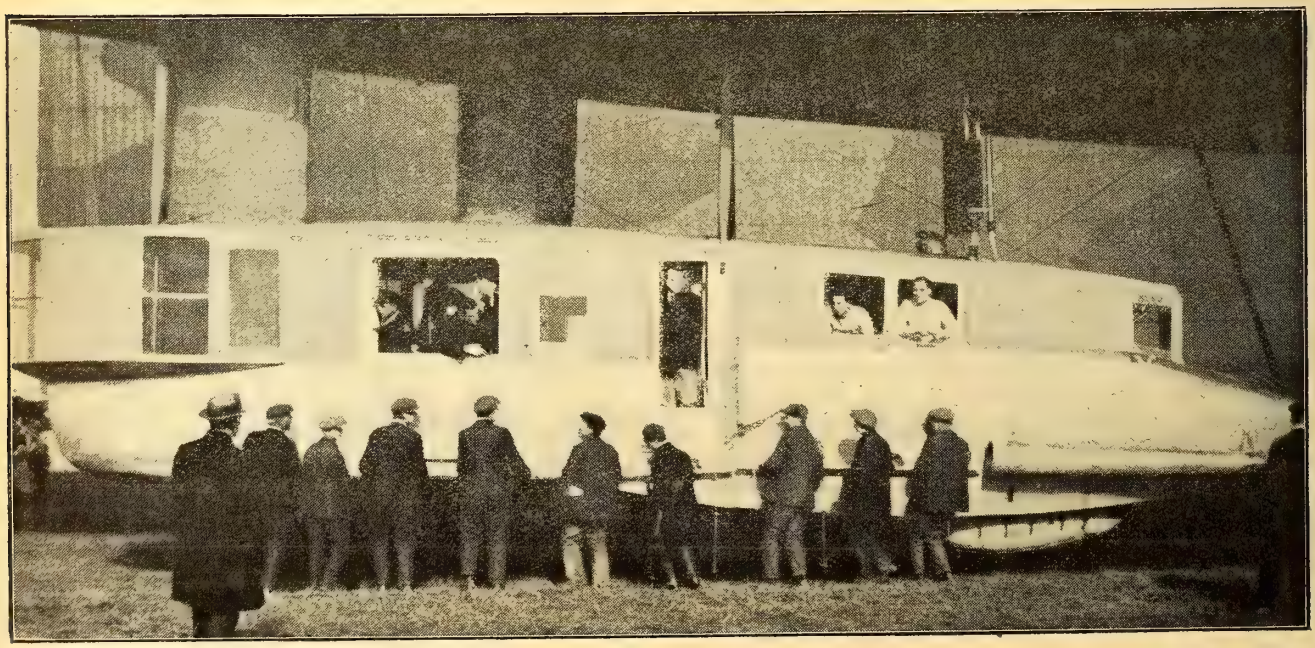
Life in the keel of the large rigid airship is by no means unpleasant. There is very little noise and vibration except directly over the engines, and also a total absence of wind, and, except at the early hours of dawn, greater warmth than in the surrounding atmosphere.

Getting into one's hammock is rather an acrobatic feat, especially if the hammock is slung high, but this becomes easy with practice. Preventing oneself from falling out is the thing one must be careful about. In a Service airship like the R34 there is only the thin outer cover of fabric on the underside of the keel on each side of the walking-way, and the luckless individual who tips out of his hammock would, in all probability, break right through this and find himself in the Atlantic.

It is surprising the amount of exercise one can get on board an airship of this size. The keel is about 600 ft. long, and one is constantly running about from one end to the other. There are also the steps in the vertical ladder to the top of the ship for those who feel energetic or have any duty up there. By the time it comes to one's turn to go to bed one generally finds that one is very sleepy, and the warmth of the sleeping bag and the hum of the engines soon bring sleep.

3.15 p.m.—The sea is now visible at intervals through the clouds. It is of a deep blue colour, with a big swell. Our shadow on the water helps us to measure our drift angle, which both Scott and Cooke worked out to be 21 degrees.

Running the forward and two aft engines and resting the two wing engines, we are making good a speed of 49 miles per hour. Durrant, the wireless officer, reports just speaking to St. John's, rather faint but quite clear signals, and we are still in touch with East Fortune and Clifden, and have been exchanging



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signals with the Azores since reaching the Irish coast. Our communications seem quite satisfactory. We are seeing some remarkable rainbow effects on the cloud. One complete rainbow encircled the airship itself and another encircled the shadow. Both are very vivid in their colouring.

3.45 p.m.—Tea: consisting of bread and butter and greengage jam and two cups of scalding hot tea, which had been boiled over the exhaust pipe. Fruitarian cake was also tried for the first time. Rather sickly taste, but is very nourishing. The whole is being assisted by Miss Lee White on the gramophone. We would one and all give anything for a smoke. Greenland, the first officer of the ship, is vainly trying to discover the culprit who used his toothbrush for stirring the mustard at lunch

4.30 p.m.—Still in fog and low clouds, and the sea is not visible. We have hardly seen any sign of the Atlantic since leaving the Irish coast, and we are beginning to wonder if we shall see it at all the whole way across.

5.0 p.m.—Tramp steamer "Ballygally Head" outward bound from Belfast, destination Montreal, picked up our wireless on their Marconi spark set, which has a range of 30 miles only. She heard us but did not see us, as we were well above and completely hidden by the clouds. She gave her position as Lon. 54.30 N. Lat. 18.20 W., and reported as follows. Steering South-south-west true. Wind north, barometer 30.10 overcast clouds low. Suffren, master. They were very surprised and most interested to hear we were R.34 bound for New York and wished us every possible luck.

5.30 p.m.—Messages have been received from both H.M. Battle Cruisers "Tiger" and "Renown," which were previously sent by the Admiralty to assist us with weather reports and general observation. They reported respectively as follows:—"Tiger": Position 36 degrees 50 min. North, 36 degrees 50 min. West: barometer 1,027 millibars, falling slowly; thick fog." "Renown": "Position 60 degrees North, 25 West; barometer 1,027 millibars, falling slowly, cloudy, visibility four miles." Harris's deductions from these reports are to the effect that there was no gradient, and therefore no likelihood of any strong wind in that part of the Atlantic.

6.0 p.m.—Scott increased height to 2,000 ft., and at this height we find ourselves well over the clouds and with a bright blue sky above the view is an enchanting one. As far as one can see a vast ocean of white fleecy clouds ending in the most perfect of cloud horizons. Two particularly fine specimens of windy cirrus clouds, of which Pritchard promptly obtained photographs, appeared on our port beam, also some cirrus ventos clouds, little curly clouds, like black cocks' tail feathers, all of which Harris interpreted as a first indication and an infallible sign of a depression coming up from the south. We hope that this depression when it comes may help us, provided we have crossed its path before it reaches us. If we can do this we may be helped along by the easterly wind on the north-westerly side of the depression. It is interesting to note that as yet we have received no notice of this depression coming up from the south in any weather reports.

6.40 p.m.—Put back the clock half an hour to corrected Greenwich mean time. Now 6.10 p.m. Position, longitude 53 degrees 50 min. North, latitude 20 degrees West. We have covered 610 sea miles, measured in a direct line, in 17 hours, at an average speed of 36 knots. The depth of the Atlantic at this point is 1,500 fathoms. At this rate, if all goes well, and if that depression from the south does not interfere, we should see St. John's—if visible and not covered with fog as it generally is—by about midnight on July 3rd.

6.55 p.m.—A wireless message from the Air Ministry *via* Clifden states that the conditions are unchanged in the British Isles. The anticyclone is persistent in the Eastern Atlantic, and a new depression is entering the Atlantic from the south. This confirms Harris's forecast, and is admirable proof of the value of cloud forecasting.

7 p.m.—The clouds have risen to our height, and we are now driving through them with no sign of the sky above or the sea beneath. Scott reckons that the wind is north-east by east, helping us slightly. The airship is now very heavy, owing to the change of temperature, and is 12 degrees down by the stern. We are running all five engines at 1,600 revolutions, and our height is 3,000 ft.

8 p.m.—We are just on the top of the clouds, alternately seeing the sun and then plunging through thick banks of cloud. The sun is very low down on the western horizon, and we are steering straight for it, making Pritchard at the elevators curse himself for not having brought tinted glasses. Ship now on a more even keel.

8.30 p.m.—Scott decided to go down underneath the clouds, and increased the speed on all engines to 1,800 revolutions to do so. It is dark, cold, and wet in the clouds, and we have shut all the windows. We see the sea at 1,500 ft. between patches of cloud. It is rather bumpy. We now find ourselves between two layers of clouds, the top one 1,000 ft. above us, and the lower layer 500 ft. below us, with occasional glimpses of the sea.

9 p.m.—Sun now setting and gradually disappears below the lower cloud horizon, throwing a wonderful pink glow on the white clouds in every direction. Course steered 320 degrees, course made good 299. Air speed 45 knots, speed made good 55 miles per hour. All through this first night in the Atlantic the ordinary airship routine—navigating, steering, elevating, and also maintaining the engines in smooth running order—goes on watch and watch as in the day time. The night is very dark.

The airship, however, is lighted throughout, a much enlarged car lighting system having been fitted. All instruments can be individually illuminated as required, and in case of failure of the lighting system, all figures and indicators are radiumised. The radium paint used is so luminous that in most cases the lighting installation is unnecessary.

The Second Day.

8.20 a.m., 3/7.—Clock put back another hour to correct time to Greenwich. Position, longitude 35 degrees 60 min. West, latitude 53 degrees North. Cooke got the position by observation from the sun and on cloud horizon. He considers it accurate to within 30 or 40 minutes. Our position is over the westbound steamship route from Cape Race to the Clyde, and we are momentarily crossing the eastbound route from Belleisle to Plymouth. We are well over half-way from Ireland to Newfoundland, and are back again on the great circle route, having been slightly south of it owing to the drift effect of the northerly wind. Good weather report from St. John's.

12.45 p.m.—Durrant is speaking to steamship "Canada" on our spark wireless. There may be a chance of our seeing her shortly, as the sea is temporarily visible. The second wireless operator obtains directions on our directional wireless, so we may know in what direction to look for her. All we know at the moment is that she is somewhere within 120 miles. Captain Davis, the commander, wishes us a safe voyage. We gaze through our glasses in her direction, but she is just over the horizon.

2 p.m.—Slight trouble in the starboard midships engine. Cracked cylinder waterjacket. Shotter made a quick and safe repair with a piece of copper sheeting and the entire supply of the ship's chewing gum, which had to be chewed by himself and two engineers before being applied.

4.30 p.m.—Now on the Canadian summer route for steamers bound for the St. Lawrence *via* Beileisle Strait and the well-known Labrador current. There are already indications of these cold currents in the fog which hangs immediately above the surface of the water. Scott and Cooke spend much time at the chart table, with protractors, dividers, stop watches, and many navigational text-books, measuring angles of drift and calculating the course made good. Aerial navigation is more complicated than navigation on the surface of the sea, but there is no reason why, when we know more about the air and its peculiarities, it should not be made just as accurate.

5 p.m.—Harris unwisely shuts his hand in the door of the wireless cabin. Injury painful, but not serious. Flow of language not audible to me as forward engine happened to be running.

6 to 7 p.m.—We are gradually getting farther and farther into the shallow depression reported yesterday coming from the South Atlantic. For the last four hours the sea has been rising. Now the wind is S.S.E., velocity 45 miles an hour. Visibility only half a mile. Very rough sea and torrents of rain. Despite this the ship is remarkably steady. At 8 p.m. Scott decided to climb right through it and we evidently came out over the top of it at 3,400 ft.

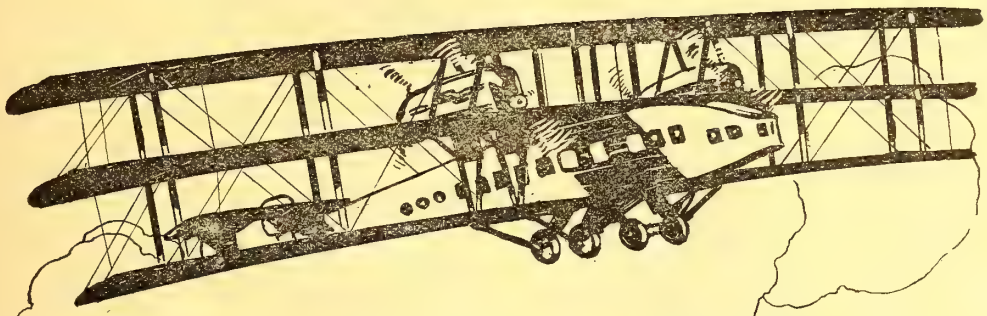
8.30 p.m.—We have now passed the centre of the depression exactly as Harris foretold. Rain has ceased and we are travelling quite smoothly again.

To the west the clouds have lifted, and we see an extraordinarily interesting sky, black, angry clouds giving place to clouds of grey mouse colour, then bright salmon pink, and a clear sky changing lower down on the horizon to darker clouds with a rich golden lining as the sun sinks below the surface. Sea is invisible, and is covered with a fluffy grey feather bed of clouds slightly undulating and extending as far as the eye can reach.

The moon is just breaking through the black clouds immediately above us. On the east we see the black, ominous depression from which we have just emerged, while away to the south the cloud bed over which we are passing seems to end suddenly and merge into the horizon. We are getting some valuable meteorological data on this flight without doubt, and each fresh phenomenon as it appears is instantly explained by the ever-alert Harris, who has a profound knowledge of his subject.

9 p.m.—One of the engineers has reported sick. He complains of feverishness. A stowaway has just been discovered, a cat smuggled aboard by one of the crew for luck. It is very remarkable that nearly every member of the crew has a mascot of some description, from the engineer officer who wears one of his wife's silk stockings as a muffler, to Major Scott, the captain, with a small gold charm, called "thumbs up."

We have two carrier pigeons on board, which it has been decided not to use. Anyhow, whether we release them or not they can claim to be the first two pigeons to fly the Atlantic.



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THE THIRD DAY.

FRIDAY, July 4th, 4.30 a.m.—A wonderful sunrise, the different colours being the softest imaginable, just like a wash drawing.

7 a.m.—Height 1,000 ft., bright blue sky above them, fog partly obscuring the sea beneath. . . . Sea moderate, with a big swell.

The fog bank appears to end abruptly ten miles towards the south, where the sea appears clear of fog. It is a very deep blue, and standing out conspicuously we see enormous white icebergs. The sun is shining brightly on its steep sides, and we estimate roughly that it is 300 yards square and 150 ft. high. As these icebergs usually draw about six times as much water as their height, we wondered whether he was aground, as the depth of water at that point is only about 150 fathoms. Another big iceberg is seen in the dim distance. These are the only two objects of any kind we have yet seen on this journey.

8.15 a.m.—The fog is still clinging to the surface of the water. Evidently very cold. There is an extraordinary crimpy, wavelike appearance in the clouds which are rolling up from the north. Harris has never seen this before. Pritchard took photographs. Underneath on the port beam there is a long stretch of clear blue sea sandwiched between wide expanses of fog on either side, looking just like a blue river flowing between two wide snow-covered banks. This is caused by a warm current of water, which prevents the cloud from hanging over it. This illustrates the rule that over cold currents of water the clouds cling to the surface.

9 a.m.—We are now over a large icefield, and the sea is full of enormous pieces of ice, small bergs in themselves. The ice is blue-green under the water, with frozen snow on top.

LAND SIGHTED.

12.50.—Land in sight, first spotted by Scott on the starboard beam. A few small rocky islands were visible for a minute or two through the clouds, but were instantly swallowed up again. Altered course to south-west to have a closer look. Eventually made them out to be the north-west coast line of Trinity Bay. Our time from Rathlin Island, the last piece of land we crossed off the shore of the north coast of Ireland, to the north coast of Trinity Bay, Newfoundland, is exactly 59 hours.

2.30 p.m.—We are crossing Newfoundland at 1,500 ft. in thick fog, which gradually clears as we get further inland. Very rocky country, with large forests, lakes, and for the most part no traces of habitation anywhere. Message from St. John's to say that Raynham was coming in his machine to greet us. We replied giving our position.

3 p.m.—Again enveloped in dense fog. Message from H.M.S. "Sentinel" giving us our position. We are making good 38 to 40 knots, and heading for Fortune Harbour.

4.30 p.m.—We have passed out of Fortune Harbour with its magnificent scenery and azure blue sea dotted with little white sailing ships, and are now over the two French islands Miquelon and St. Pierre, and steering course for Halifax, Nova Scotia. The French flag was flying at St. Pierre and was duly dipped as we passed over.

7.45 p.m.—Passed over tramp steamer ss. "Seal" bound for Sidney, Nova Scotia, from St. John's, the first we have seen.

8.15 p.m.—Clear weather, sea moderate; making good 30 miles per hour on three engines. Northern point of Cape Breton Island, Nova Scotia, just coming into sight. We should make Sambre Head 2.38 a.m.

Saturday, July 5th, 2.30 a.m.—Very dark, clear night; the lights of Whitehaven show up brightly on our starboard beam and we make out the lights of a steamer passing us to the east. Strong head wind against us; making no appreciable headway.

7 a.m.—Scott decided to turn inland to avoid S.W. wind barrage blowing off the coast. Crossed coast at Goose Island Country Harbour. Miles and miles of forest. Here and there a clearing with a hut or two; a few cows and an acre or so of cultivated land; any number of small rivers and lakes.

10.20 a.m.—We are down as low as 800 ft. over huge forests. A lovely resinous smell of pines, which we inhale with delight. Stacked tree trunks look like bunches of asparagus from above. Put the wind up a big brown eagle. We all agree we must come to Nova Scotia for shooting and fishing.

12.30 p.m.—Lunch. The petrol question has become a distinctly serious matter. We have been totalling up our available petrol resources with anxious care. We have 500 miles to go to New York, and if we do not get any wind or bad weather against us will do it all right with two engines, assisted occasionally by a third engine. We cannot afford to run all five at once owing to the petrol consumption. Lieut.-Commander Lansdowne, U.S. Naval Airship Service, sends signal on behalf of R.34 to U.S. Naval Authorities at Washington and Boston to send destroyer to take us in tow in case we should run out of petrol during the night. The idea is, we would then be towed by the destroyer during the hours of darkness and at dawn cast off and fly to Long Island under our own power. Let us hope this will not be necessary. It is now raining and foggy, which is the kind of weather that suits us now, as rain generally means no wind.

3 p.m.—Passed Haute Island in Fundy Bay.

3.30 p.m.—For some little while past there had been distinct evidences of electric disturbance. Atmospherics became very bad, and severe storm was seen over Canadian coast moving south down the coast. Scott turned east off his course to dodge the storm, putting on all engines. In this, fortunately for us, he was successful, and we passed through the outer edge of it. We had a very bad time indeed; it is quite the worst experience from a weather point of view that any of us have yet experienced in the air. During the storm some wonderful specimens of cumulus mamatus were seen and photographed. These clouds always indicate a very highly perturbed state of the atmosphere, and look rather like a bunch of grapes. The clouds droop into small festoons.

7.30 p.m.—Now in clear weather again, and have left Nova Scotia well behind us and are heading straight for New York. Particularly fine electrical disturbance type of sunset.

9.0 p.m.—Another thunderstorm. Again we have to change our course to avoid it, and as every gallon of petrol is worth its weight in gold it almost breaks our hearts to have to lengthen the distance to get clear of these storms.

July 6th, Sunday, at 4 a.m.—Sighted American soil at Chatham.

4.5 a.m.—South end of Mahoney Island, Scott is wondering whether petrol will allow him to go to New York or whether it would not be more prudent to land at Montauk.

5.30 a.m.—Passing over Martha's Vineyard, a lovely island and beautifully wooded. Scott decided he could just get through to our landing ground at Hazelhurst Field, but that there would not be enough petrol to fly over New York. Very sad, but no alternative. We will fly over New York on start of our return journey on Tuesday next, weather and circumstances permitting.

Landed 1.54 p.m., G.M.T., Haselhurst Field, Long Island, or 7.54 U.S.A. summer time. Total time on entire voyage, 108 hours 12 minutes.

THE TRANS-ATLANTIC HANDLEY PAGE.

It was stated on July 3rd that Vice-Admiral Mark Kerr, M.V.O., had decided to abandon the idea of flying the Atlantic on the Handley Page, and on July 4th the machine left St. John's for Atlantic City.

The firm had received several invitations to exhibit the machine in the States, and it was decided to take advantage of these offers. The machine carried 1,300 gallons of petrol, Admiral Mark Kerr, Major Trygve Gran, and Mr. Frederick Wyatt. Food for twenty-four hours was taken.

A message from Halifax, N.S., on July 5th stated that the machine had been forced to descend at Parrsborough that morning through engine trouble. The crew were uninjured, but the under-carriage was badly damaged in the landing.

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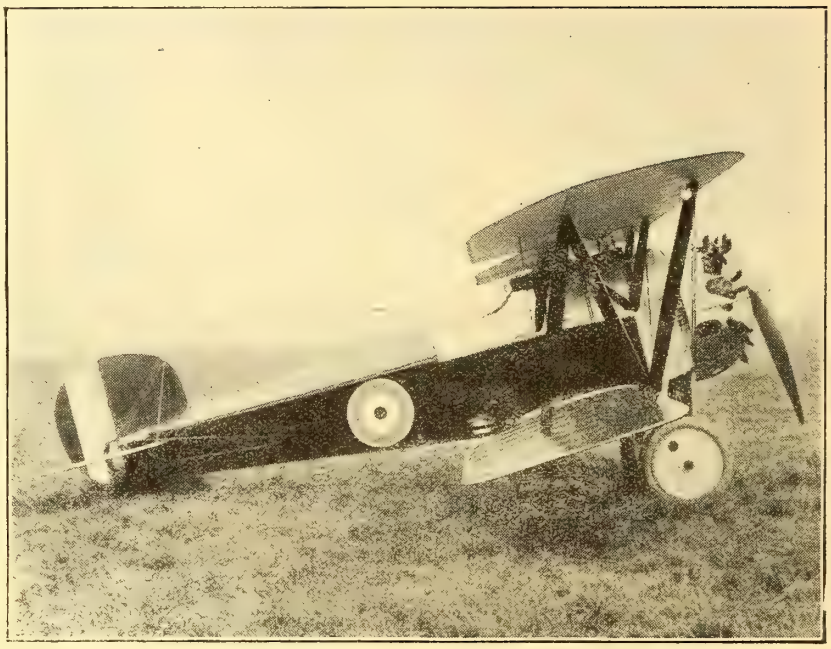

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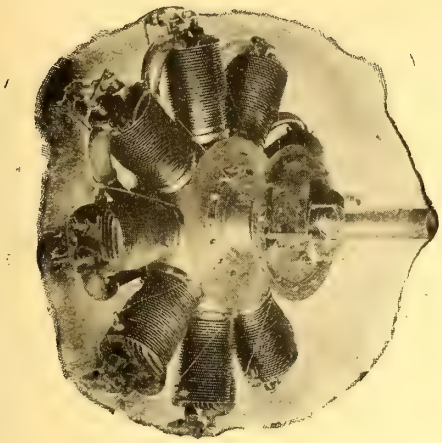

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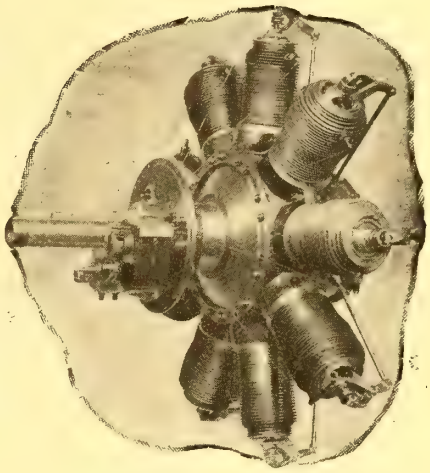

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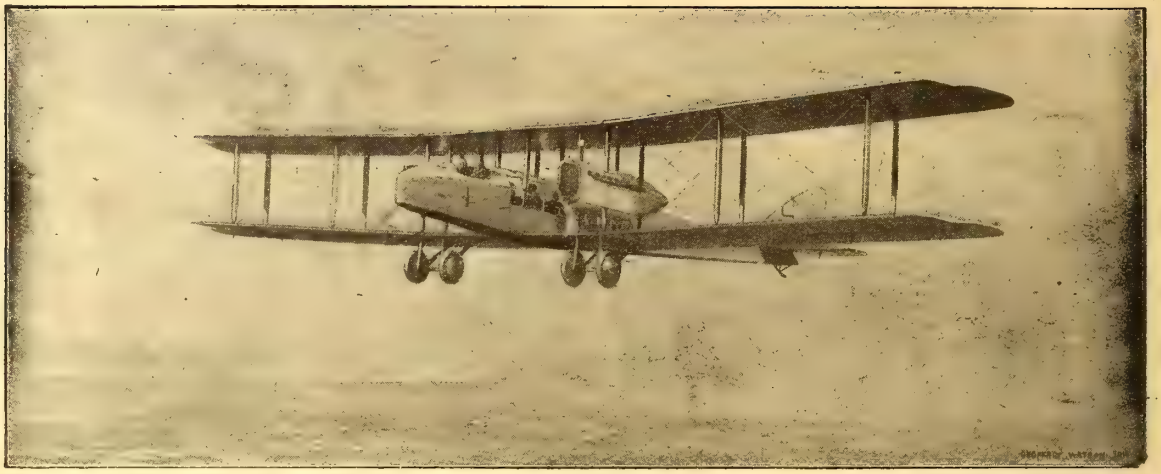

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THE WEEKLY COMMENTARY.

The inquest upon the deaths of Capt. Rawlings and Capt. Dunn in the accident to the Tarrant triplane at Farnborough on May 26th is the subject of a leading article in this issue.

The evidence given and certain facts which incidentally appeared at that inquest seem to have suggested to some people that the Technical Department of the Air Ministry is attempting to keep to themselves technical information which it is essential—in the interests of the British Aircraft Industry—should be freely published. It is not clear whether the Technical Department itself gained any information.

The products of the Blackburn Aeroplane and Motor Company, Ltd., of Olympia, Leeds, are described in this week's instalment of the series on "Modern British Aeroplanes."

An article on the methods adopted by the French Aviation Service for the prevention of fires caused by bursting or perforated petrol tanks will be found on page 153.

The devices are separated into two main divisions, *ea sunt* methods for getting rid of all the petrol carried by emptying or dropping the fuel tanks, and methods for preventing leakage caused either by bullet-holes or by damage in a crash.

It appears that such precautions have been carried to much greater lengths in France than in this country, and it is to be hoped that British manufacturers will now make an attempt to bring their practice at least into line with that of France.

THE TARRANT ACCIDENT.

The evidence given at the coroner's inquest upon the deaths of Capt. P. T. Rawlings and Capt. F. G. Dunn, who were both killed at Farnborough in the accident to the Tarrant "Tabor" triplane on May 26th, brings to light a number of curious points. On the point of the actual incidents of the accident itself two witnesses only—Mr. Tarrant himself and Brigadier-General Brooke-Popham, the Director of Research, Air Ministry—gave evidence.

Their evidence was in general agreement on the point of fact that all six engines were started up, that the machine taxied some few hundred yards with the four lower engines running fairly fast and the upper pair ticking over. It turned and taxied at an increased speed, and the top engines were opened up, the tail rose to an unusual extent, and the machine turned on its nose.

The only novel fact which appears is that, according to Mr. Tarrant, the machine was loaded with about 1,000 to 1,200 lbs. of lead shot in the nose of the fuselage.

No one of the four surviving members of the crew gave evidence as to the occurrence.

General Brooke-Popham stated that there had been an official inquiry into the accident, and that he was instructed to claim privilege for that report.

From the questions asked of various witnesses by Mr. Walter Frampton—acting on behalf of Messrs. Ogilvie and Partners, who acted as consulting engineers to Mr. Tarrant—and from the answers given to those questions, there arise a number of rather important deductions.

It appears that tests had been made on a model of the machine in the wind tunnel at the R.A.E., and the results of the test were forwarded to Ogilvie and Partners.

On the strength of these tests the consultants wrote to Mr. Tarrant stating that the machine was not safe to fly if the figures of the test were to be accepted as they stood. These tests indicated that the machine was tail heavy, to the extent of requiring 20° adjustment (query incidence) on the top elevator to trim at a reasonably high speed—which would leave insufficient adjustment for errors and would entail a severe strain on the pilot.

Upon the strength of this report from his consultants Mr. Tarrant apparently drafted a letter to the Technical Department, on May 23rd, asking to be allowed to postpone the trials until confirmation by the National Physical Laboratory of the correctness, or otherwise, of the R.A.E. tunnel tests.

If the N.P.L. tests confirmed the calculations and experience of his experts—presumably Ogilvie and Partners—he would like to make the tests as the machine stood; but if not—that is, apparently, if they agreed with the R.A.E. tests—he was afraid that further model tests would be absolutely necessary, and whilst these were being made he would like to change the engines and also the undercarriage.

This letter was never sent, and the Director of Research was not informed of its contents—apparently because Mr. Tarrant on the day after drafting this letter called at the Technical Department and discussed the matter with certain officials, who had apparently received the results of the N.P.L. tests to which Mr. Tarrant referred in the draft letter, and who satisfied Mr. Tarrant that the conclusions derived from the R.A.E. tests were false, and who arranged to test the machine on the following Monday morning.

Messrs. Ogilvie and Partners were not informed of the results of the N.P.L. tests or of the decision to fly the machine on that day.

It further appears from the evidence that a civilian employee of the Royal Aircraft Establishment of the name of Grosset formed part of the crew for the special purpose of watching the behaviour of the undercarriage whilst the machine was taxying. Examined on this point Mr. Tarrant explained that there was some question of there being too much elastic on the axles, and thus making the chassis too rigid. There had been no

question as to the strength of the undercarriage to his knowledge.

Lieut.-Col. the Master of Sempill gave evidence that on examining the undercarriages after the accident he had concluded that they had not failed until the machine turned over.

From this evidence the following points seem fairly clear :—

1. That the machine as built was in proper aerodynamic balance according to the calculations both of Mr. Tarrant's design staff and of his consultants, Messrs. Ogilvie and Partners.

2. That tests made on a model at the Royal Aircraft Establishment indicated, on the contrary, that it would be dangerously tail heavy, and that both Mr. Tarrant and his consultants desired to postpone the trials till these tests could be checked by the National Physical Laboratory.

3. That the National Physical Laboratory tests did not confirm those made by the R.A.E., although the fact of 1,000 lbs. of lead ballast being placed in the nose of the fuselage would seem to indicate that there was some suspicion of tail heaviness still undispelled. One thousand pounds in the nose of the machine would be far from sufficient to counterbalance the degree of tail heaviness indicated by Messrs. Ogilvie's report on the results of the R.A.E. tests, so that it may be assumed that only a minor degree of tail heaviness was expected.

4. That on the receipt of this report the responsible officials of the Technical Department decided to test the machine in its then condition, and persuaded Mr. Tarrant to take their view.

5. That whatever the cause of the accident may have been, it was not due to tail heaviness on the part of the machine.

It will thus be seen that in spite of the large volume of evidence produced, and the number of curious facts disclosed, no explanation of the accident has been allowed to emerge.

It has been publicly stated by General Seely that the machine was built for Military Service and that it would not be in the interest of the public services to disclose the results of the official technical investigation into the cause of the accident.

If this is the case, it is distinctly unfortunate that the veil of secrecy was not drawn a little closer.

As the matter stands at present, it is fairly obvious that the Royal Aircraft Establishment's model tests were erroneous and worthless.

Apparently the N.P.L. tests gave widely different results, but the conclusions drawn from them were not allowed to appear. Whether they were equally wrong, or whether they were proved to be correct by the accident but were erroneously interpreted—or merely ignored—by the responsible officials of the Technical Department cannot be known.

But it is difficult to avoid a suspicion that the public interest which is to be served by refusing to disclose the results of the official inquiry is that of maintaining some fragments of a reputation for the departments and officials implicated in the affair.

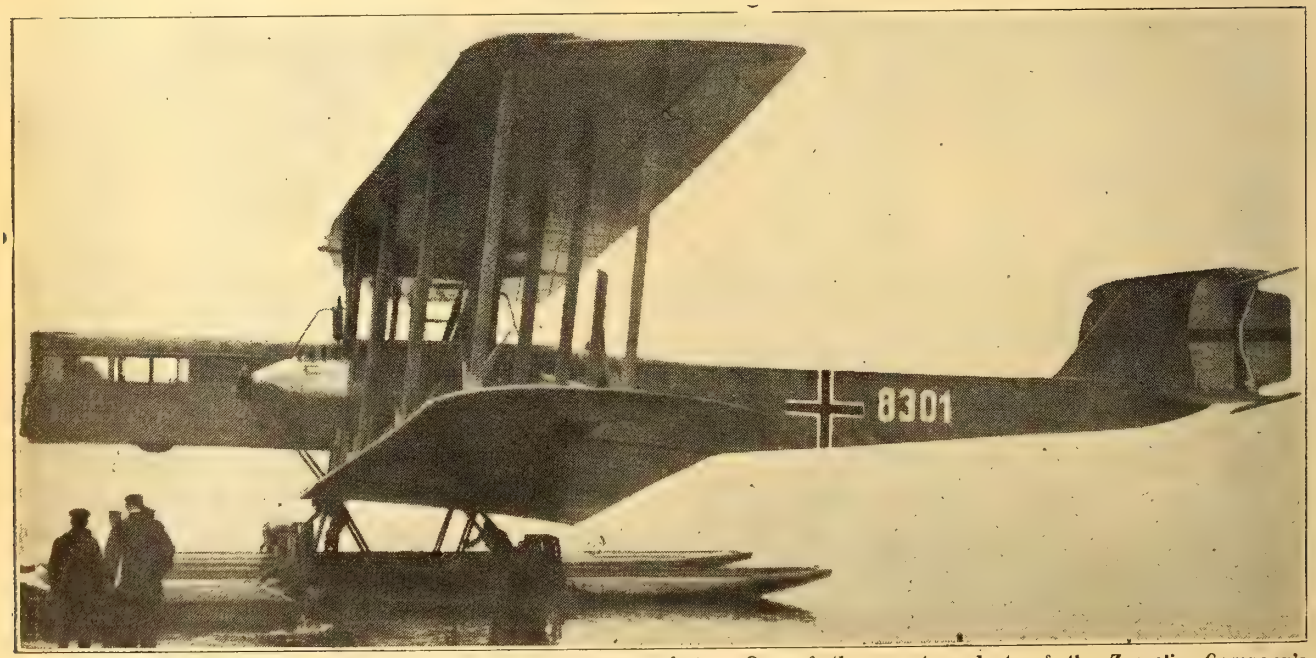
The failure to inform Messrs. Ogilvie and Partners either of the receipt of the N.P.L. report or of the decision to carry out the test does not in any way dispel these suspicions.

It may safely be surmised that Mr. Tarrant did not employ that firm as his consultants out of pure philanthropy. On the other hand, no sane man would employ a consultant in whom he had no confidence, nor act in a sense directly opposed to the last advice of his consultants without further consultation, unless there were very urgent reason for that course.

Was that reason—by any chance—the refusal of the Technical Department experts to allow important technical data to pass into the possession of civilian engineers?

In this connection it may be noticed that to their verdict of "Accidental death" the jury added the following rider :—

"But we all of us feel unanimously of opinion that something has not come out which should come out. We have not had the evidence of anyone in the machine, and we feel that something has been kept in the background which we should know."



A German Giant Seaplane fitted for commercial passenger-carrying. One of the recent products of the Zeppelin Company's Works at Staaken. This machine is generally on the lines of the four-engined Zeppelin Staaken Giant, described some time ago by M. Jean Lagorgette in this paper, but is fitted with seaplane floats, and has had the nose of the fuselage extended to form a passenger cabin. The power plant consists of four 250 h.p. Maybach engines.

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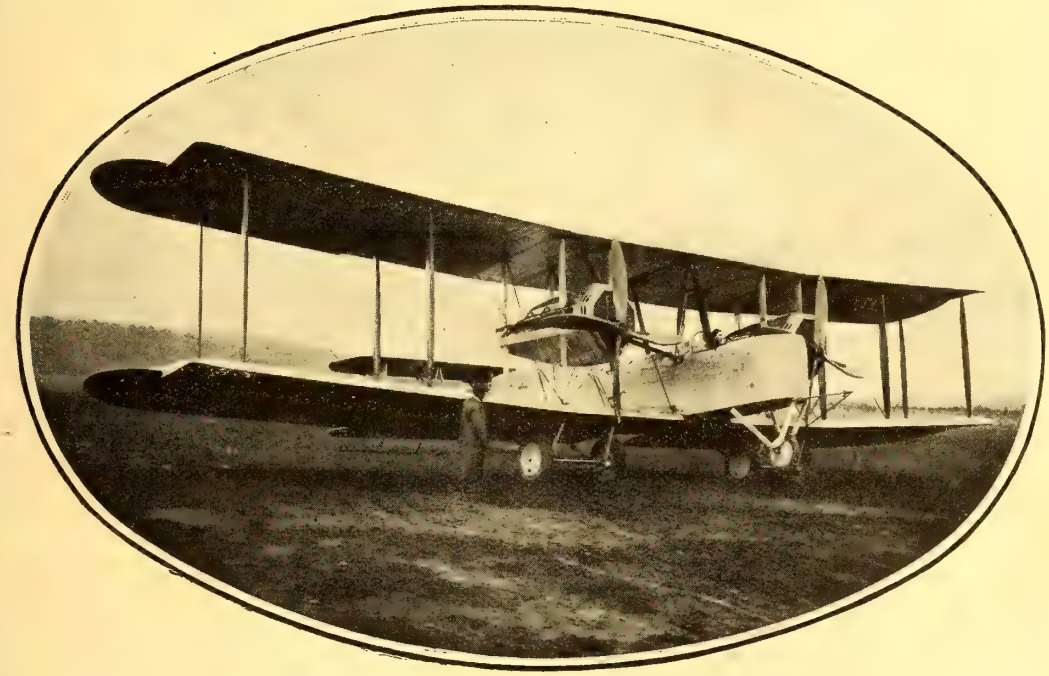

Trials at Weybridge before proceeding to Newfoundland.

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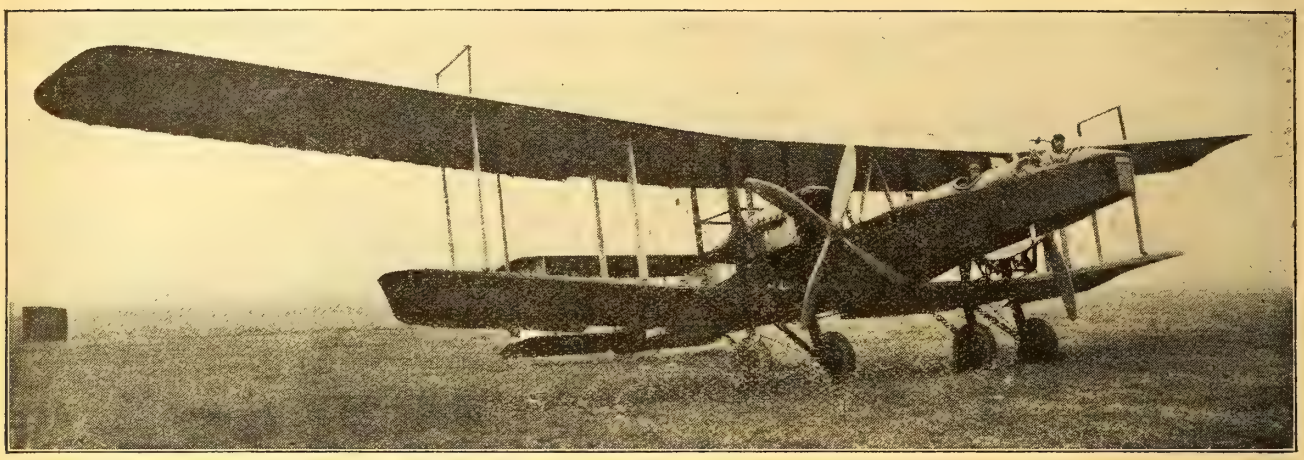
VII.—The Blackburn Aeroplane and Motor Co., Ltd.



Three-quarter Front View of the Blackburn "Kangaroo" (two 250 h.p. Rolls-Royce Falcon Engines).

Mr. Robert Blackburn—the head of the Blackburn Aeroplane and Motor Co., Ltd.—is amongst the earliest of the successful British constructors of aeroplanes.

His first aeroplane was produced in 1910, and a very successful monoplane, fitted with a 50 h.p. Gnôme engine appeared in time to compete in the "Daily Mail" Circuit of Britain race in 1911.

In 1913 the Blackburn firm produced an 80 h.p. two-seater monoplane of very graceful appearance which was extensively flown during 1913, '14, and '15.

During the earlier part of the late war the firm was engaged in building aeroplanes and parts to official design, but during 1916 they recommenced original design work by producing the twin-engine seaplane which eventually developed into the Blackburn "Kangaroo."

THE BLACKBURN TWIN-ENGINED SEAPLANE.

This machine, as built in 1916, was a central fuselage twin-engine folding wing seaplane, with two floats, each beneath one engine nacelle and each carried on an entirely independent chassis.

The first example was engined by two 160 h.p. Sunbeam engines, and, with this power plant, it was successfully flown at the R.N.A.S. Experimental Station at Grain.

A second and improved edition, fitted with two 190 h.p. Rolls-Royce engines, was delivered to the same establishment, and gave—for those days—an extraordinary performance.

Apart from the presence of floats instead of wheels the machine was practically identical with the "Kangaroo" hereafter described.

SPECIFICATION.

Type of machine	Blackburn Twin Seaplane.
Name or type No. of machine	S. P.
Purpose for which intended	Long Range Bomber.
Span	74 ft. 10¼ in. top; 27 ft. 9½ in bottom plane.
Gap	7 ft. 3 in.
Overall length	41 ft. 2 in.—46 ft.
Maximum height	16 ft. 10 in.
Chord	7 ft. 3 in.
Total surface of wings	880 sq. ft.
Span of tail	17 ft. 6 in.
Total area of tail	143 sq. ft.
Area of elevators	63.5 sq. ft.
Area of rudder	22.5 sq. ft.
Area of fin	25 sq. ft.
Area of ailerons	166.5 sq. ft.
Maximum cross section of body	12 sq. ft.
Horizontal area of body	105 sq. ft.
Vertical area of body	115 sq. ft.
Engine type and h.p.	Falcon-Rolls, two 250 h.p.
Weight of machine empty	5,840 lbs.
Load per sq. ft.	9.78 lbs.
Weight per h.p.	17.2 lbs.
Tank capacity in hours	8 hours.
Tank capacity in gallons	230 petrol; 18 oil.
PERFORMANCE—	
Speed low down	87 knots.
Disposable load apart from fuel	1,710 lbs.
Total weight of machine loaded	8,600 lbs.

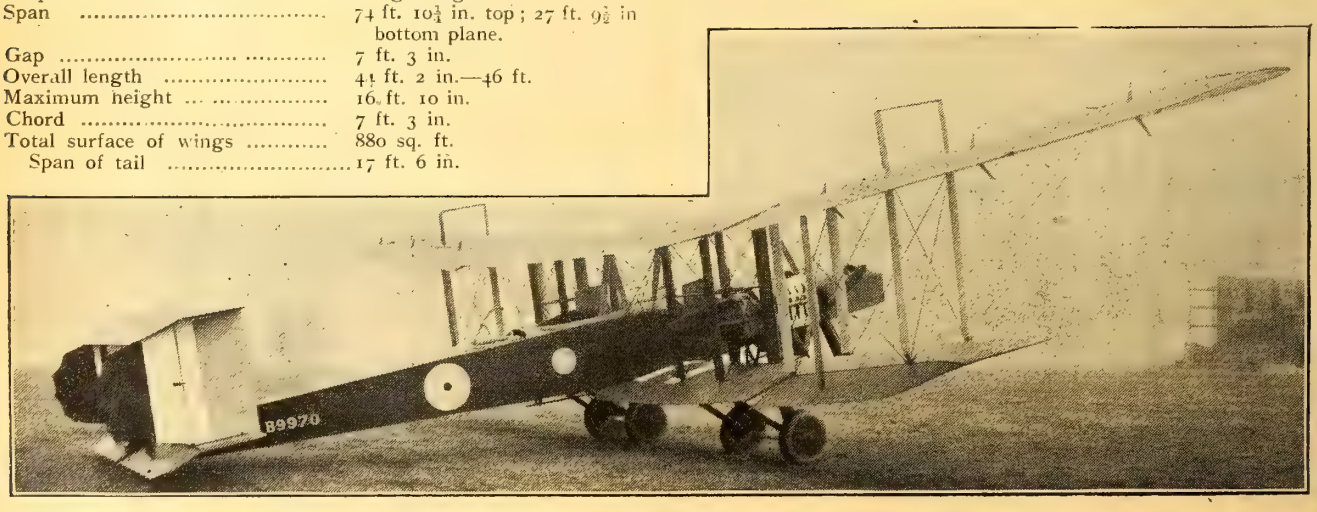
THE BLACKBURN "KANGAROO."

As may be seen from the illustrations this machine is upon the now accepted lines of twin-tractor biplanes.

The most noticeable features are the extreme overhang of the upper plane, and the extreme projection of the front end of the fuselage.

Generally, the construction is on conventional lines.

One point of interest is the design of the metal fittings. Instead of the usual form of fitting built out of steel sheet welded, brazed or riveted together, all the main fittings on this machine are machined from forgings. A typical example, the hinge fitting for one of the lower rear spars, is shown in one of the illustrations.



Three-quarter Rear View of the Blackburn "Kangaroo."

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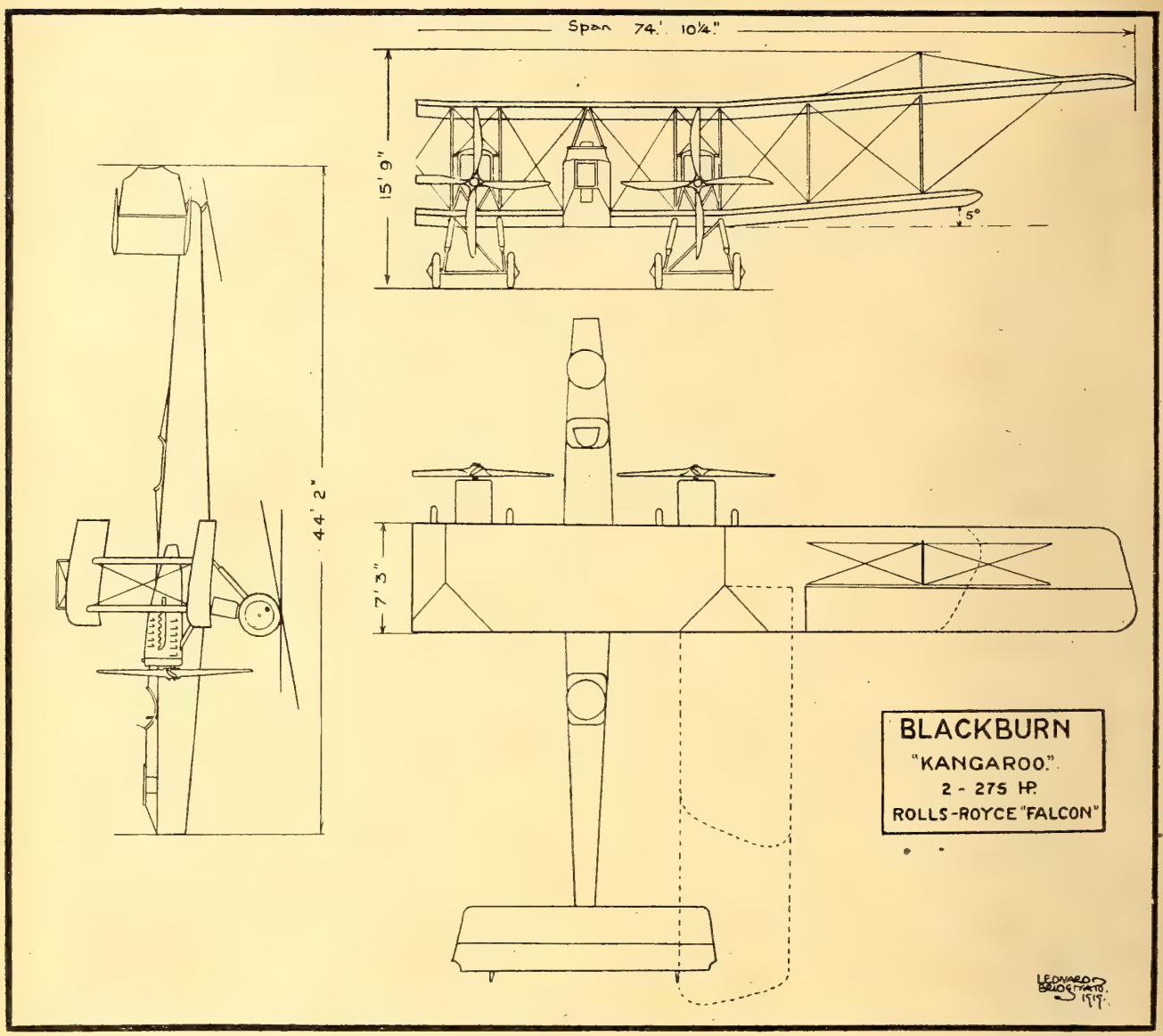
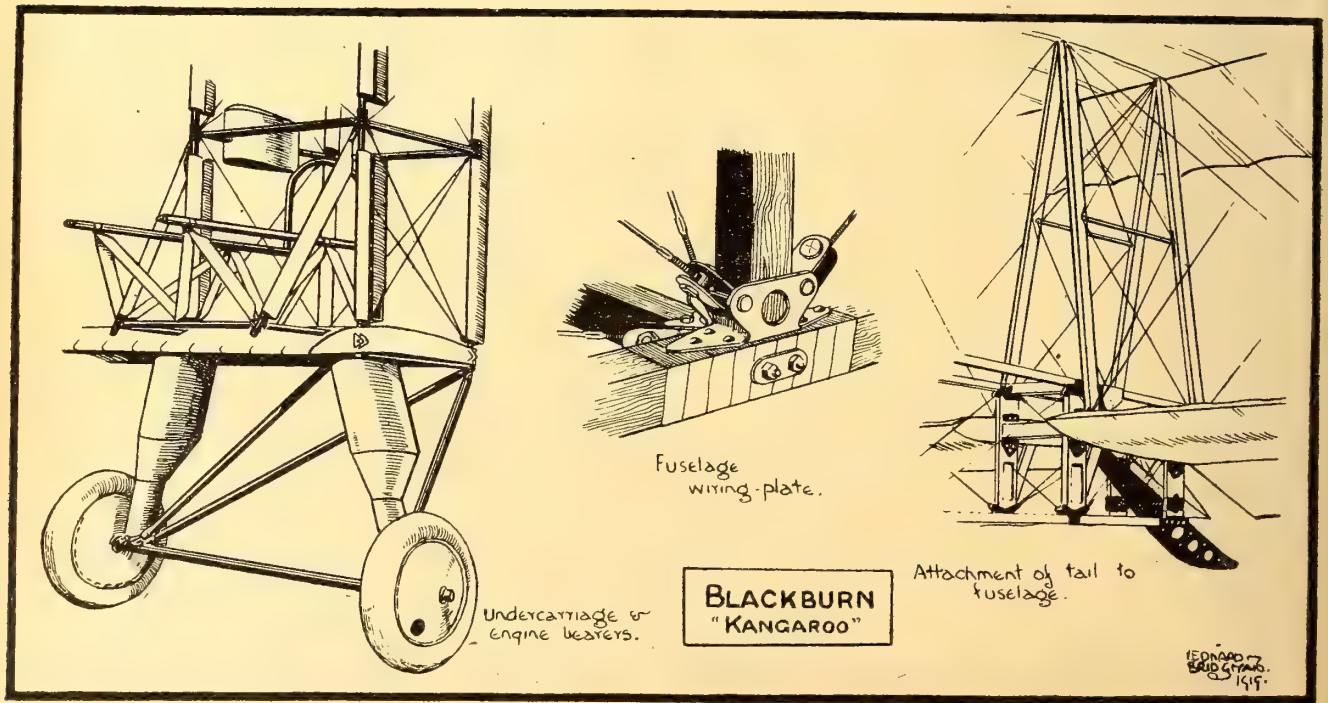

Span 74' 10¼"
15' 9"
5°
44' 2"
7' 3"
BLACKBURN
"KANGAROO."
2 - 275 H.P.
ROLLS-ROYCE "FALCON"
LEONARD BRIDGMAN. 1919.


Undercarriage & engine bearers.
Fuselage wiring-plate.
Attachment of tail to fuselage.
BLACKBURN
"KANGAROO"
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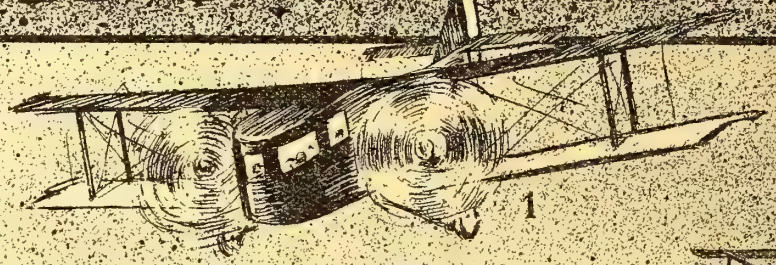
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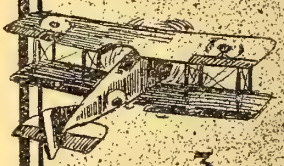
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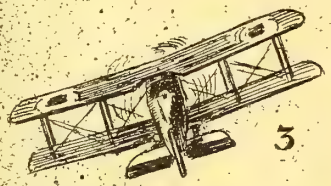
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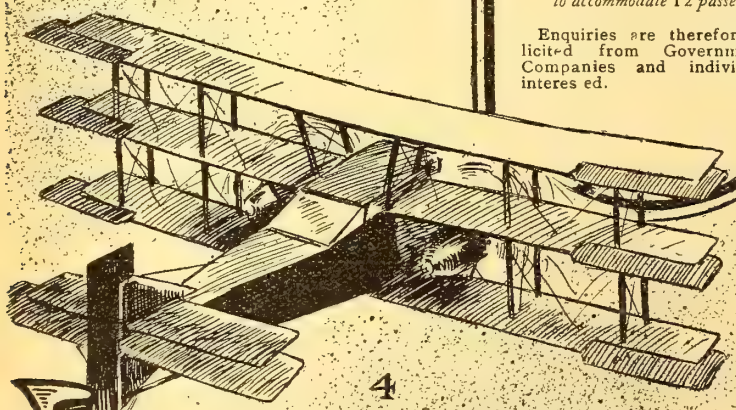
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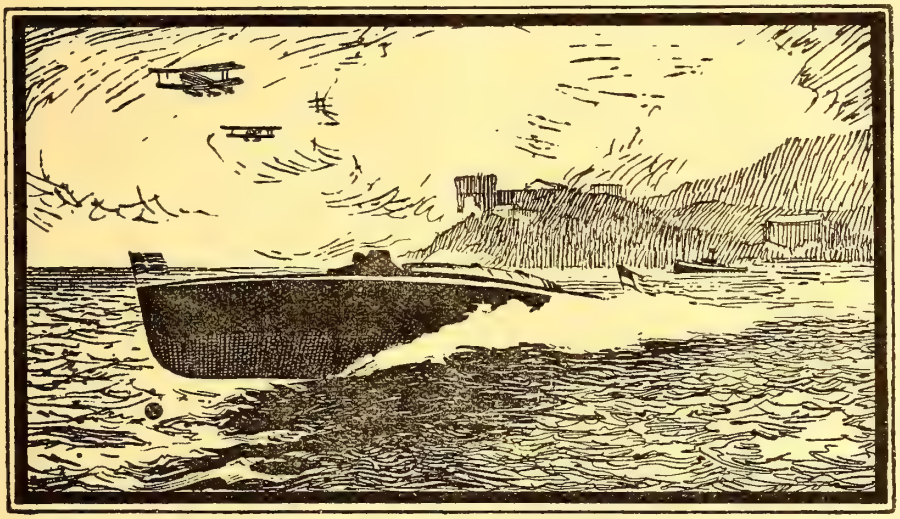

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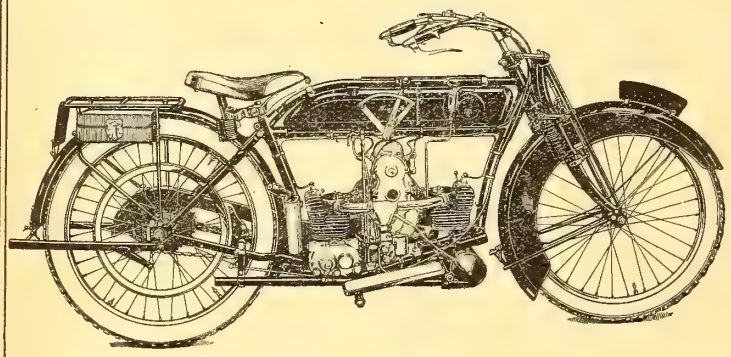

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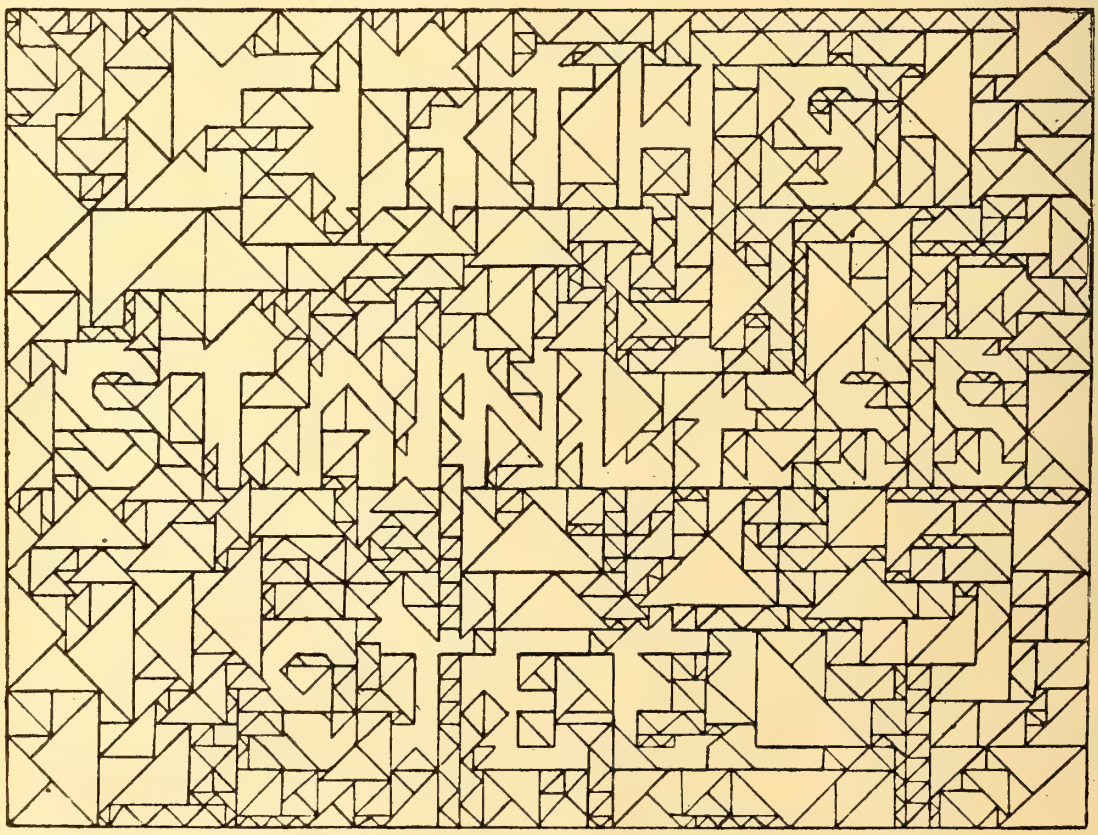

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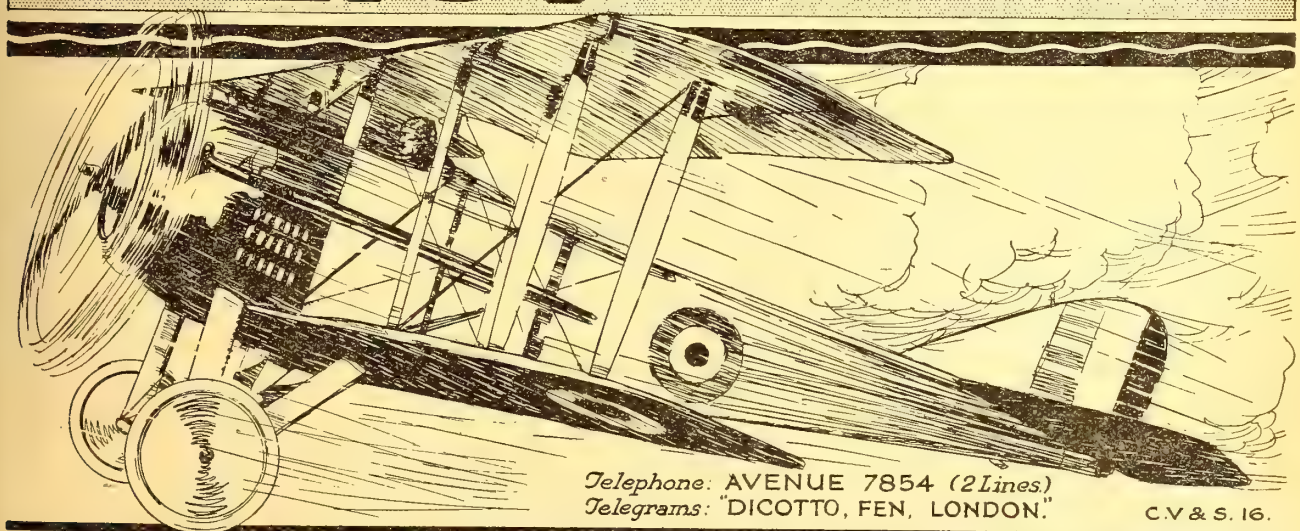

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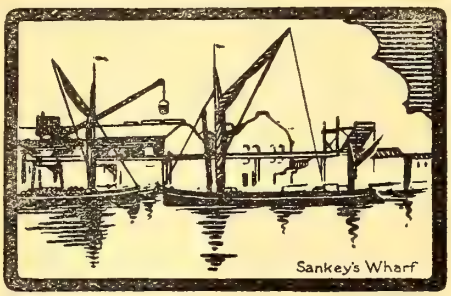

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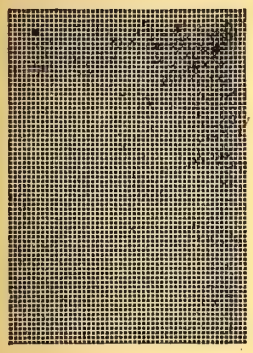

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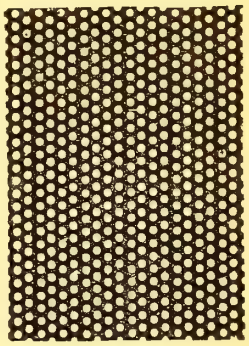

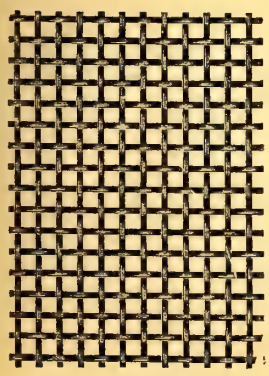

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Imperial Light, Ltd., 123, Victoria Street, London, S.W.1. "Edibrac, 'Phone, London." 3540 Victoria (3 lines).

Aeroplane Manufacturers—

Aircraft Manufacturing Co., Ltd., Hendon. "Airmanship, Hyde, London." Kingsbury 220.

Armstrong, Sir W., Whitworth & Co., Ltd., Newcastle - on - Tyne. "Armstrong Aviation, Newcastle-on-Tyne." Gosforth 500.

Blackburn Aeroplane & Motor Co., Ltd., Olympia, Leeds. "Propellors, Leeds." Roundhay 345 (3 lines).

Boulton & Paul, Ltd., Rose Lane, Norwich, "Aviation, Norwich." Norwich 851.

British Aerial Transport Co., Ltd. Head Office: 38, Conduit Street, London, W.1. "Batigram Reg. London." Mayfair 637, 638.
Works: Hythe Road, Willesden, London, N.W.10. "Aerbrirans, Phone, London." Willesden, 2272, 2273.

British & Colonial Aeroplane Co., Ltd. (The Bristol Co.), Filton, Bristol. "Aviation, Bristol." Bristol 3006.

Central Aircraft Co., High Road, Kilburn, N.W.6. "Aviduction, Phone, London." Hampstead 4403 and 4424.

Dawson, John, & Co., Ltd., Newcastle-on-Tyne. "Dependable, Newcastle-on-Tyne." Central 2604 (2 lines).

Eastbourne Aviation Co., Ltd., Eastbourne. "Aircraft, Eastbourne." Eastbourne 1176.

Gosport Aircraft Co., Gosport. "Flight Gosport." Gosport 217.

Grahame-White Company, Ltd., London Aerodrome, Hendon. "Volplane, Hyde, London." Kingsbury 120.
London Office, 12, Regent Street, S.W.1. Regent 2084.

Handley Page, Ltd., 110, Cricklewood Lane, N.W.2. "Hydrophid, Crickle, London." Hampstead 7420.

Hooper & Co., Ltd., 54, St. James St., Piccadilly, London, S.W. "Sociable, St James, London." Regent 912.

Mann, Egerton & Co., Ltd., Norwich. "Motors, Norwich." Norwich 482 (4 lines).

Martinsyde, Ltd., Brooklands, Byfleet, "Martinsyde, Weybridge." Woking 331; Byfleet 171.

"Nieuport" & General Aircraft Co., Cricklewood, London, N.W.2. "Nieuscout, Crickle, London." Willesden 2455

Phœnix Dynamo Manufacturing Co., Ltd., Thornbury, Bradford. "Dynamo, Bradford." Bradford 3700 (4 lines).

The Regent Carriage Co., Ltd., 126/132, New King's Road, Fulham, S.W.6. "Carbodis, London." Putney 2240-2241.

Roe, A. V., & Co., Ltd., Manchester. "Triplane, Manchester." City 8530-8531, Manchester.

Saunders, S. E., Ltd., East Cowes, I.O.W. "Consuta, East Cowes." Cowes 193.

Short Bros., Rochester, Eastchurch and Whitehall House, S.W. "Tested, Phone, London." Regent 378.

The Siddeley Deasy Motor Car Co., Ltd., Coventry. Coventry 954. "Deasy, Coventry."

Sopwith Aviation Co., Ltd., Kingston-on-Thames. "Sopwith, Kingston." Kingston 1988 (8 lines).

The Supermarine Aviation Works, Ltd., Southampton. "Supermarin." Woolston 37 (2 lines).

Vickers, Ltd., Imperial Court, Basil Street, Knightsbridge, S.W.3. "Vickerfyta, Knights, London." Kensington 6810.

Waring & Gillow, Ltd., Hammersmith. "Warisen, Ox, London." Museum 5000.

Westland Aircraft, Yeovil. "Aircraft, Yeovil." Yeovil 129.

White, J. Samuel, & Co., Ltd., East Cowes. "White, East Cowes." Cowes 3.

Airships—

Airships, Ltd., High Street, Merton. Wimbledon 1314.

The North British Rubber Co., Ltd., Castle Mills, Edinburgh. "Weba, Edinburgh." Edinburgh 3880 Central. (5 lines.)

Short Bros., Rochester, Eastchurch, and Whitehall House, S.W. "Tested, 'Phone, London." Regent 378.

C. G. Spencer and Sons, Ltd. (See under "Balloons").

Aluminium Castings (Sand and Die)

Coan, R. W., 219, Goswell Road, London, E.C.1. "Krankases, Isling, London." City 3846.

Balloons—

The North British Rubber Co., Ltd., Castle Mills, Edinburgh. "Weba, Edinburgh." Edinburgh 3880 Central. (5 lines.)

C. G. Spencer and Sons, Ltd., 50A, Highbury Grove, N.5. "Aeronaut, London." Dalston 1893.

Bent Timber Parts—

Hopton & Sons, George Street, Euston Square, London, N.W.1. "Hoptons, Eusquare, London" Museum 496.
Also at Market Harborough, Leicestershire. "Hoptons, Market Harborough." Market Harborough 15.

Bearings (Etonia Cast Phosphor Bronze)

Brown Bros., Ltd, Gt. Eastern St., E.C.1.

Yorkshire Engineering Supplies, Ltd., Wortley, Leeds. "Yes, Leeds." Central 3927.

Blowpipes (Oxy-Acetylene)—

Acetylene Corporation of Great Britain, Ltd, The, 49, Victoria Street, Westminster, S.W.1 "Flamma, Vic, London." Vic. 4830

Imperial Light, Ltd, 123, Victoria Street, London, S.W.1. "Edibrac, 'Phone, London." Vic. 3540 (3 lines).

Bolts—

Mitchell Wedgewood & Co., Campbell Works, Stoke Newington, London, N.16. Dalston 2500 (2 lines).

Books (Aero Engines)—

Dykes' Auto Encyclopedia, Gillam, 149, Strand, W.C.2

Buildings—

Boulton & Paul, Ltd., Rose Lane, Norwich "Aviation, Norwich." Norwich 851

Rubery Owen & Co., Darlaston, South Staffs

Cable Coverings and Cable Controls—

The Bowden Brake Co., Ltd., Tyseley, Birmingham. "Bowden, Acock's Green." Acock's Green 103 & 104

Bowden Wire, Ltd, Willesden Junction, "Bowirelim, Harles, London." Willesden 2400 (3 lines).

Herbert Terry & Sons, Ltd., Redditch. "Springs, Redditch." Redditch 61.

Carburettors—

Hobson, H. M., Ltd., 29, Vauxhall Bridge Road, S.W.2. Victoria 4070.

Casein—

Nieuwhof, Surie & Co., Ltd., 5, Lloyds Avenue, London, E.C.3. "Suricodon, Fen, London." Avenue 34 and 35.

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Burberry's, Ltd, Haymarket, S.W.1. Regent 2165.

Dunhill's Ltd., Euston Road, N.W.1. "Dunsend, London." North 3405-6.

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Component Parts—

Accles & Pollock, Ltd., Oldbury, Birmingham "Accles, Oldbury." Oldbury 111 (4 lines).

Brown Bros., Ltd., Gt. Eastern St., E.C.1.

Central Aircraft Co., High Road, Kilburn, N.W.6. "Aviduction, 'Phone, London." Hampstead 4403 & 4404.

Thompson Bros. (Bilston), Ltd., Bradley, Bilston, England. "Thompson Bros., Bilston." Bilston 10.

Cords, Tapes, and Threads—

MacLennan, J., & Co., 30, Newgate Street, E.C.1. And at Glasgow. City 3115.

Dopes—

Titanine, Ltd., 175, Piccadilly, W.1. "Tetrafree, Piccy, London." Gerrard 2312

British Cellulose Co., 8, Waterloo Place, S.W.1. "Cellutate, London." Regent 4046.

The British Emaillite Co., Ltd., 30, Regent Street, S.W.1. "Ridleypren, Piccy, London" Gerrard 280.

Cellon, Ltd., 22, Cork Street, London, W.1. "Ajawb, Reg, London." Gerrard 440.

Robt. Ingham Clark & Co., Ltd., West Ham Abbey, E.15. "Oleotine, Strat, London." East 955.

Engines and Parts—

Allen, W. H., & Co., Ltd., Bedford. "Pump, Bedford." Bedford No. 1.

Arrol-Johnston, Ltd., Dumfries. "Mocar, Dumfries" Dumfries 281-282.

Beardmore Aero Eng., Ltd, 112, Great Portland Street, W.1. "Beardmore, London." Gerrard 238.

The Cosmos Engineering Co., Ltd., Fishponds, Bristol.

Dudbridge Iron Works, Ltd (Salmson), 87, Victoria Street, London, S.W.1. "Aeroflight, Vic, London." Vic 7026.

Gordon Watney & Co., Ltd., Weybridge. "Mercédès, Weybridge." Weybridge 550 (7 lines).

Green Engine Co, Ltd., Twickenham. Richmond 1203.

Gwynnes, Ltd., Hammersmith, W. "Gwynne, Hammersmith." Hammersmith 1910.

Napier & Son, D., Ltd, 14, New Burlington Street, London, W., and at Acton, W. "Nitrifier, London" Gerrard 8926.

Rolls-Royce, Ltd, 14 and 15, Conduit Street, W.1. "Rolhead, London." Gerrard 1654-5-6.

The Siddeley-Deasy Motor Car Co., Ltd., Coventry. Coventry 954. "Deasy, Coventry."

Sunbeam Motor Car Co., Ltd., Wolverhampton. "Moorfield, Wolverhampton." Wolverhampton 985.

The Gnôme & Le Rhône Engine Co., Ltd, 27, Buckingham Gate, S.W.1. "Elevenfold, London." Walthamstow 811 (2 lines).

Walton Motors, Ltd., Walton-on-Thames. "Motors, Walton-on-Thames." Walton-on-Thames 220.

Electrical Accessories—

Belling & Co., Montague Road, Upper Edmonton, N.18. "Belling, Edmonton." Tottenham 1984.

Brown Bros., Ltd., Gt. Eastern St., E.C.1.

Johnson & Phillips, Ltd., Charlton, London, S.E.7. "Juno, London." Central 2207; London Wall 1564.

The Rotax Motor Accessories Co., Ltd., Victoria Road, Willesden Junction, N.W.10. "Rodynalite, 'Phone, London." Willesden 2400.

Electric Cables—

E. Kalker and Co., Coventry. "Kalker, Coventry." Coventry 24x.

Johnson & Phillips, Ltd., Charlton, London, S.E.7. "Juno, London." Central 2207; London Wall 1564.

Electric Lighting and Power—

Johnson & Phillips, Ltd., Charlton, London, S.E.7. "Juno, London." Central 2207; London Wall 1564.

Mann, Egerton & Co., Ltd., 117, Cleveland Street, London, W. "Installing, Euston." Museum 70 (4 lines).

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The Aircraft Improvements Co., Mornington Works, Arlington Road, Camden Town, N.W.1.

Flare Lights—

Imperial Light, Ltd., 123, Victoria Street, London, S.W.1. "Edibrac, 'Phone, London." Victoria 3540 (3 lines).

Flexible Shafts—

Herbert Terry & Sons, Ltd., Redditch. "Springs, Redditch." Redditch 61.

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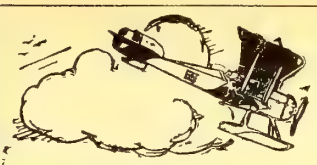

Fluxes—
Imperial Light, Ltd., 123, Victoria Street, London, S.W.1. "Edibrac, 'Phone, London." Victoria 3540 (3 lines).
The Auto Controller Co. (Fluxite), Vienna Road, Bermondsey, Eng.

Flying Boat Builders—
Gosport Aircraft Co., Gosport. "Flight, Gosport." Gosport 217.

Galvanising—
Boulton & Paul, Ltd., Rose Lane, Norwich. "Aviation, Norwich." Norwich 851.

Gauges—
J. A. Prestwich & Co., Northumberland Park, Tottenham, N.17.
Voucher, Co., Auto Tool Works, Walsall. "Voucher Walsall." Walsall 0196.

Gears—
Moss Gear Co., Ltd., Thomas Street, Aston, Birmingham. "Mosgear, Birmingham." East 407.

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Cannon, B., & Co., Ltd, Lincoln. London Office, 110, Cannon Street, E.C.4. "Bececolin, Cannon, London." City 1206.
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Mendine Co., 8, Arthur Street, E.C. Bank 5873.

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Triplex Safety Glass Co., Ltd., 1, Albemarle Street, Piccadilly, W.1. "Shatterlys, Piccy, London" Regent 1340

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Chas. P. Kinnell and Co., Ltd., 65 & 65A, Southwark Street, London, S.E.1. "Kinnell, London." Hop 372 (2 lines).
The Thames Bank (Blackfriars) Iron Co., Ltd, Upper Ground Street, London, S.E.1. "Hot Water, Friars, London." Hop 763.

Instruments—
British Wright Co., Ltd., 33, Chancery Lane, W.C.2. Holborn 1308.

Instruments (Scientific, Altimeters, etc.)—
Short & Mason, Ltd., Macdonald Road, Walthamstow, E.17. "Aneroid, Phone, London." Walthamstow 180.

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Aviation Insurance Association, 1, Royal Exchange Avenue, E.C.3 London Wall 5044.
Bray, Gibb & Co, Ltd., 166, Piccadilly, W.1.
S. Sackville & Sons, Duchy Chambers, 4, Clarence Street, Manchester.
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New Pegamoid, Ltd., 134, Queen Victoria Street, London "Pegamoid, Cent., London." City 9704 (2 lines).

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The British Lighting & Ignition Co., Ltd., 204, Tottenham Court Road, W.1. "Vicksmag, Phone, London." Museum 430.
The British Thomson-Houston Co., Ltd., Lower Ford Street, Coventry. "Asteroidal, Coventry." Coventry 278.

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Henry Hope & Sons, Ltd., 55, Lionel Street, Birmingham. "Conservatory, Birmingham." Central 999 (2 lines).

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Clifford, Chas, & Sons, Ltd., Birmingham. "Clifford, Birmingham." Central 42-43. Avenue 1432.

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Accles & Pollock, Ltd., Oldbury, Birmingham. "Accles, Oldbury." Oldbury 111 (4 lines)
Arnott & Harrison, Ltd, Hythe Road, Willesden Junction. Willesden 2207.
Bayliss, Jones, & Bayliss, Ltd., Wolverhampton. (Bolts and Nuts.) "Bayliss, Wolverhampton." Wolverhampton 1041.
Blackburn Aeroplane & Motor Co., Ltd., Olympia, Leeds. "Propellors, Leeds." Roundhay 345 (3 lines).
British Metal (Kingston), Ltd., Kingston-on-Thames.
Brown Bros., Ltd., Gt. Eastern St., E.C.1.
Mann, Egerton & Co., Ltd., 177, Cleveland Street, London, W.1 "Installing, Eusroad, London." Museum 70.
Rubery Owen & Co., Darlaston, South Staffs.
Sankey, Joseph, & Sons, Ltd., Wellington, Shropshire. "Sankey, Wellington, Salop." Wellington 66.
The Pulvo Engineering Co., Ltd., 10 to 16, Dane Street, High Holborn, London, W.C.1. "Pulvipult, Phone, London." Holborn 410.
The Selsdon Aero & Engineering Co., Ltd., 1, Albemarle Street, Piccadilly, W.1. "Selaero, Phone, London." Regent 1181.
The Rotax Motor Accessories Co., Ltd., Victoria Road, Willesden Junction, N.W.10. "Rodynalite, Phone, London." Willesden 2480.
Thompson Bros., Ltd., Bradley, Bilston. "Thompson Bros., Bilston." Bilston 10.

Metric Bolts—
Cashmore Bros, Hildreth Street, Balham, S.W. Battersea 415.
Rubery Owen & Co., Darlaston, South Staffs.

Miscellaneous—
Anderson, D., & Son, Ltd. (Roofs), Belfast. "Anderson, Belfast." Belfast 4033-4034-1035.
British Metal (Kingston), Ltd., Kingston-on-Thames.
Brown Bros., Ltd., Great Eastern Street, E.C.1 "Imbrowned, Bethroad, London." London Wall 6300.
Herbert Frood Co., Ltd., Chapel-en-le-Frith. "Frodobrake, Birmingham." Central 793
MacLennan, J., & Co., 30, Newgate Street, E.C.1., and at Glasgow. Tapes, Cords, and Threads. City 3115.

Motor Cars—
Arrol Johnston, Ltd., Dumfries. "Mocar, Dumfries." Dumfries 281-282.
Mann, Egerton & Co., Ltd., 379/381, Euston Road, London, N.W.1. "Manegecar, Eusroad, London." Museum 70.
Standard Motor Car Co., Coventry. "Flywheel, Coventry." Coventry 530 (4 lines).

Nameplates and Labels—
British Metal (Kingston), Ltd., Kingston-on-Thames.
The Clegg Metal Engraving Co., Ltd., Worthing. "Clegg, Worthing."

Observation Panels—
Triplex Safety Glass Co., Ltd., 1, Albemarle Street, Piccadilly, W.1. "Shatterlys, Piccy, London." Regent 1340.

Oils—
C. C. Wakefield & Co., Ltd, Wakefield House, Cheapside, E.C.2. "Cheery, Cent, London". Central 11305 & 13466.

Parachutes—
E. R. Calthrop's Aerial Patents, Ltd., Eldon Street House, Eldon Street, London, E.C. "Savemalivo, Ave, London." London Wall 3266-3267.
The North British Rubber Co., Ltd., Castle Mills, Edinburgh. "Weba, Edinburgh." Edinburgh 3880 Central. (5 lines.)
C. G. Spencer & Sons, Ltd. (See under "Balloons").

Piston Rings—
The Standard Piston Ring and Engineering Co., Ltd., Don Road, Sheffield. "Ocean, Sheffield." Sheffield 2149

Presswork—
Rubery Owen & Co., Darlaston, South Staffs.
Terry, Herbert, & Sons, Ltd., Redditch. "Springs, Redditch." Redditch 61.

Propellers—
The Aircraft Improvements Co., Mornington Works, Arlington Road, Camden Town, N.W.1.
Blackburn Aeroplane & Motor Co., Ltd., Olympia, Leeds. "Propellors, Leeds." Roundhay 345 (3 lines).
Boulton & Paul, Ltd., Rose Lane, Norwich. "Aviation, Norwich." Norwich 851.
Ebora Propeller Co., 11 & 12, Surbiton Park Terrace, Kingston-on-Thames "Ebora, Kingston." Kingston 672.
Integral Propeller Co., Ltd., "Aviprop, Hyde, London." Hendon 9. Kingsbury 104.
Lang Propeller, Ltd., Weybridge. "Aerosticks, Weybridge." Weybridge 520-521.
Oddy, W. D., & Co., Leeds. "Airscrews, Leeds." Leeds 20547-8.
Westland Aircraft, Yeovil. "Aircraft, Yeovil." Yeovil 129.

Pyrometers—
The Foster Instrument Co., Letchworth, Herts. "Foster Instruments, Letchworth." Letchworth 26.

Rawhide Hammers—
Ira Stephens, Whitelands Leather Works, Ashton under-Lyne. "Stephens, 709, Ashton." Ashton 709.

Rigging for Aircraft—
Cradock, Geo., & Co., Ltd., Wakefield, England. "Cradock, Wakefield." Wakefield 466.

Rubber Tubing & Accessories—
Hancock, James Lyne, Ltd., 266, Goswell Road, London, E.C.1 "Masticator, Isling, London." City 3811 & 3812.
The North British Rubber Co., Ltd., Castle Mills, Edinburgh. "Weba, Edinburgh." Edinburgh 3880 Central. (5 lines.)

Safety Belts—
C. H. Holmes & Son, 38, Albert Street, Manchester. "Semloh, Manchester." City 4432.

Screwing Die Heads—
Voucher, Co., Auto Tool Works, Walsall. "Voucher Walsall." Walsall 0196.

Screw-driving Machines—
Russell Bros. (Redditch), Ltd., Littleworth, Redditch. "Inventors, Redditch." Redditch 74.

Seaplane Manufacturers—
Blackburn Aeroplane & Motor Co., Ltd., Olympia, Leeds. "Propellors, Leeds." Roundhay 345 (3 lines).
Phœnix Dynamo Manufacturing Co., Ltd., Thornbury, Bradford. "Dynamo, Bradford." Bradford 3700 (7 lines).
Short Bros., Rochester. "Seaplanes, Rochester." Chatham 627.
Supermarine Aviation Works, Ltd., Southampton. "Supermarin, Southampton." Woolston 37.

Searchlights & Landing Lights
Brown Bros., Ltd., Great Eastern St., E.C.1.
Imperial Light, Ltd., 123, Victoria Street, London, S.W.1. "Edibrac, Phone, London" 3540 Victoria (3 lines).
The Rotax Motor Accessories Co., Ltd., Victoria Road, Willesden Junction, N.W.10 "Rodynalite, Phone, London." Willesden 2480

Shock Absorbers—
Luke Turner & Co., Deacon Street, Leicester. Leicester 967.
Tubbs, Lewis & Co., Ltd., 29 & 30, Noble Street, E.C.2. "Elastics, London." City 22.

Sheet Metal Pressings—
Accles & Pollock, Ltd., Oldbury, Birmingham. "Accles, Oldbury." Oldbury 111 (4 lines)
Blackburn Aeroplane & Motor Co., Ltd., Olympia, Leeds. "Propellors, Leeds." Roundhay 345 (3 lines)
British Metal (Kingston), Ltd., Kingston-on-Thames.
Rubery Owen & Co., Darlaston, South Staffs.

Sheet Metal Work—
The Acetylene Corporation of Great Britain, Ltd., 49, Victoria Street, S.W.1. "Flamma, Vic, London." Vic 4830.
British Metal (Kingston), Ltd., Kingston-on-Thames. [Staffs.
Rubery Owen & Co., Darlaston, South
The Selsdon Aero & Engineering Co., Ltd., 1, Albemarle Street, Piccadilly, W.1. "Selaero, Phone, London." Regent 1181.
Imperial Light, Ltd., 123, Victoria Street, London, S.W.1. "Edibrac, Phone, London." Victoria 3540 (3 lines).

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Accumulators—

The Chloride Electrical Storage Co., Ltd., Clifton Junction, near Manchester. "Chloridic, Pendlebury" Central Manchester, 1658 Pendleton, 11.

Acetylene Welding Plant—

Acetylene Corporation of Great Britain, Ltd, The, 49, Victoria Street, Westminster, S W 1. "Flamma, Vic, London" Vic 4830

Imperial Light, Ltd, 123, Victoria Street, London, S W 1 "Edibrac, 'Phone, London." 3540 Victoria (3 lines).

Aeroplane Manufacturers—

Aircraft Manufacturing Co, Ltd, Hendon. "Airmanship, Hyde, London" Kingsbury 220

Armstrong, Sir W., Whitworth & Co, Ltd., Newcastle-on-Tyne. "Armstrong Aviation, Newcastle-on-Tyne" Gosforth 500

Blackburn Aeroplane & Motor Co., Ltd, Olympia, Leeds. "Propellors, Leeds." Roundhay 345 (3 lines).

Boulton & Paul, Ltd, Rose Lane, Norwich, "Aviation, Norwich" Norwich 851.

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Works: Hythe Road, Willesden, London N W 10 "Aerbritrans, Phone, London" Willesden, 2272, 2273

British & Colonial Aeroplane Co., Ltd. (The Bristol Co), Filton, Bristol. "Aviation, Bristol" Bristol 3006

Central Aircraft Co, High Road, Kilburn, N W 6 "Aviduction, Phone, London" Hampstead 4403 and 4424

Dawson, John, & Co., Ltd., Newcastle-on-Tyne "Dependable, Newcastle-on-Tyne" Central 2604 (2 lines).

Eastbourne Aviation Co, Ltd, Eastbourne "Aircraft, Eastbourne" Eastbourne 1176

Gosport Aircraft Co, Gosport "Flight Gosport" Gosport 217

Grahame-White Company, Ltd, London Aerodrome, Hendon "Volplane, Hyde, London" Kingsbury 120 London Office, 12, Regent Street, S W 1 Regent 2084

Handley Page, Ltd, 110, Cricklewood Lane, N W 2 "Hydrophid, Crickle, London" Hampstead 7120

Hooper & Co, Ltd, 54, St James St, Piccadilly, London, S W "Sociable, St James, London." Regent 612

Mann, Egerton & Co, Ltd., Norwich. "Motors, Norwich" Norwich 482 (4 lines)

Martinsyde, Ltd., Brooklands, Byfleet, "Martinsyde, Weybridge." Woking 331, Byfleet 171

"Nieuport" & General Aircraft Co, Cricklewood, London, N W 2 "Nieuscout, Crickle, London" Willesden 2455

Phœnix Dynamo Manufacturing Co, Ltd, Thornbury, Bradford "Dynamo, Bradford" Bradford 3700 (4 lines)

The Regent Carriage Co., Ltd., 126/132, New King's Road, Fulham, S W 6. "Carbodis, London" Putney 2240-2241

Roe, A. V., & Co., Ltd., Manchester. "Triplane, Manchester" City 8530-8531, Manchester

Saunders, S. E., Ltd, East Cowes, I.O.W. "Consuta, East Cowes" Cowes 193

Short Bros, Rochester, Eastchurch and Whitehall House, S.W. "Tested, Phone, London." Regent 378

The Siddeley Deasy Motor Car Co., Ltd., Coventry Coventry 954 "Deasy, Coventry."

Sopwith Aviation Co., Ltd., Kingston-on-Thames. "Sopwith, Kingston" Kingston 1988 (8 lines)

The Supermarine Aviation Works, Ltd., Southampton. "Supermarin" Woolston 37 (2 lines).

Vickers, Ltd, Imperial Court, Basil Street, Knightsbridge, S W.3 "Vickerfyta, Knights, London" Kensington 6810.

Waring & Gillow, Ltd, Hammersmith. "Warisen, Ox, London." Museum 5000.

Westland Aircraft, Yeovil "Aircraft, Yeovil." Yeovil 129.

White, J. Samuel, & Co., Ltd., East Cowes. "White, East Cowes." Cowes 3

Airships—

Airships, Ltd., High Street, Merton. Wimbledon 1114.

The North British Rubber Co, Ltd, Castle Mills, Edinburgh "Weba, Edinburgh." Edinburgh 3880 Central (5 lines)

Short Bros, Rochester, Eastchurch, and Whitehall House, S W. "Tested, 'Phone, London" Regent 378

C. G. Spencer and Sons, Ltd. (See under "Balloons")

Aluminium Castings (Sand and Die)

Coan, R W, 210, Goswell Road, London, E C 1 "Krankases, Isling, London" City 3840

Balloons—

The North British Rubber Co, Ltd, Castle Mills, Edinburgh "Weba, Edinburgh." Edinburgh 3880 Central (5 lines.)

C. G. Spencer and Sons, Ltd, 50A, Highbury Grove, N 5 "Aeronaut, London." Dalston 1693.

Bent Timber Parts—

Hopton & Sons, George Street, Euston Square, London, N W 1 "Hoptons, Eusquare, London" Museum 400 Also at Market Harborough, Leicestershire "Hoptons, Market Harborough" Market Harborough 15

Bearings (Etonia Cast Phosphor Bronze)

Brown Bros., Ltd, Gt. Eastern St, E C 1

Yorkshire Engineering Supplies, Ltd., Wortley, Leeds "Yes, Leeds" Central 5927

Blowpipes (Oxy-Acetylene)—

Acetylene Corporation of Great Britain, Ltd, The, 49, Victoria Street, Westminster, S W 1 "Flamma, Vic, London" Vic. 4830

Imperial Light, Ltd, 123, Victoria Street, London, S W 1 "Edibrac, 'Phone, London." Vic. 3540 (3 lines)

Bolts—

Mitchell Wedgewood & Co., Campbell Works, Stoke Newington, London, N 16 Dalston 2500 (2 lines).

Books (Aero Engines)—

Dykes' Auto Encyclopedia, Gillam, 149, Strand, W C 2

Buildings—

Boulton & Paul Ltd, Rose Lane, Norwich "Aviation, Norwich" Norwich 851

Rubery Owen & Co, Darlaston, South Staffs

Cable Coverings and Cable Controls—

The Bowden Brake Co, Ltd, Tyseley, Birmingham "Bowden, Acock's Green" Acock's Green 103 & 104

Bowden Wire, Ltd, Willesden Junction, "Bowirehm, Harles, London" Willesden 2405 (3 lines).

Herbert Terry & Sons, Ltd, Redditch "Springs, Redditch" Redditch 61

Carburettors—

Hobson, H M, Ltd, 29, Vauxhall Bridge Road, S W 2 Victoria 4070

Casein—

Nieuwhof, Surie & Co., Ltd, 5, Lloyds Avenue, London, E.C.3 "Suricodon, Fen, London." Avenue 34 and 35

Clothing—

Burberry's, Ltd, Haymarket, S.W.1 Regent 2105

Dunhill's Ltd., Euston Road, N W 1 "Dunsend, London" North 3405-6

The North British Rubber Co., Ltd., Castle Mills, Edinburgh. "Weba, Edinburgh" Edinburgh 3880 Central. (5 lines)

Component Parts—

Accles & Pollock, Ltd., Oldbury, Birmingham "Accles, Oldbury." Oldbury 111 (4 lines)

Brown Bros., Ltd, Gt. Eastern St., E.C.1.

Central Aircraft Co., High Road, Kilburn, N W 6. "Aviduction, 'Phone, London." Hampstead 4403 & 4404.

Thompson Bros. (Bilston), Ltd., Bradley, Bilston, England "Thompson Bros, Bilston" Bilston 10

Cords, Tapes, and Threads—

MacLennan, J., & Co., 30, Newgate Street, E.C 1. (And at Glasgow. City 3115.

Dopes—

Titanine, Ltd., 175, Piccadilly, W 1 "Tetrafree, Piccy, London." Gerrard 2312

British Cellulose Co., 8, Waterloo Place, S.W.1 "Cellutate, London" Regent 4040

The British Emaillite Co, Ltd, 30, Regent Street, S W 1. "Ridleyprin, Piccy, London" Gerrard 280.

Cellon, Ltd, 22, Cork Street, London, W 1. "Ajawb, Reg, London" Gerrard 440

Robt Ingham Clark & Co, Ltd, West Ham Abbey, E.15 "Oleoline, Strat, London" East 622

Engines and Parts—

Allen, W. H., & Co., Ltd, Bedford "Pump, Bedford" Bedford No 1.

Arrol-Johnston, Ltd., Dumfries "Mocar, Dumfries" Dumfries 281 282

Beardmore Aero Eng, Ltd, 112, Great Portland Street, W 1 "Beardmore, London" Gerrard 238

The Cosmos Engineering Co, Ltd, Fishponds, Bristol

Dudbridge Iron Works, Ltd (Salmson), 57, Victoria Street, London, S W 1 "Aeroflight, Vic, London" Vic 7020

Gordon Watney & Co, Ltd, Weybridge "Mercédès, Weybridge" Weybridge 550 (7 lines)

Green Engine Co, Ltd, Twickenham Richmond 1203.

Gwynnes, Ltd, Hammersmith, W "Gwynne, Hammersmith" Hammersmith [illegible]

Napier & Son, D, Ltd, 14, New Burlington Street, London, W, and at Acton, W "Nitrifier, London" Gerrard [illegible]

Rolls-Royce, Ltd, 14 and 15, Conduit Street, W 1 "Rolhead, London" Gerrard 1654-56

The Siddeley-Deasy Motor Car Co, Ltd, Coventry Coventry 951 "Deasy, Coventry"

Sunbeam Motor Car Co, Ltd, Wolverhampton "Moorfield, Wolverhampton" Wolverhampton [illegible]

The Gnome & Le Rhone Engine Co, Ltd, 27, Buckingham Gate, S W 1 "Lleversfold, London" Walthamstow 511 (2 lines).

Walton Motors, Ltd, Walton-on-Thames "Motors, Walton on Thames" Walton-on-Thames 220

Electrical Accessories—

Belling & Co, Montagu Road, Upper Edmonton, N 18 "Belling, Edmonton" Tottenham 1984

Brown Bros, Ltd, Gt Eastern St, E C 1

Johnson & Phillips, Ltd, Charlton, London, S E 7 "Juno, London" Central 2207, London Wall 1514

The Rotax Motor Accessories Co, Ltd, Victoria Road, Willesden Junction, N W 10. "Rodynalite, 'Phone, London" Willesden 2480

Electric Cables—

E Kalker and Co., Coventry "Kalker, Coventry" Coventry 248.

Johnson & Phillips, Ltd, Charlton, London, S E 7. "Juno, London" Central 2207, London Wall 1514

Electric Lighting and Power—

Johnson & Phillips, Ltd., Charlton, London, S E 7 "Juno, London." Central 2207, London Wall 1514

Mann, Egerton & Co, Ltd, 117, Cleveland Street, London, W "Installing, Eusroad" Museum 70 (4 lines)

Electro Platers and Metal Polishers' Engineers—

W Canning & Co, 133-137, Great Hampton Street, Birmingham "Materials, Birmingham" Birmingham 3022 Central (3 lines)

Fireproof Petrol Tanks—

The Aircraft Improvements Co, Mornington Works, Arlington Road, Camden Town, N W 1.

Flare Lights—

Imperial Light, Ltd., 123, Victoria Street, London, S.W.1. "Edibrac, 'Phone, London" Victoria 3540 (3 lines).

Flexible Shafts—

Herbert Terry & Sons, Ltd, Redditch "Springs, Redditch" Redditch 61.

Fluxes—

Imperial Light, Ltd, 123, Victoria Street, London, S W.1. "Edibrac, 'Phone, London." Victoria 3540 (3 lines)

The Auto Controller Co. (Fluxite), Vienna Road, Bermondsey, Eng.

Flying Boat Builders—

Gosport Aircraft Co., Gosport. "Flight, Gosport." Gosport 217.

Galvanising—

Boulton & Paul, Ltd, Rose Lane, Norwich "Aviation, Norwich." Norwich 851.

Gauges—

J A Prestwich & Co., Northumberland Park, Tottenham, N.17.

Voucher, Co., Auto Tool Works, Walsall "Voucher, Walsall." Walsall 0190

Gears—

Moss Gear Co, Ltd, Thomas Street, Aston, Birmingham. "Mosgear, Birmingham" East 407

Glue—

Cannon, B, & Co, Ltd, Lincoln. London Office, 110, Cannon Street, E C 4 "Beecolin, Cannon, London" City 1206

Improved Liquid Glues Co., Ltd., Gt. Hermitage Street, E (Croid) "Excroiden, 'Phone, London" Avenue 4011-2

Mendine Co, 8, Arthur Street, E.C. Bank 5873

Goggles—

Triplex Safety Glass Co., Ltd., 1, Albemarle Street, Piccadilly, W.1. "Shatterlys, Piccy, London" Regent 1340

Heating and Ventilating—

Chas P Kinnell and Co, Ltd, 65 & 65A, Southwark Street, London, S E 1. "Kinnell, London" Hop 372 (2 lines).

The Thames Bank (Blackfriars) Iron Co, Ltd, Upper Ground Street, London, S E 1 "Hot Water, Friars, London." Hop 703

Instruments—

British Wright Co, Ltd., 33, Chancery Lane, W C.2. Holborn 1308.

Instruments (Scientific, Altimeters, etc.)—

Short & Mason, Ltd, Macdonald Road, Walthamstow, E 17 "Aneroid, Phone, London." Walthamstow 180

Insurance—

Aviation Insurance Association, 1, Royal Exchange Avenue, E C 3 London Wall 6914

Bray, Gibb & Co, Ltd, 166, Piccadilly, W 1

S Sackville & Sons, Duchy Chambers, 4, Clarence Street, Manchester

Harold Townend, Ltd, 13-14, Abchurch Lane, King William Street, E.C.4. "Carinsur, London" Central 156 (2 lines).

Percy Wingfield, 22, Newgate Street, E C 1 City 4672.

Leather Cloth—

New Pegamoid, Ltd, 134, Queen Victoria Street, London "Pegamoid, Cent, London" City 9704 (2 lines).

Lubricating Oil Refiners and Merchants—

W. B Dick & Co, Ltd, 90, Fenchurch Street, E C 3 Telegrams, Dicotto Fen, London Avenue 7854 (2 lines)

Magneto Driving Pieces—

Herbert Terry & Sons, Ltd, Redditch "Springs, Redditch" Redditch 61

Magnetos—

The British Lighting & Ignition Co., Ltd., 204, Tottenham Court Road, W 1. "Vicksmag, Phone, London" Museum 430.

The British Thomson Houston Co, Ltd, Lower Ford Street, Coventry "Asteroidal, Coventry" Coventry 270

Metal Casement Manufacturers—

Henry Hope & Sons, Ltd, 55, Lionel Street, Birmingham "Conservatory, Birmingham." Central 909 (2 lines).

Metal Manufacturers—

Clifford, Chas, & Sons, Ltd, Birmingham. "Clifford, Birmingham." Central 42-43. Avenue 1432

Metals in General—

Samuel Mercer & Co, 198, Upper Thames Street, E C 4 "Reconciled, Cannon, London" City 6342.

Metal Parts and Fittings—

Accles & Pollock, Ltd, Oldbury, Birmingham. "Accles, Oldbury." Oldbury 111 (4 lines)

Arnott & Harrison, Ltd, Hythe Road, Willesden Junction Willesden 2207

Bayliss, Jones, & Bayliss, Ltd, Wolverhampton (Bolts and Nuts) "Bayliss, Wolverhampton" Wolverhampton 1041.

Blackburn Aeroplane & Motor Co, Ltd, Olympia, Leeds "Propellors, Leeds" Roundhay 345 (3 lines)

British Metal (Kingston), Ltd., Kingston-on Thames.

Brown Bros., Ltd., Gt. Eastern St., E.C.1

Mann, Egerton & Co., Ltd., 177, Cleveland Street, London, W 1 "Installing, Eusroad, London" Museum 70

Rubery Owen & Co, Darlaston, South Staffs

Sankey, Joseph, & Sons, Ltd, Wellington, Shropshire "Sankey, Wellington, Salop" Wellington 66

The Pulvo Engineering Co., Ltd., 10 to 16, Dane Street, High Holborn, London, W C.1. "Pulvipult, Phone, London." Holborn 410

The Selsdon Aero & Engineering Co., Ltd., 1, Albemarle Street, Piccadilly, W 1 "Selaero, Phone, London" Regent 1181

The Rotax Motor Accessories Co, Ltd, Victoria Road, Willesden Junction, N W.10 "Rodynalite, Phone, London" Willesden 2480

Thompson Bros, Ltd, Bradley, Bilston. "Thompson Bros, Bilston" Bilston 10

Metric Bolts—

Cashmore Bros, Hildreth Street, Balham, S.W. Battersea 415.

Rubery Owen & Co., Darlaston, South Staffs

Miscellaneous—

Anderson, D., & Son, Ltd. (Roofs), Belfast "Anderson, Belfast" Belfast 1033-1034-1035

British Metal (Kingston), Ltd., Kingston-on-Thames

Brown Bros, Ltd, Great Eastern Street, E C 2 "Imbrowned, Bethroad, London" London Wall 6300

Herbert Frood Co, Ltd, Chapel-en-le-Frith "Frodobrake, Birmingham" Central 793

MacLennan, J, & Co, 30, Newgate Street, E C.1., and at Glasgow. Tapes, Cords, and Threads City 3115

Motor Cars—

Arrol Johnston, Ltd, Dumfries. "Mocar, Dumfries" Dumfries 281-282.

Mann, Egerton & Co, Ltd, 379/381, Euston Road, London, N W 1 "Manegecar, Eusroad, London" Museum 70

Standard Motor Car Co, Coventry "Flywheel, Coventry" Coventry 530 (4 lines).

Nameplates and Labels—

British Metal (Kingston), Ltd., Kingston-on-Thames

The Clegg Metal Engraving Co, Ltd., Worthing "Clegg, Worthing."

Observation Panels—

Triplex Safety Glass Co, Ltd., 1, Albemarle Street, Piccadilly, W.1. "Shatterlys, Piccy, London" Regent 1340

Oils—

C C Wakefield & Co., Ltd, Wakefield House, Cheapside, E C 2 "Cheery, Cent, London" Central 11305 & 13406

Parachutes—

E. R. Calthrop's Aerial Patents, Ltd., Eldon Street House, Eldon Street, London, E.C. "Savemalivo, Ave, London" London Wall 3266-3267.

The North British Rubber Co, Ltd, Castle Mills, Edinburgh. "Weba, Edinburgh" Edinburgh 3880 Central (5 lines)

C. G. Spencer & Sons, Ltd. (See under "Balloons").

Piston Rings—

The Standard Piston Ring and Engineering Co, Ltd, Don Road, Sheffield "Ocean, Sheffield" Sheffield 2149

Presswork—

Rubery Owen & Co., Darlaston, South Staffs.

Terry, Herbert, & Sons, Ltd., Redditch. "Springs, Redditch" Redditch 61.

Propellers—

The Aircraft Improvements Co., Mornington Works, Arlington Road, Camden Town, N W 1

Blackburn Aeroplane & Motor Co., Ltd., Olympia, Leeds "Propellors, Leeds" Roundhay 345 (3 lines).

Boulton & Paul, Ltd., Rose Lane, Norwich, "Aviation, Norwich" Norwich 851.

Ebora Propeller Co., 11 & 12, Surbiton Park Terrace, Kingston-on-Thames "Ebora, Kingston" Kingston 672.

Integral Propeller Co., Ltd., "Aviprop, Hyde, London" Hendon 9 Kingsbury 104.

Lang Propeller, Ltd, Weybridge. "Aerosticks, Weybridge." Weybridge 520-521.

Oddy, W. D., & Co., Leeds. "Airscrews, Leeds." Leeds 20547-8.

Westland Aircraft, Yeovil "Aircraft, Yeovil" Yeovil 129.

Pyrometers—

The Foster Instrument Co., Letchworth, Herts "Foster Instruments, Letchworth." Letchworth 26

Rawhide Hammers—

Ira Stephens, Whitelands Leather Works, Ashton under Lyne "Stephens, 709, Ashton" Ashton 709.

Rigging for Aircraft—

Cradock, Geo., & Co., Ltd., Wakefield, England "Cradock, Wakefield." Wakefield 466.

Rubber Tubing & Accessories—

Hancock, James Lyne, Ltd, 266, Goswell Road, London, E C 1 "Masticator, Isling, London" City 3811 & 3812

The North British Rubber Co, Ltd, Castle Mills, Edinburgh "Weba, Edinburgh" Edinburgh 3880 Central (5 lines)

Safety Belts—

C H Holmes & Son, 58, Albert Street, Manchester "Semloh, Manchester" City 4432.

Screwing Die Heads—

Voucher, Co., Auto Tool Works, Walsall. "Voucher Walsall" Walsall 0190

Screw-driving Machines—

Russell Bros (Redditch), Ltd, Littleworth, Redditch "Inventors, Redditch" Redditch 74

Seaplane Manufacturers—

Blackburn Aeroplane & Motor Co, Ltd, Olympia, Leeds "Propellors, Leeds" Roundhay 345 (3 lines)

Phœnix Dynamo Manufacturing Co, Ltd, Thornbury, Bradford "Dynamo, Bradford." Bradford 3700 (7 lines)

Short Bros., Rochester. "Seaplanes, Rochester." Chatham 627.

Supermarine Aviation Works, Ltd., Southampton "Supermarin, Southampton" Woolston 57

Searchlights & Landing Lights

Brown Bros, Ltd, Great Eastern St, E C 1

Imperial Light, Ltd, 123, Victoria Street, London, S.W 1 "Edibrac, Phone, London" 3540 Victoria (3 lines)

The Rotax Motor Accessories Co, Ltd., Victoria Road, Willesden Junction, N W 10 "Rodynalite, Phone, London" Willesden 2480

Shock Absorbers—

Luke Turner & Co, Deacon Street, Leicester Leicester 967.

Tubbs, Lewis & Co., Ltd., 29 & 30, Noble Street, E C 2 "Elastics, London" City 22.

Sheet Metal Pressings—

Accles & Pollock, Ltd, Oldbury, Birmingham. "Accles, Oldbury." Oldbury 111 (4 lines)

Blackburn Aeroplane & Motor Co., Ltd., Olympia, Leeds. "Propellors, Leeds" Roundhay 345 (3 lines)

British Metal (Kingston), Ltd, Kingston-on-Thames.

Rubery Owen & Co., Darlaston, South Staffs.

Sheet Metal Work—

The Acetylene Corporation of Great Britain, Ltd, 49, Victoria Street, S W.1. "Flamma, Vic, London." Vic 4830

British Metal (Kingston), Ltd., Kingston-on-Thames

Rubery Owen & Co., Darlaston, South Staffs.

The Selsdon Aero & Engineering Co., Ltd., 1, Albemarle Street, Piccadilly, W.1. "Selaero, Phone, London." Regent 1181.

Imperial Light, Ltd., 123, Victoria Street, London, S.W.1. "Edibrac, Phone, London." Victoria 3540 (3 lines).

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Solder Manufacturers—
Samuel Mercer & Co., 198, Upper Thames Street, E.C.4. "Reconciled, Cannon, London." City 6342.

Sparking Plugs—
Brown Bros., Ltd., Great Eastern St., E.C.1
Lodge Sparking Plug Co., Ltd., Rugby. "Igniter, Rugby." Rugby 235.
Ripault, Leo., & Co., Ltd. (Oleo Plugs), 64a, Poland Street, W.1. "Ripault, Reg, London." Gerrard 7758.
The Robinhood Engineering Works, Ltd., Newlands, Putney Vale, S.W.15. Makers of KLG Plugs. "Kaelgee, Phone, London." Putney 2132-3.

Springs—
Dart Spring Co., West Bromwich. "Dart, West Bromwich." West Bromwich 322.
Terry, Herbert, & Sons, Ltd., Redditch. "Springs, Redditch." Redditch 61 (3 lines)

Steel—
Allen, Edgar, & Co., Ltd., Sheffield. "Allen, Sheffield." Sheffield 4607.
Brown Bros., Ltd., Great Eastern St., E.C.1.
Firth, Thos., & Sons, Sheffield. "Firth, Sheffield." Sheffield 3230 to 3237.
Nicklin, Bernard, & Co., Birmingham. "Bernico, Birmingham." Smithwick, 224.
Spear & Jackson, Ltd., Ætna Works, Sheffield. "Spear, Sheffield." Central 4522-3-4.

Steel Tubes for Aeroplanes—
Accles & Pollock, Ltd, Oldbury, Birmingham. "Accles, Oldbury." Oldbury 111 (4 lines)

Tapes and Smallwares—
MacLeunan, John, & Co., 30, Newgate Street, E.C.1. And at Glasgow. City 3115.
C. E. Matthews & Co, Ltd., Castle Works, Bermondsey Square, S.E.1. "Webbance, Berm, London." Hop 4058.

Timber—
Hopton & Sons, George Street, Euston Square, London, N.W.1. "Hoptons, Eusquare, London. Museum 496. Also at Market Harborough, Leicestershire. "Hoptons, Market Harborough." Market Harborough 13.

Time Recorders—
Gledhill Brook Time Recorders, Ltd., 26, Victoria Street, S.W.1. Victoria 1310.

Tools—
Richard Mather & Son, Shoreham Street Works, Sheffield Sheffield 4349

Turnbuckles—
Brown Bros., Ltd., Great Eastern St., E.C.1.
Rubery Owen & Co., Darlaston, South Staffs.

Tyres and Wheels—
The North British Rubber Co., Ltd., Castle Mills, Edinburgh. "Weba, Edinburgh." Central 3880 (5 lines).
The Palmer Tyre, Ltd., Shaftesbury Avenue. "Tyricord, Westcent." Gerrard 1214 (5 lines).

Undercarriages—
Thompson Bros. (Bilston), Ltd., Bradley, Bilston, England. "Thompson Bros., Bilston" Bilston 10.

Varnishes—
The British Emaillite Co., Ltd., 30, Regent Street, S.W.1. "Ridleypren, Piccy, London." Gerrard 280.
Thomas Parsons & Sons, 315 & 317, Oxford Street, London, W.1. "Varjap, Phone, London." Mayfair 6347 (3 lines).
Robt. Ingham, Clark & Co., Ltd., West Ham Abbey, E.15. "Oleotine, Strat, London." East 955.
Harland, W., & Son, Merton, London, S.W.19. "Harland, Wimbledon 45" Wimbledon 45 and 1395.
Naylor Bros., Ltd., Southall, Middlesex. "Naylor, Southall." Southall 30.

Washers—
Terry, Herbert, & Sons, Ltd, Redditch. "Springs, Redditch." Redditch 61.

Welding and Cutting Plant—
Acetylene Corporation of Great Britain, Ltd., The, 49, Victoria Street, Westminster, S.W.1. "Flamma, Vic, London" Vic 4830.
Imperial Light, Ltd, 123, Victoria Street, London, S.W.1. "Edibrac, Phone, London." Victoria 3540 (3 lines).

Welding Repairs—
Imperial Light, Ltd, 123, Victoria Street, London, S.W.1. "Edibrac," Phone, London." Victoria 3540 (3 lines).

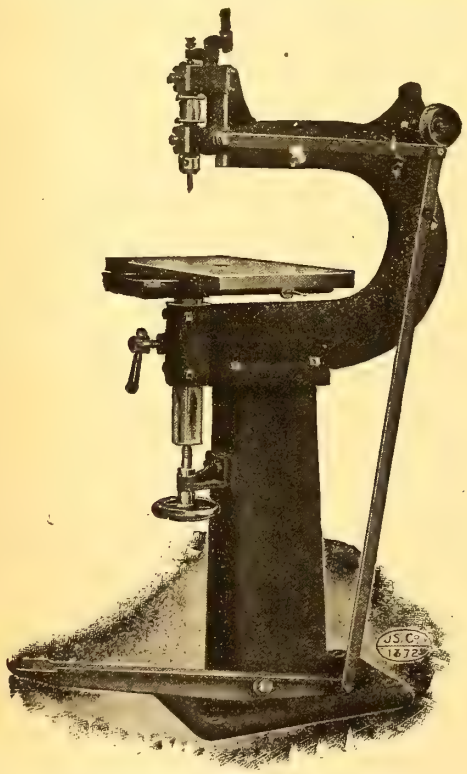
Wind Shields—
Auster, Ltd., 133, Long Acre, W.C. "Winflector, London" Regent 5910.
The Rotax Motor Accessories Co., Ltd., Victoria Road, Willesden Junction, N.W.10. "Rodynalite, Phone, London." Willesden 2480.
Triplex Safety Glass Co., Ltd., 1, Albemarle Street, Piccadilly, W.1. "Shatterlys, Piccy, London." Regent 1340.

Wire Gauze—
Greening, N., & Sons, Ltd, 16, Finsbury Street, London, E.C.2. "Setscrew, Finsquare, London." London Wall 1082.

Wire and Cables—
Bruntons, Musselburgh, Scotland. "Wiremill, Musselburgh." Musselburgh 28.
Cradock, Geo., & Co., Ltd., Wakefield, England. "Cradock, Wakefield." Wakefield 466 (3 lines).

Wirework—
Terry, Herbert, & Sons, Ltd., Redditch. "Springs, Redditch." Redditch 61.

Woodworking Machinery—
Robinson, Thomas, & Son, Ltd., Rochdale, "Robinson, Rochdale." Rochdale 467.
Sagar, J., & Co., Ltd., Halifax "Sawtooth," Halifax." Halifax 136.
Wadkin & Co., Leicester. "Woodworker, Leicester." Leicester 3614.



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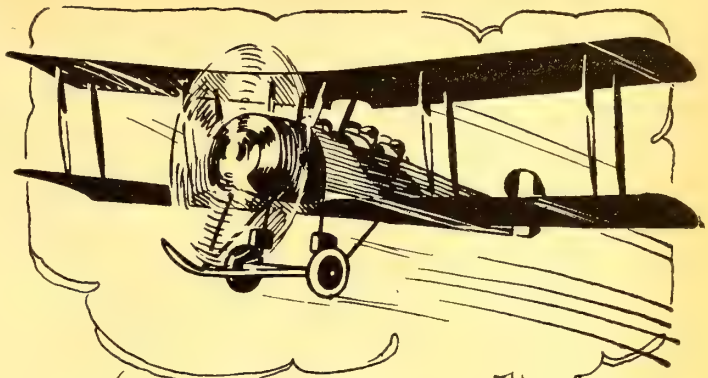

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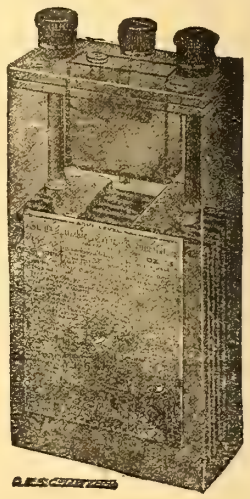

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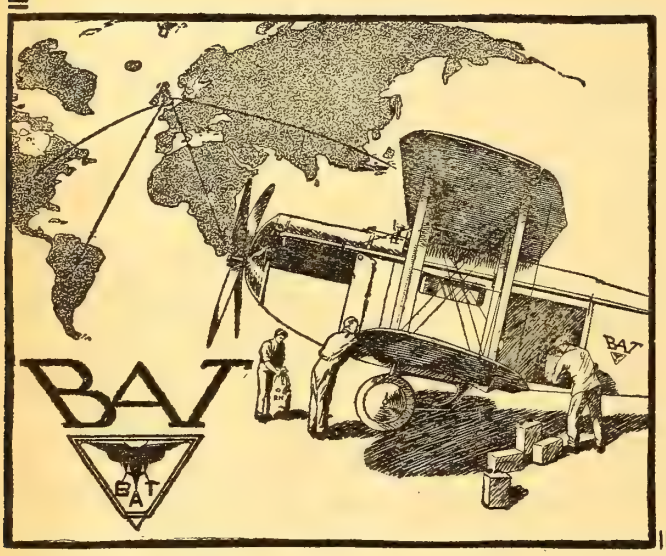

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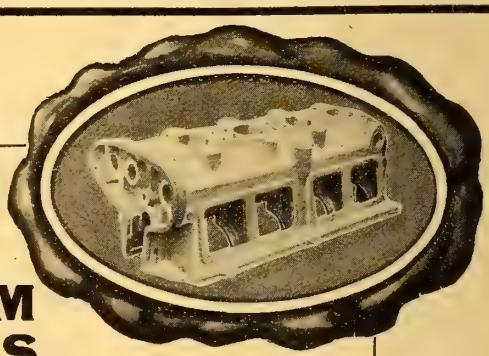

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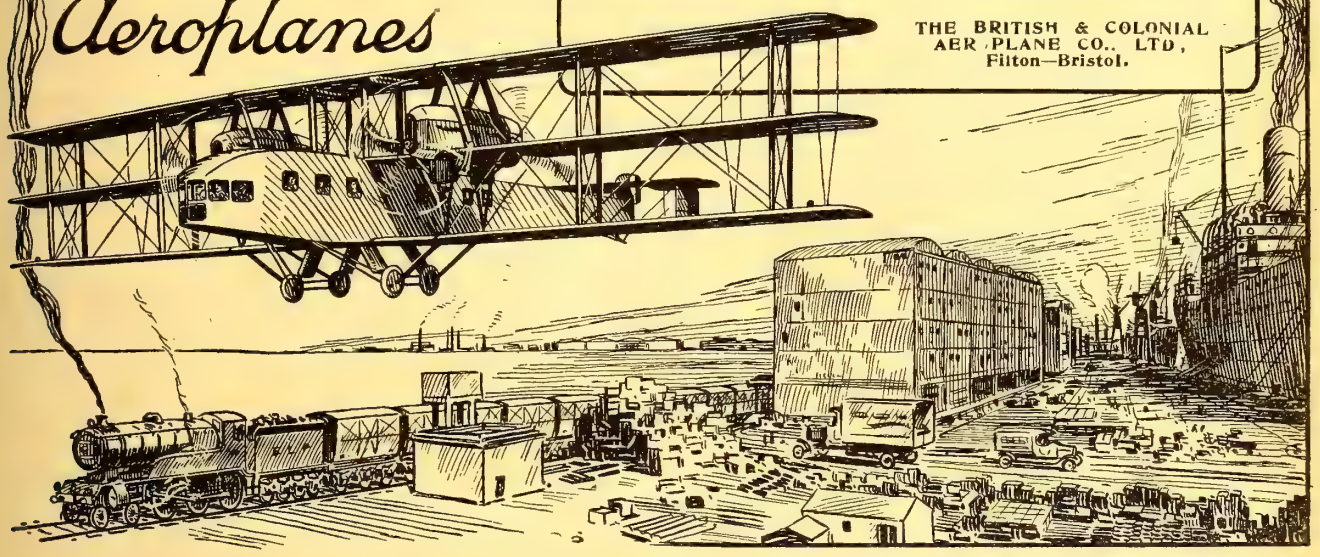

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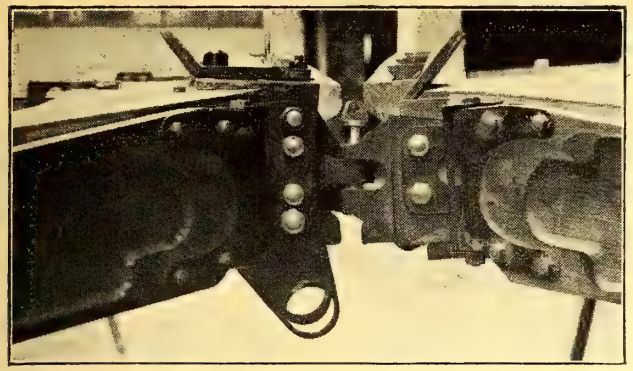


The rear spar hinge joint of a lower wing of the Blackburn "Kangaroo."

SPECIFICATION.

Type of machine	Blackburn Twin Tractor.
Name or type No. of machine	"Kangaroo."
Purpose for which intended	Long Range Bomber.
Span	74 ft. 10¼ in. top; 47 ft. 9½ in. bottom plane.
Gap	7 ft. 3 in.
Overall length	44 ft. 2 in.—46 ft.
Maximum height	16 ft. 10 in.
Chord	7 ft. 3 in.
Total surface of wings	886 sq. ft.
Span of tail	17 ft. 6 in.
Total area of tail	143 sq. ft.
Area of elevators	63.5 sq. ft.
Area of rudder	22.5 sq. ft.
Area of fin	25 sq. ft.
Area of ailerons	166.5 sq. ft.
Maximum cross section of body	12 sq. ft.
Horizontal area of body	105 sq. ft.
Vertical area of body	115 sq. ft.
Engine type and h.p.	Falcon-Rolls, two 250 h.p.
Weight of machine empty	5,150 lbs.
Load per sq. ft.	9.21 lbs.
Weight per h.p.	16.2 lbs.
Tank capacity in hours	8 hours.
Tank capacity in gallons	230 petrol; 18 oil.

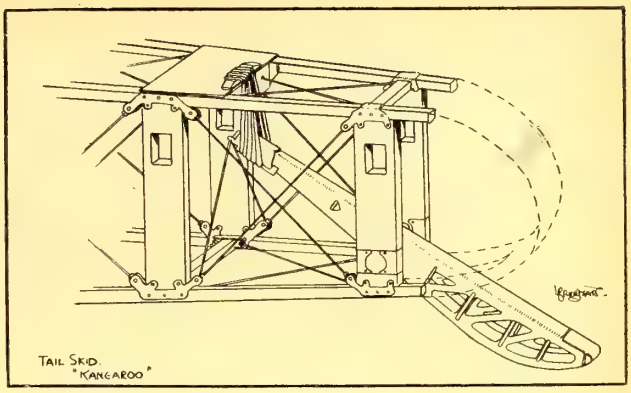
PERFORMANCE—

Speed low down	87 knots.
Disposable load apart from fuel	1,710 lbs.
Total weight of machine loaded	8,100 lbs.

THE BLACKBURN "BLACKBURD" TORPEDO CARRIER.

A large single-engine torpedo carrier designed to operate from either land or the deck of an aeroplane carrier ship.

This machine is of normal tractor biplane type, fitted with folding wings and a chassis consisting of two independent units, with no cross-axle, permitting the slinging and dropping of an 18 ins. torpedo from beneath the centre of gravity.



The intervention of the Armistice prevented this—with other equally interesting machines—from passing beyond the experimental stage.

SPECIFICATION.

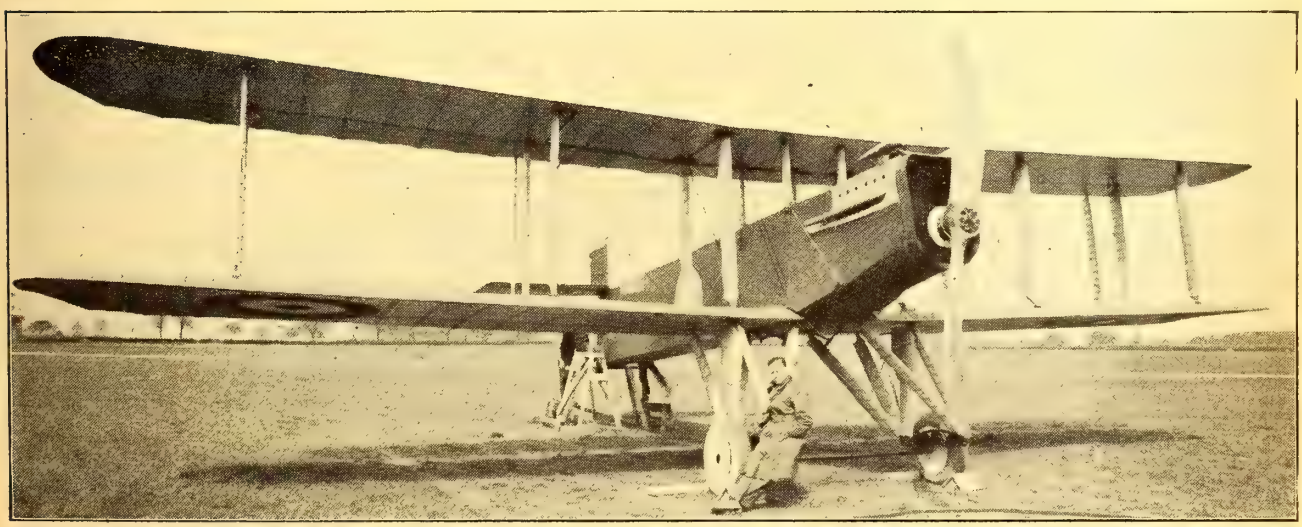
Type of machine	Tractor Biplane.
Name or type No. of machine	"Blackburd."
Purpose for which intended	Torpedo carrier, for use from ship or land.
Span	52 ft. 6 in. top plane; 17 ft. bottom.
Gap	7 ft.
Overall length	36 ft. 3 in.
Maximum height	12 ft. 4½ in.
Chord	7 ft.
Total surface of wings	709 sq. ft.
Span of tail	17 ft.
Total area of tail	82 sq. ft.
Area of elevators	34 sq. ft.
Area of rudder	9 sq. ft.
Area of fin	18 sq. ft.
Area of ailerons	85 sq. ft.
Maximum cross section of body	11 sq. ft.
Horizontal area of body	80 sq. ft.
Vertical area of body	126 sq. ft.
Engine type and h.p.	"Eagle" Rolls-Royce; 350h.p.
Weight of machine empty	3,080 lbs.
Load per sq. ft.	7.53 lbs.
Weight per h.p.	15.3 lbs.
Tanf capacity in hours	3 hours.
Tank capacity in gallons	69 petrol; 9 oil.

PERFORMANCE—

Speed low down	92 m.p.h.
Speed at 10,000 feet	84½ m.p.h.

Climb—

To 5,000 feet in minutes	11½ minutes.
To 10,000 feet in minutes	33½ minutes.
Disposable load apart from fuel	1,680 lbs.
Total weight of machine loaded	5,340 lbs.



Three-quarter front view of the Blackburn "Blackburd" (350 h.p. "Eagle" Rolls-Royce engine).

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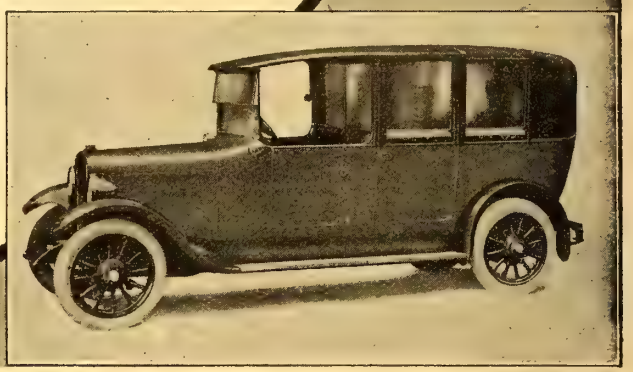

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HOW FIRE IS AVOIDED ON FRENCH AIRCRAFT.

By JOHN STRONG.

French design was always far in advance of that of other Allied countries in regard to fire-avoiding devices on aeroplanes, and all machines had either detachable or protected petrol tanks, or tanks fitted with rip patches.

In addition, great care was taken with the petrol, oil and water installations to ensure that installation failures should not provoke disasters. All air intakes have to be carried outside the engine fairing and so arranged that communication with the interior of the cowling is impossible, so that the risk from back fires is reduced to a minimum.

Pressure fed petrol delivery is forbidden. Ignition wires are not allowed within one inch of any hot parts of the engines, and must pass under and not over the petrol pipes.

RIP PATCHES.

Rip panels or patches are used as an emergency measure, and consist of a panel sweated over a cut-out portion of the petrol tank. One end of the patch is attached by a cable to a lever which, when operated through its full stroke, entirely rips off the sweated patch. In actual practice, however, considerable difficulty has been experienced, because the strength of the sweated patch is variable and often more than that of the pull exerted by the lever.

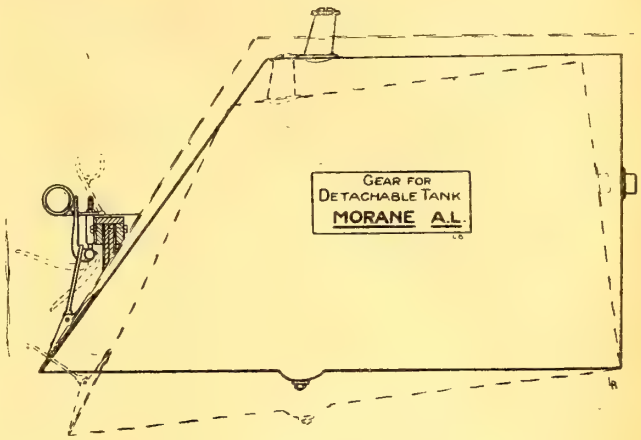
This had led to a modification recently approved by the French Authorities for use on the "Spad VII" Fighter. A large opening is provided in the bottom of the tank and covered with a plug or cap which is held in place by an encircling brass band with flanged edges, and made petrol-tight by the use of the conventional washer-packing in a manner similar to the method used on glass fruit jars, where the cap is released by ripping off the band.

DETACHABLE TANKS.

The problem of designing and constructing a petrol tank that could be detached and released from the machine at the will of the pilot has received considerable attention, and actual performance tests have been successfully carried out, first in England and later in France.

Lieut. Lloyd Lott, of the Canadian Expeditionary Force, has obtained basic British patents on such a device, which, in theory, at least, is applicable to most machines, and he worked out designs for several French machines.

Briefly, he depends on a one point suspension of the tank and holds it rigid by employing a fuselage construction into which the tank is wedged so as to have a surface-bearing on several sides. The bottom of the tank has a panel affixed which conforms to and fits into the bottom bay of the fuselage and takes the place of the cross-bracing wires which have necessarily been removed. Initial impetus at time of release is increased by the use of tensioned elastic bands extending over the top of the tank and fastened on either side.



Lieut. Bernard, of the French Aviation Service, has improved the manually operated releasing mechanism and worked out a design particularly suited to the Spad. His method of construction has been officially approved by the French Government, and the device is now being installed on the Spad XIII.

In this design the rear cross-bracing wires on the landing gear are detached simultaneously with the tank. The tank drops down and is carried by gravity through the space previously covered by the bracing wires and then clears the machine. The whole operation functions from one lever in the cockpit. The same operation shears all the pipe connections. Petrol pipes coming from the gravity tank are previously closed off by a pet cock, or else automatically prevented from wasting fuel by a ball check valve.

The above description applies in a general way to the detachable tank devices in use on other machines, such as the Caudron and the Morane, of which sketches are given here.

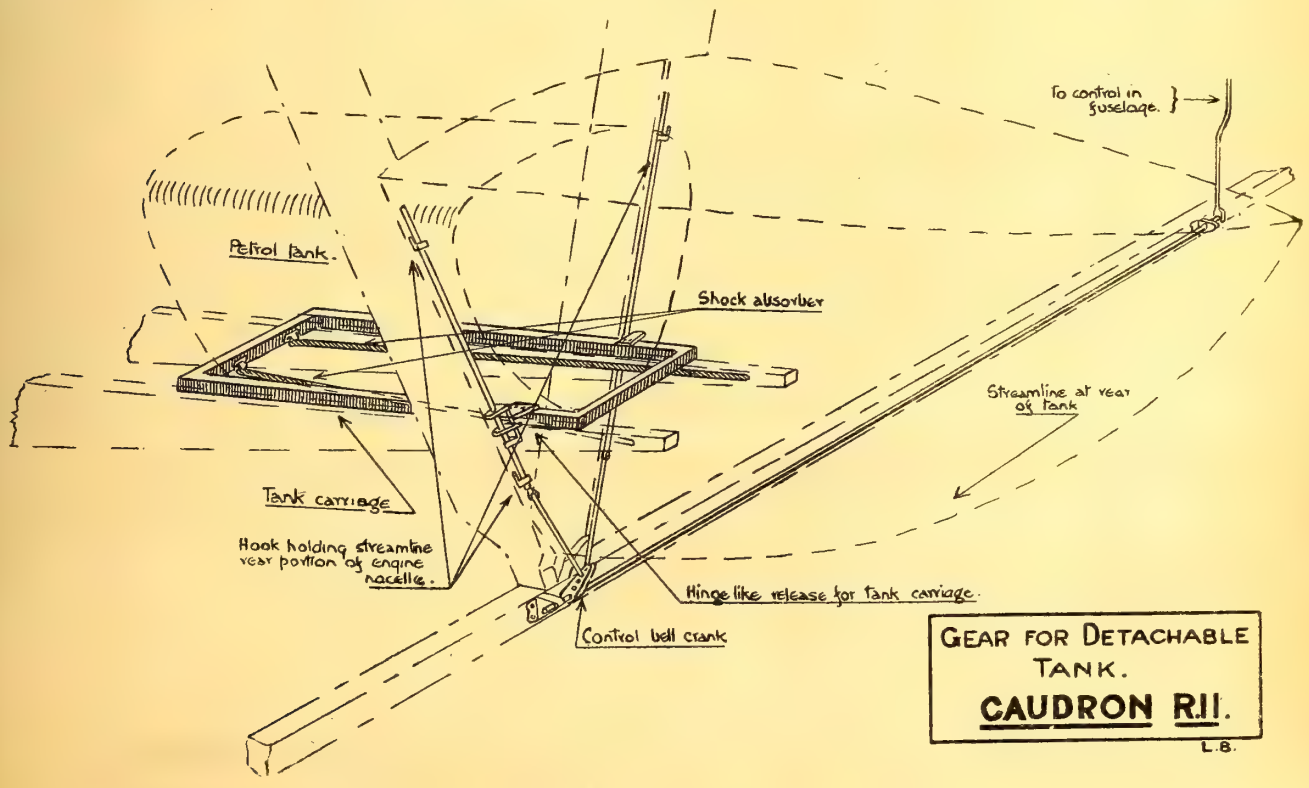
OBJECTIONS.

There are several objections to this practice:—

1.—Alterations or interference with the design of the machine.

2.—Possible weakness due to the substitution of the mechanical device for previously designed parts of the machine.

3.—Necessity for cutting all petrol pipes with consequent difficulties.



4. Necessity for an instantaneous and complete detachment of tank from the machine.

5.—Necessity of bringing the machine under control and levelling out before releasing tank.

6.—Danger of fire to the machine as the burning tank drops.

7.—Failure of mechanical parts to function at critical moment due to previous disuse, etc.

8.—Danger of pilot releasing tank without cause, due to nerves resulting probably in a forced landing in enemy territory.

9.—Danger of tank becoming loose due to vibration. (This has happened frequently on the Bréguet with the result that temporary repairs are made at squadrons which render releasing device inoperative.)

10.—In a crash the tank is just as likely to take fire as an ordinary tank, and this has already happened to three postal machines during the last few months.

Protected Tanks.

The idea of covering a petrol tank with India rubber originated with a Mr. Russell, who took out a British patent in 1909, but allowed it to lapse.

Various improvements have been suggested by Thompson, Daigre, Perignon, Lanser, Neal, Imber and other inventors, and the result has been a reservoir which will take 20 or more incendiary bullets without leaking, and the Neal, Sacana and Imber tanks do not take fire even in a bad crash.

Mr. Daigre became interested in protected tanks as a result of some protective armour that he made for the French Government. This material was a light hardened steel upon which a mechanical hard rubber composition was moulded.

For his sample tank Mr. Daigre employed an inner and an outer steel shell and filled the intervening space with a glycerine and gelatine composition apparently similar to that which was at one time used as a filler for so-called puncture-proof automobile tyres. This material was forced in under pressure, and in theory, at least, would close and fill the hole made by the bullet in passing through either tank wall.

In actual practice it gave a tank excessive in weight and inferior to the Imber and Sacana types. This major fault and other minor ones led to a complete abandonment of this method of protection.

Mr. Daigre has, however, built a petrol tank for armoured fighting "tanks" that has proved very successful, withstanding the burst of a French 75 mm. shell explosion two feet away.

In the summer of 1917 Messrs Lanser and Marbais started to build experimental protected petrol tanks for aircraft. These eventually took the form of a steel tank of ordinary construction covered by a layer of felt ¼ in. thick, and six or more layers of sheet rubber, all of the same kind.

Usually, the inner layer of rubber was about 2 mm. thick and the others 1 mm. thick. One or more of the rubber sheets were separated by coarsely interlaced hemp cord, and the whole structure bound in place by a galvanised wire netting—½ in. mesh and finished by twisting the loose strands together and tightening. This development occupied the interval up to the spring of 1918. A funnel was provided at the bottom and escaping petrol percolated down between the sheets and escaped through the funnel clear of the aeroplane. Tests showed the tank to be, on the whole, fairly satisfactory, but heavy.

About this time the French became interested in the possibilities of detachable tanks, and the Daigre and Lanser experiments were stopped. The result up to that date was a very heavy protected tank, but not a leak-proof one, and the weight of three or more pounds to the gallon capacity on tanks of about 50 gallons proved an effective limiting factor to their adoption.

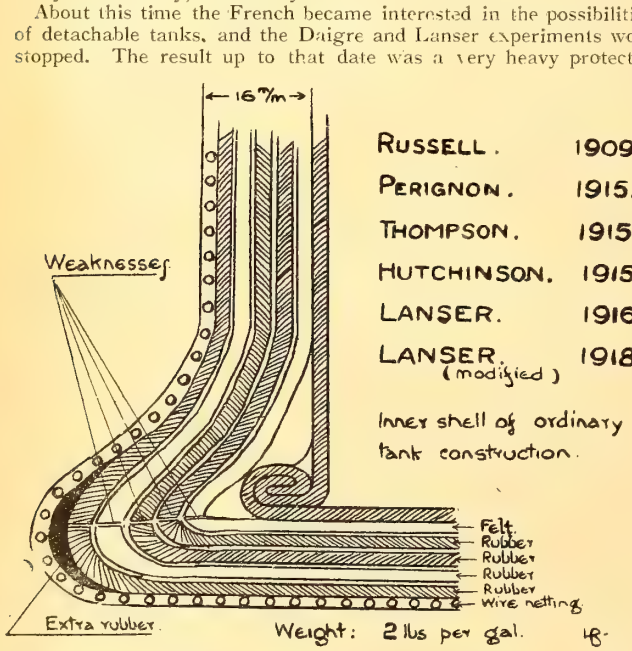
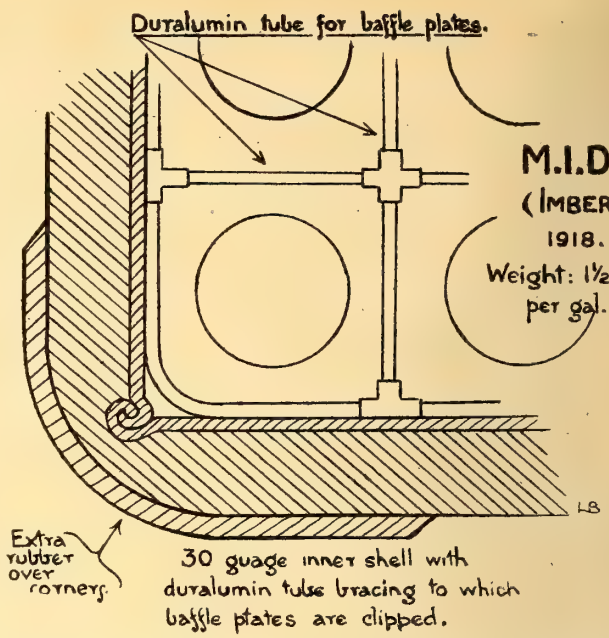


Diagram of a tank of the Lanser Type.



In March, 1918, the Société de Constructions Aéronautiques et de Navigation Aérienne, known as the "Sacana," attacked the problem afresh, and in an intelligent and scientific manner, rather than by the trial and error method heretofore employed. The system of protection, as described in detail later on, overcame the difficulties experienced by Messrs. Thompson, Lanser and Daigre respectively, and a satisfactory fireproof tank weighing about 1 lb. per gallon was produced.

In May, 1918, the Dunlop Rubber Company produced a tank covered with a thick layer of very slightly vulcanised rubber which gave very successful results under machine-gun tests, but the fact that the rubber was so slightly vulcanised rendered it liable to freeze and become brittle at temperatures slightly below 0 deg. C., and the French Section Technique soon realised that it was unsuited to aeroplane conditions.

The next step taken was a so-called "Modified" Lanser tank, which embodied the general principles worked out by the Sacana Company, but with the use of wool shoddy blanket material instead of the canvas used by the Sacana Company, or the wool felt previously used by Lanser. The drain was omitted from this tank, but the wire mesh covering was still retained. It was this composite tank which was thoroughly tested and approved by the Section Technique and adopted by the French Government. Its weight was just over 2 lbs. per gallon. The "Sacana" tank is also being adopted.

The United States Technical Section kept in touch with the French and British developments, and, as a consequence, recommended the "Sacana" tank for installation in the Sopwith Dolphins with 300 h.p. engines built in Paris for them. The Dolphin was arranged for a non-pressure system.

They also ordered "Sacana" tanks for DeH.4s and Nieuports and "Modified Lanser" tanks for their Bréguets.

It is to be noted that owing to the outer shell certain designs of tanks that cannot be built by the "Lanser" System, can be by the "Sacana." (See detailed descriptions of the respective tanks.)

It is also to be noted that the French Authorities are planning to continue the protection of tanks on their aeroplanes for peace conditions, both military and commercial, both as a means of reducing the fire risk in case of a crash and to obtain lower insurance rates, and from the latter point alone the protected tank should more than pay for the increased cost.

The "Sacana" Fireproof Tank.

The "Sacana" tank may be best described as a semi-rigid type Essentially, it consists of an inner metal shell of medium gauge covered by fabric and layers of vulcanised rubber of varying degrees of elasticity and of outer layers of fabric and a metal covering. The general purpose is to make the tank sufficiently rigid to:—

(a) Be borne on ordinary bearers, and so to be interchangeable with tanks of ordinary design. This permits dispensing with the use of special cradles, etc.

(b) To offer so much resistance to the bullet that, though it enters the tank, it will not merge on the far side. This actually occurs in most cases, and thus avoids the serious injury more apt to occur with the exit bullet hole.

(c) To keep the tank intact and leakproof in case of a crash.

All rubber is vulcanised before being applied to the tank, and the

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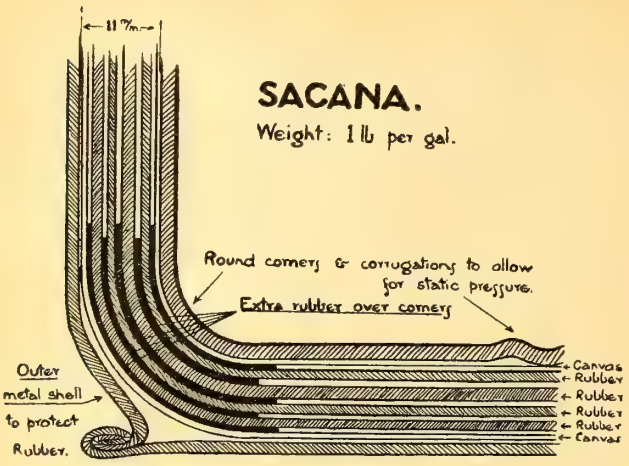

Each sheet of rubber of different elasticity
(This was afterwards copied by Lanser)

vulcanisation is sufficient to keep it from freezing at high altitudes. British tests have shown such rubber to be satisfactory at a temperature of 30 deg. below zero Fahr.

The inner shell is made of aluminium or thin sheet steel. All corners are given as large a radius as possible—at least 2 ins.—and the sides are corrugated sufficiently to allow for the liquid pressure set up when the first shot enters, and the shock in a crash.

Joints are preferably welded, but can be lapped and riveted and soldered. Baffle plates are made in the ordinary way, and spot welded to the shell, but are given a small radius at the sides, so that they "give" in a crash.

Large tanks for bombers and passenger machines can have several small inner shells instead of using one large tank and baffle plates. Tanks have been built for the Caproni after this method. The several inner shells are bound together by the covering and the outer metal envelope. This gives a quick production job.

The covering consists of the following layers :—

1. Strong canvas as used for motor tyres.
2. Fine ramie cloth or discarded aeroplane fabric.
3. 1½ mm. of well vulcanised rubber.
4. 1½ mm. of rubber lightly vulcanised or Dunlop rubber.
5. 1 mm. of rubber well vulcanised.
6. 1½ mm. of rubber well vulcanised (for bottom of large tanks only).
7. Thick ramie cloth or discarded (rejected) aeroplane fabric.
8. Outer metal envelope of thin aluminium.

Note.—One layer of thick ramie cloth can be used instead of No. 1 and 2 together. The strong canvas takes up the burrs made when the shell is pierced and the fine cloth prevents the canvas from forming a wick of broken fibres through the rubber. Chemical action between the metal shell and the rubber is also prevented.

The rubber sheets are cut to shape from patterns and applied to the shell by women. The edges are lightly drawn together by sewing. The main joint is along the top of the tank and the others along the round corners. Joints on successive sheets must not coincide. When the sheet is in place the sewn edge and two inches each side of the edge are given a good coat of rubber solution, and the reinforcing strips are then applied to the corners. This amounts to thickening up the corners by a cold vulcanisation process, and the operation is repeated for each successive sheet.

There is a distinct advantage in using thin sheets of rubber previously vulcanised both for inspection and application. This advantage is still further increased by using sheets of different elasticity (by the use of different rubber gums or by varying the vulcanisation), for when the bullet has passed through, the fracture takes a somewhat different course for each sheet with a resultant overlapping of the different rubber sheets, and the tank is immediately sealed.

A light coat of soft soap, with a certain amount of salammoniac, is applied to each layer before putting on the next to prevent self-vulcanisation, and permit a slipping of one sheet upon the other. Paraffin wax has the same effect and can be used if desired.

The fabrics are soaked in any approved fireproofing solution and dried before using.

The heavy cloth is applied outside the rubber before putting on the outer shell in order to evenly distribute the stress set up by the static liquid pressure when the tank is pierced. This prevents the often-experienced tendency of a tank to leak on the first or second shot, and then catch fire from the exuded petrol.

The outer shell is made of aluminium because it is lighter than wire mesh, takes the shock better, makes a more rigid tank and holds the rubber firmly in place around difficult contours impossible with wire netting, affords a secure method of attachment and makes a cleaner-looking job.

The outer shell should always be of a softer metal than the inner shell. If desired the exterior shell may be dispensed with and the outer fabric given a coat of metallic dope or paint instead.

The finished tank can be provided with standard fittings, and the tanks do not require special packing for shipment. The finished weight of the tank is approximately 1 lb. per gallon capacity, the total thickness of the covering being ⅜ in. only.

The Lanser Protected Tank.

This is a development of the Russell and Thompson patents and of Lieut. Perignon's tank, which was made and tested in February, 1914. The method of manufacture is the same.

The inner shells of the Lanser tanks are made exactly like ordinary unprotected tanks without any special study in design or manufacture. This probably accounts for their early production tanks being unsatisfactory, and led to the introduction of a modified type.

The covering originally consisted of one layer of ¼-in. thick felt, 4 to 7 layers of rubber of the quality used for inner tubes of cycle tyres, and iron wire netting outside to hold all in place. A soft soap composition was applied between each layer of rubber to prevent self-vulcanisation.

In building up, no care was taken to thicken the protection of the corners. The edges were lightly drawn together by sewing only. On only the last layer was any proper joint made, and this with a strip of rubber only 1 mm. thick, so that instead of being reinforced at the corners there was only 2 mm. of rubber in all.

The Modified Lanser Tank.

This is the tank made to the Section Technique specifications, and was very satisfactory for war machines, though heavy.

The layers used are :—

A.—5 mm. sheet of baize or similar fabric
B.—1 mm. of well vulcanised rubber.
C.—4 mm. of non-vulcanised Dunlop rubber
D.—1 mm. of well vulcanised rubber.
E.—1 mm. galvanised iron wire netting.
12 mm. total thickness of covering.
Weight, 2 lbs. per gallon.

The corners were not thickened up, and although these tanks gave good results under French tests, they have not withstood the more severe British tests. This is only natural, as the known principles of inner shell construction were not applied.

Existing Patents.

1. Russell (British), 1909.—Rubber-covered ordinary shell patent lapsed in 1913.

2. Perignon (French Lieut.), February, 1915.—Original patent, merely suggests covering an ordinary tank with rubber, which is the Russell invention. Two additions were taken out, making it quite similar to the Lanser and Hutchinson patents.

3. Thompson (British), 1915 and 1917.—Double shell with rubber between. Walls made to move to close leaks.

4. Daigre (French).—Several patents, all in 1915. The principle covered is that of a double metal wall with synthetic rubber forced under pressure between the walls. Effective but far too heavy. Mr. Daigre also experimented with an inner wall of celluloid.

5. Hutchinson (French), November, 1915.—By the Hutchinson Rubber Co., provides a rubber-covered tank with a space between the cover and the tank which might be an air space or a sheet of felt, cork, cotton wool, or any light material.

6. Lanser (French and Belgian), November, 1916.—Lanser specifies laminated rubber with felt directly on the inside shell. In addition, he specifies a double wall of rubber with a space between created by a thick cord net and a drain cock at the bottom of the tank from which the petrol can be led outside the fuselage. The outside layer is one of wire mesh for binding purposes. The inner shell is of ordinary construction.

7. Loretan (Swiss), 1916.—Taken out by Joseph Carrier and L. M. Loretan for a tank covered with rubber or similar material inside or outside the metal shell—or both.

8. Neal (British), February, 1918.—A flexible but not flabby inner shell of special construction with laminated fabric and non-freezing rubber covering; each sheet of rubber to be of a different elasticity with an outer covering of metal.

9. M. I. D. Imber (British), February, 1918.—A specially constructed inner shell covered with a thick layer of special rubber vulcanised in place.

10. Dunlop Company (French), May, 1918.—A special rubber for covering self-sealing tank combined with fabric and non-vulcanised, so that it is likely to freeze at comparatively low altitudes but otherwise is very effective.

11. Sacana (French and British), 1918.—Various additions by the Sacana Co.; to the Neal and Daigre patents, affecting improvements in tank construction and the manner of applying the rubber covering.

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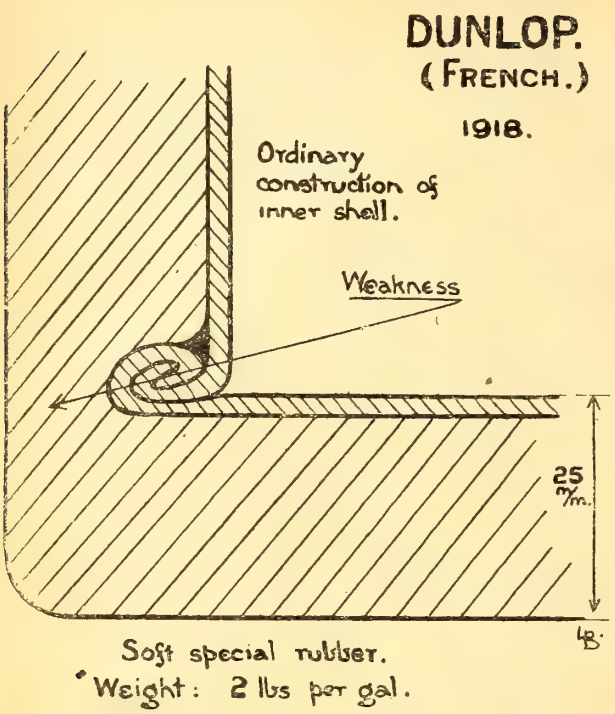


12.—Several other variations have been made by various inventors, including a double metal shell with a fire-extinguishing liquid between the walls and a number of these patent specify that the materials capable of fire-proofing shall be saturated with any one of several fire-proofing compounds.

It will at once be apparent that continental differs from British practice in one very essential point affecting production.

The British Imber tanks have a flabby inner shell, on to which raw rubber is moulded, and the whole is then put into a large oven for vulcanising. The difficulty of this process for large tanks for commercial machines is immediately apparent.

In the Sacana construction, which is now coming into general use, for instance, the rubber is already vulcanised, and can be inspected and tested before application, and the covering process does not require the large space demanded for the British type.

The finished tank, though sufficiently flexible, is rigid enough to be carried on ordinary bearers without special cradles, and the outer aluminium sheathing protects the rubber from humidity, petrol and oil, so the tank is equally protected after some months of service, whereas with the rubber exposed it is necessary to change the tank about every four or five months.

It is already known that a tank with a large bore air pipe is less likely to take fire than one with a small bore pipe. This is because a slight depression is caused in the tank by the suction of the slip stream passing across the top of the ventilation pipe. If a small Badin trumpet is fitted the effect is increased, and it has been suggested by the Sacana Company that this would be a temporary precaution to take with all existing unprotected tanks until proper fire-proof tanks can be fitted.

By the adoption of these fire-preventing devices, the Continental Aerial Transport Companies are not only gaining the confidence of the public, but reaping the benefit of lower insurance premiums

POWER ALCOHOL.

The report of the Inter-Departmental Committee on Alcohol for Power and Traction Purposes, issued on June 30th, is of very great interest and importance in view of the present price of petrol and the unlikelihood of that price dropping appreciably.

It may be doubted whether alcohol, or any mixture containing a large proportion of alcohol, will ever become a satisfactory fuel for aero engines, because, owing to the large oxygen content of alcohol, a considerable amount of useless weight has to be carried with such a fuel.

A fuel largely composed of alcohol can be used with quite satisfactory results for road transport however, and the production of such a fuel in quantity at a lower price than that of petrol will at least check the rise in the price and release larger supplies of suitable fuel for aeroplane engines.

The report points out that the petrol and benzol now in use are derived from deposits of definite extent which cannot be renewed, and there is, therefore, a definite limit to the amount of such fuels which can be produced.

The raw material from which alcohol is produced on the other hand can be grown as a crop and renewed indefinitely, and there is practically no limit to the amount which can be manufactured.

The only weak point in the argument in favour of extensive fuel alcohol production is—as was pointed out in this paper some weeks ago—that the question as to whether a better fuel cannot be produced by distillation from equally easily produced crops has not yet been properly investigated.

At the moment the argument for alcohol stands thus:—

The demand for petrol has increased at a rate far in excess of that which the petroleum deposits can maintain for very long. The extent of this increased demand in the United States of America is shown in the following table:—

Year.	Total Consumption. Imp. Gals.	Increase over previous year. Imp. Gals.
1914	1,200,000,000	—
1915	1,400,000,000	*200,000,000
1916	1,680,000,000	280,000,000
1917	2,320,000,000	640,000,000
1918	2,680,000,000	360,000,000

The Committee's report discloses the fact that the London General Omnibus Co. are at the moment running a fleet of their 'buses on such a fuel. This trial is to extend for about 26 weeks, and the difference between the cost of the fuel and that of petrol is being borne by the funds of H.M. Petroleum Executive.

The present price of alcohol prohibits commercial use—but the price is due in the main to the properties of alcohol as a beverage, and to the excise restrictions upon its manufacture and sale.

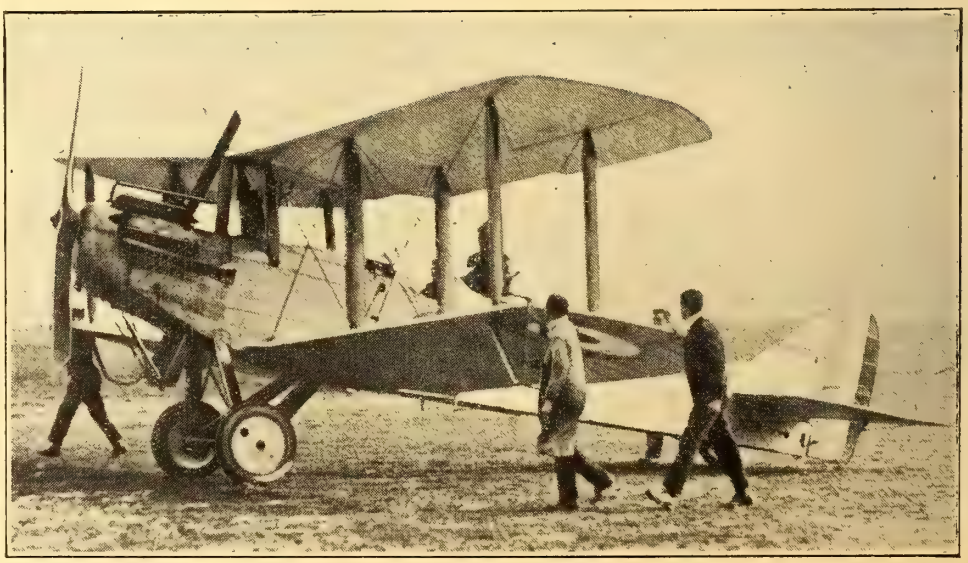
The process of denaturing at present insisted on in this country to render methylated spirits unpotable is costly, and not entirely effective, and the excise restrictions on fermentation and distillation, together with other restrictions regarding transport and distribution, add greatly to its cost, and the Committee's recommendations are mainly confined to the desirability of the removal—as far as is consistent with safeguards to the Revenue, and against the improper use of power alcohol—of all restrictions tending to increase this cost.

THE NAPIER-ENGINED DeH.9 IN SPAIN.

The accompanying photograph taken at Quatros Vientos Aerodrome at Madrid shows the DeH. machine with the 450 h.p. Napier "Lion" engine which has been flown in Spain by Major de Havilland.

The machine is, apart from the engine, a standard Airco DeH.9, and according to Major de Havilland the engine has done everything asked of it.

In addition to flights from Madrid to Seville and Madrid to Barcelona and return, Major de Havilland has given numerous demonstration flights before H.M. the King of Spain and the Spanish Military authorities.



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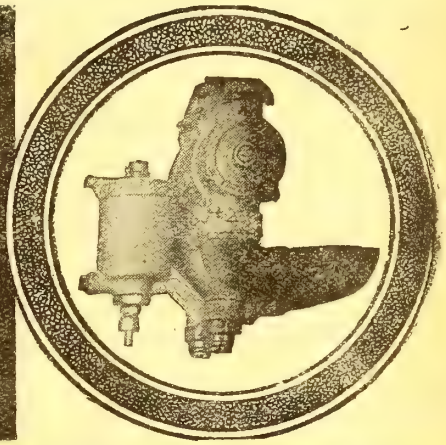

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MARKET TOPICS.

PRICES ARE FOR QUANTITIES ON USUAL TERMS.

JULY 3rd, 1919.

COPPER.—This market continues active, but it is not in a very healthy condition, as there is a great deal of uncertainty; consequently, the market tends to be sensitive. The recent advance in prices was undoubtedly operated from America, and although prices have been easier this week, the present level does not reflect the real state of the market. Actually, consumers are showing very little interest in the metal.

The American market is still being influenced by expectation of large purchases from the Central Powers; it remains to be seen whether the demand will come up to expectations. The general opinion here is that it will be some time before appreciable orders are received from that quarter.

COMPARATIVE PRICES.

	Per Ton. £ s. d.
To-day, July 2nd	89 0 0
Last week	88 2 6
Last month	78 17 6
Average price, 1918	115 11 0

TIN.—There is not much activity at present, although prices keep steady. The demand is dull, and consumers are not showing any interest whatever. Although the embargo on the importation of Tin to U.S.A. has been lifted, it is not yet certain that there will be a big demand from American buyers, there are various reports being made as to the possibility of a big business being done. The situation is obscure, and the reports referred to should be received with a great deal of reserve.

COMPARATIVE PRICES.

	Per Ton. £ s. d.
To-day, July 2nd	240 0 0
Last week	240 15 0
Last month	232 7 0
Average price, 1918	326 11 0

LEAD.—There has been a fairly brisk demand recently, but dealers are well to the fore; consumers are not showing much interest. It does not look as though the Government are disposing of their stocks as was expected, and the demand for Government stock is likely to be less, as Spanish holders appear to be pressing for orders, and it is quite probable that they will sell at a lower figure than the Government.

Further, it is reported that Germany is selling Lead in Holland at a lower level than the price ruling here. The present price is certainly not unreasonable, considering the present level of costs, but the features referred to above, also the huge stocks held by the Government here, do not create confidence among consumers.

STEEL.—The Steel market at present is in a very unsettled condition, and firms who are compelled to buy are merely covering themselves for their immediate requirements. There is very little confidence in the market, and consumers show no disposition to buy ahead. Steel makers have recently informed their customers that commencing July 1st, Billets will be advanced 20s.

The continual advance in price is primarily responsible for the unsettled state of the market, and it is no use disguising the fact that American competition is becoming still more severe. Furthermore, there does not appear to be much hope of any fall in the prices which are being charged by British makers: in fact, some of the makers still insist upon quoting an indefinite price, i.e., their quotations include a "rise in price" clause.

Glasgow Corporation recently placed an order with America for 5,000 tons Steel Rails at a price 32s. 3d. per ton cheaper than the best British quotation. It is also quite possible that American firms will shortly be able to quote even cheaper prices, as there has been a recent reduction in freight charges.

There is still a slump in the High Speed Steel market; in fact, it will be some time before the huge stocks, which are held in various parts of the country, have been used.

TIMBER.—The demand for all kinds of Timber is fairly active, and undoubtedly has shown much improvement during the past month. Unfortunately, there does not appear to be much improvement in the shipping problem, and it is quite probable that it will become much more serious now that Peace has been signed, as the demand for shipping will undoubtedly increase.

When the control of Timber ceased about three months ago, there was hardly any Yellow Pine in the country, and the shipments which have arrived since that date have been divided up among several merchants. The quantities were not large, and there is a big demand for the Wood; consequently, some firms have taken advantage of the position, and have been charging outrageous prices. The Controller is determined to stop this, and the attention of buyers is called to a notice which has been issued by the Board of Trade, and is inserted in this paper.

The Hardwood market is in a fairly healthy condition. The demand is quite active, and prices are showing an upward tendency. There is at present a shortage of Silver Spruce suitable for Aeroplane work, and there is still no sign of shipments coming forward.

FABRIC.—There are no further developments in this market at present.

BOARD OF TRADE ANNOUNCEMENTS.

The following announcements have been made by the Board of Trade:—

EXCESSIVE PRICES OF YELLOW FINE.

The Board of Trade announce that the Controller of Timber Supplies has had brought to his notice the fact that excessive prices have been asked for yellow pine in spite of the announcement made on May 20th last that there is no reason why the maximum prices which were in force up to March 31st last should be exceeded.

The Controller of Timber Supplies gives notice to all concerned that in the event of these excessive prices being continued he will have no option but to dispose of Government stocks direct to consumers at prices no higher than the late maximum prices.

No further notice will be given should this action be found necessary.

The Controller requests any firms who are asked for yellow pine prices higher than the late maximum prices to send full particulars to the Assistant Controller Timber Supplies, Branch 5, 80 Newman Street, Oxford Street, London, W.1. The late maximum prices for yellow pine were as follows:—

YELLOW PINE.

(Per standard of 165 cubic feet.)

	1st. £ s.	2nd. £ s.	3rd. £ s.	4th. £ s.
3 in. by 12 in. and up	67 0	55 0	50 10	44 0
3 in. by 11 in. and up	64 0	53 0	48 10	44 0
3 in. by 10 in. and up	58 0	48 0	44 0	42 0
3 in. by 9 in. and up	57 0	47 0	43 0	41 0
3 in. by 8 in. and up	55 0	45 0	42 0	39 0
3 in. by 7 in. and up	55 0	45 0	42 0	39 0
3 in. by 6 in. and up	52 0	42 0	40 0	37 0

PIN SIDINGS AT SAME PRICES AS DEALS AND PLANKS.

In case of timber stored by retail yard keepers there is no objection to the above prices being raised by not more than £4 per standard.

The following specific instances of offers made at excessive prices to timber merchants have already been brought to the Controller's notice:—

1. 3rd quality pine at £57 15s. for 3 by 7 by 8 to £66 for 3 by 11. 4th quality pine at £55 12s. 6d. for 3 by 7 by 9 to £59 for 3 by 10. These prices included short railway carriage.
2. 3 by 11 3rd quality, £55, ex quay Liverpool.
3. 3 by 7-10 in. 3rds £53 12s. 6d. free on truck at port.
   3 by 11 3rds £61 17s. 6d.
   3 by 7-10 in. 1st quality £70 2s. 6d.

Board of Trade, June 19th, 1919.

AN AERONAUTICAL INTELLIGENCE BUREAU.

The Aeronautical Intelligence Bureau, Ltd., was incorporated on June 13th. The chief objects are: (A) To unite and combine aeronautical firms for the purposes of mutual advancement and protection. (B) To protect the members of the Society from financial risks by obtaining and distributing information concerning firms undeserving of mercantile credit. (C) To keep a register of bankrupt persons and those in winding up or liquidation. (D) To procure the amendment or repeal of legislation injurious to the members. (E) To procure information as to the standing of firms.

Other points are:—(1) That members are entitled to unlimited investigations. (2) That no member's interests are divulged to another without his written assent. (3) That ordinary letters will take the place of the usual stereotyped inquiry forms. The offices are at 30, Bedford Row, W.C.

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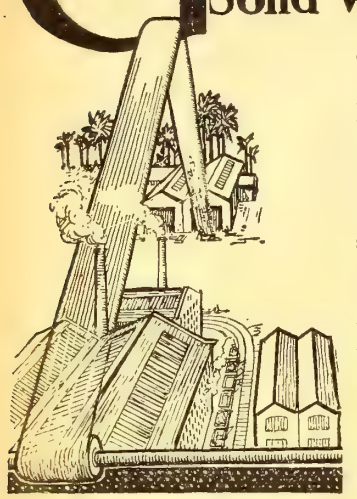

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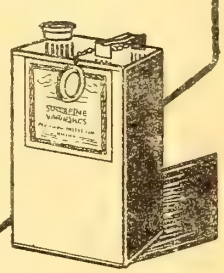

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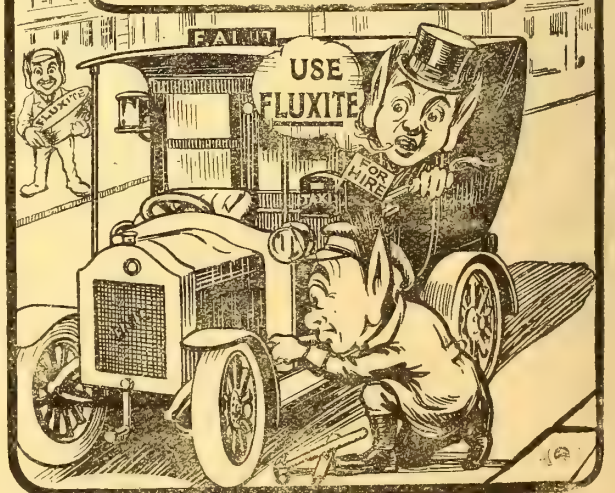

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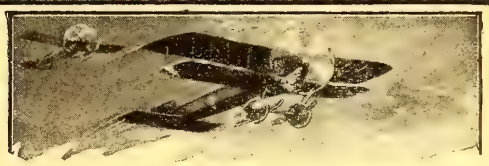

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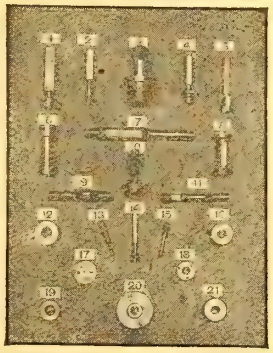

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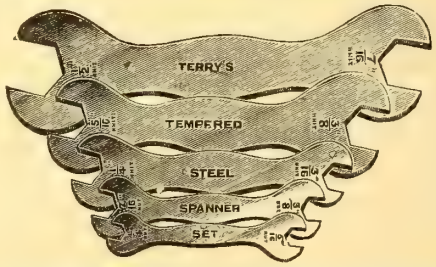

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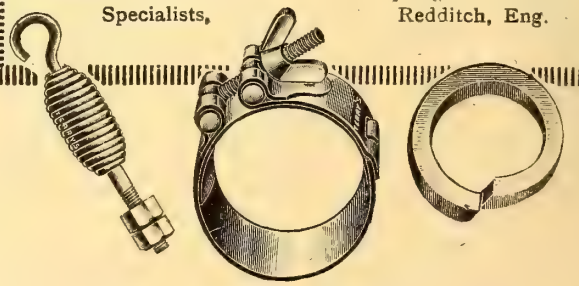


COMMERCIAL AERONAUTICS & CIVIL AERIAL TRANSPORT

ON ADVISORY COMMITTEES.

By "MEDWAY."

When the time comes for an official return to be made of the products of Great Britain during the year 1919, the list assuredly will, or ought to be, headed by Advisory Committees, of which about two millions have been constituted or are in process of constitution. The Advisory Committee, if not an actual invention of the War, is a device the popularity of which has been established in the past four years. It serves as a means of shuffling official responsibility onto the shoulders of independent experts, whose advice may or may not be taken.

The new Standing Advisory Committee on Civil Aviation appears to be composed of the right type of man. Also, it has an advantage over many such organisations, inasmuch as it is definitely required to advise and report on at least one subject—viz., the best method of organising Imperial Air Routes. For the rest, it shares with similar Committees the privilege of being allowed to advise on those matters submitted to it by the Secretary of State.

The Right Air of Dignity.

There is seldom any difficulty about giving the right air of dignity to an Advisory Committee. It is a compliment to be asked to serve on one, and consequently good names are fairly easily secured. The only trouble is that, of the many Advisory Committees formed during the last year or so, only about one in a hundred manages to get any appreciable quantity of its advice accepted.

The majority of Advisory Committees labour in the dark, and the representatives of various interests upon them report hopefully to those interests that things are going well, and that the Committee bids fair to produce a really intelligent and useful report. Probably in due course it does so. The report is, however, addressed to the Minister as a private document, and as such is not published. The chances are that, in the meanwhile, various political considerations are maturing, as a result of which either the Minister to whom the report has gone ceases to hold office, and is superseded by someone with quite different views, or else the Minister who has received the report finds there are good party reasons for pigeon-holing it and taking no action whatever upon it.

The Disposal Board.

Let us take one or two recent instances, sufficiently near to the aeroplane business to be more or less instructive. We had, for instance, a number of admirable Advisory Committees formed to recommend the course of procedure to be adopted by the Surplus Government Property Disposal Board in respect of the sale of various sorts of Government stores. These Committees gave a lot of time and consideration to their jobs. Each tackled its own particular branch with a reasonable amount of inside knowledge, and honestly tried to work out a scheme which, while good for the taxpayer, was also not injurious to the manufacturing industry concerned. I presume that these reports were handed in, but I am also forced to the conclusion that not one of them was ever taken out of its envelope.

In short, the Disposal Board gave the public the impression that it was going to act upon expert advice. It thus obtained a reasonably good Press and a fair degree of public confidence. The Advisory Committees were mere window-dressing. In the background were the people who had probably decided what they were going to do before the Advisory Committees met, but who knew they would be open to a good deal of criticism if they obviously acted on their own initiative and did not make a show of consulting expert opinion.

The history of the Slough depot is not dissimilar. Roughly speaking, it is a long record of people being asked for advice which was never taken, and which, in fact, nobody ever intended to take. All that was wanted was to be able to say that the advice was being asked, and therefore that everything must be all right. It was only when pressure of public opinion made an inquiry necessary that it really came out that experts had been flouted from first to last. Also, it was only at that stage that Mr. Churchill, speaking for the Government, said quite candidly that the Committee could hold its inquiry, but that the Government did not care in the least at what findings it might arrive, but was going on with its own policy, quite regardless of any interference or opinion—expert or otherwise. It became necessary to admit this, because the nature of the inquiry was bound to be such that a certain number of the facts would become public.

To Make the Official Dish Look Palatable.

The job of the average Advisory Committee is, therefore, to serve as a dressing to make the official dish look palatable. The contents of the dish are settled in advance. The dressing may disguise, but does not alter, its character. It is only when the public get exceptionally excited over some peculiarly stupid exhibition of official ineptitude that it becomes necessary to admit that the process of taking advice was merely formal. By that time it is generally possible to complicate the issue to such an extent that the general public never really finds out what has happened.

The main job of an Advisory Committee is therefore to get terms of reference and powers such that it can, when it chooses, make its reports public, and such that it can advise and report on a good variety of cognate subjects, whether invited to do so or not.

Objections to the Expert.

In the Ways and Communications Bill we see the same tendency of the Government to shield its officials behind powerless Advisory Committees. Directly it is suggested that the Minister *must* ask for advice on certain subjects and that the Committee may make public the nature of the advice that it has given, the Government promptly turns stubborn and is up against the whole principle of the introduction of the expert. The expert is, in fact, only wanted because his name looks well in print, and gives the idea of good democratic control as opposed to bureaucracy.

I am not prepared to say that this new Advisory Com-

mittee on Civil Aviation will be treated as badly as most of its kind. It may become a real power in the land. It may be allowed to do very valuable work, but I suggest that the members of the Committee who are not tied by reason of holding official positions will have to watch things very carefully from the start in order to make sure that they are not being merely used so long as they will endorse a ready-made policy, only to be turned down and carefully silenced if they show the slightest signs to developing a policy of their own.

FRENCH PROGRESS IN CIVILIAN AVIATION
with Particular Reference to Aerial Posts.

Recently, what the French call a "Committee of Action" (which approximates to a sub or working committee in England) submitted a long report on aeronautical problems in general to the President of the Council

The report was arranged under seven headings and is at the moment receiving the attention of the Aeronautical Branch of the War Ministry, personified by Col. Dhé. France just now is well equipped with bureaucratic machinery for studying this subject in all its varied phases; there are in constant session six sets of authorities, each engaged in recording its own particular wishes and resolutions. Tabulated, they are as follows:—

1. Military Aeronautics (under the War Ministry), and its offshoot Civilian Aeronautics, with offices in the Boulevard St. Germain.
2. The Inter-Ministerial Commission on Aviation, of which M. d'Aubigny, Deputy, is president.
3. The Committee of Action formed to develop aviation, and composed of members of the Aviation Commission of the Aero Club de France, delegates from the Chambre Syndicale de Industries Aeronautiques, plus certain Deputies.
4. The commission of delegates from the Inter-Allied Conference, discussing the details of the International Air Code: president, General Duval, in charge of aviation at Foch's headquarters.
5. Research Department of the Ministry of Commerce (Posts and Telegraphs Departments), charged with aerial post problems.
6. The Aeronautical Service of the Ministry of the Marine.

In addition to these, Mr. Chassaing, Deputy, has laid before the Chamber, in the form of a motion, an invitation to the Government to commence organising principal and secondary areo-gares over the whole of France and her colonies.

The seven heads under which the Committee of Action's Report was made are:—

1. The Establishment of Airways.
2. Aerial Postal Services.
3. Aerial Transport Services.
4. The Centralisation of Aeronautical Services, i.e., co-ordinating same.
5. Rules for Regulating Inter-Allied Aerial Navigation.
6. Centralisation of Material (i.e., pooling resources).
7. Organisation and Distribution of Meteorological Services and Intelligence.

Many Counsels Lead to Confusion.

One sees daily that the presence of many counsels tends to confuse an issue and causes delay. Such is the position here at the moment. Notwithstanding that the Postal Administration was last month in possession of figures relating to buying and hiring prices of material, salaries of personnel, special tax to be imposed on mail and packages, the sinking fund required, and the profits that would eventually accrue, they cannot make up their minds as to whether they ought to run the service themselves as a State affair or whether it should be exploited by a company or companies assisted with a State subsidy.

The Inter-Ministerial Commission and the Civil Aeronautic people are of opinion that it should not be a nationalised transport but that concessions should be given to certain approved companies. In support of their views they note that the Postal Authorities do not possess trains and boats, but hire accommodation, and that they certainly ought not to involve themselves in unknown expenses, also that they ought not to own aircraft of any kind, nor pilots, but that they ought to enter into working arrangements with concessional groups to carry mails, etc., at certain rates

State Service.

The people in favour of State service argue that there is no comparison between aero-mails and those hitherto sent by train and boat and that, if taken up at the beginning, the service will be for the benefit of the State. To which the other side reply, and it must be admitted in good reason, that without a subsidy for mail-carrying the prospective aerial transport companies will not be able to pay their way. The Committee of Action, without committing themselves, have intimated that they think that a reservation of ten per cent. of the useful load carried for postal matter would meet the case to the satisfaction of all concerned. At this point the Maritime League steps in: they are quite willing to be relieved of their obligation in regard to carrying mails—and for a very good reason. Although the State subsidises the Compagnie Transatlantique and the Messagerie Maritime it reserves to itself the right to compel other lines to carry mails when required; thus a ship, having mails, may have to go a long way out of her route to land them, when she has no other business in that direction.

Views on Aerial Posts.

It is an accepted maxim here that aerial posts have no raison d'être unless they can show a great saving in time when in competition with the established means of locomotion, especially is this so when competing with the night mail service during which, it is pointed out, letters are sorted—this, of course, cannot yet be done "en l'air." Further, authorities here still regard with affection the idea of sending the mails from dusk to dawn by train and picking them up by aeroplane in the early morning.

Regular Aeroplane Services.

Week by week I have to note progress made by the aeroplanes engaged in provisioning the Northern and liberated provinces, but their trips are becoming so regular now that I shall soon no more think of chronicling the event than you would the departure of the 8.25 from Finsbury Park to King's Cross. Rather will it be my duty to note the case when any untoward event occurs that results in an interrupted service.

Here is an interesting suggestion as to how an aerial post might be run: the idea, though novel, is not mine, but has come to me from an official quarter, from which one presumes it is receiving due consideration, and stranger things have happened than that this might be the system selected. Qui sait?

At the moment, the only sort of post that Lille receives is by air, and under existing arrangements this will cease when the railways are linked up in through communication and it is possible to use the normal service. It is now proposed to augment the service by a kind of (for want of a better description) "return telegram" service, the telegram being a cross between a letter and a wire, the main idea being to get written replies the same day. Shortly, the scheme is as follows:—

An Aero-Postal System.

It is proposed that all such letters shall be enclosed in envelopes of a special hue—blue, for example—they would then be known as the "petits bleu." Certain post-boxes will be disposed in certain quarters of Paris, into which the population will drop their "petits bleu." Each morning at a stated hour a car will collect from these boxes and take the correspondence to a central depot and from there to Villacoublay or any other aerodrome selected. An aeroplane will leave at 12 noon and, ordinarily, arrive at Lille at 2 p.m. From the aerodrome at Lille motor cyclists will distribute the letters. Lille will be provided with post-boxes in various parts of the town into which the "petits bleu" (which may be the replies to the letters received at 2 p.m.) may be dropped. The collection will be made and taken to the aerodrome. The machines will leave at 4 p.m., arrive at 6 p.m., and distribution will be made in Paris during the evening. Of course, by advancing the whole project a couple of hours, one would be able to attend to such replies during the normal hours of business. However, I am but a scribe, and I give you the idea as it was given me.

If the weather makes it impossible for the machines to start, a cyclist will chase around posting notices to that effect on each box. The only point upon which agreement has not yet been reached is that of the tax to be imposed. The State, who fear competition with their telegraphic service, are of opinion that two francs (1s. 8d.) per letter is necessary. Messrs. Bréguet, Bleriôt, and Morane (who at present run the provisioning service), on the other hand, think the 60 centimes per letter (about 6d.) would meet the case and that the cost of the voyage does not warrant a greater charge, and they point out further that an aeroplane carrying 50 kilos. of "petits bleu" (how would "lettergrams" do in English?) could also carry 200 to 250 kilos. of small postal packets. A small extra tax on each of these and the State would again benefit.

It seems to me that a service on similar lines would be welcomed between London—Birmingham, London—Manchester, London—Glasgow, etc., or any big manufacturing town, if only because it would enable them to send and receive samples of goods, or obtain signatures to contracts, the same day.

If time flies, so does the aeroplane, and, as time is money, there may be some liaison between the two saws.

In conclusion, the general opinion here is that, apart from the Goliath-type machines, civilian aviation will be developed by means of the aerial postal services.—F. T. M.

Pleasant Motoring

The A.A. has won its pre-eminent position as a Road Organisation by reason of its efficient services, the energies of the Association having always been concentrated on giving skilled assistance to its members in any part of Great Britain.

The patrol system—the chief feature of the Association's work—extends over

thousands of miles of main road

so that the khaki-clad A.A. patrol is one of the best known figures on British highways. The duties of the patrols are to give members information of interest concerning the road, warn them of any dangers on the highways and render all possible assistance in case of need. They are specially selected for their ability to undertake minor roadside repairs and render first aid when necessary.

The patrols report all cases of wilful obstruction and other abuses of the highway likely to lead to accidents, delay, and inconvenience to users of the road.

Each patrol is required to know

where the nearest doctor lives, and the nearest A.A. Agent, and in urgent cases at once goes for help.

Patrols are acquainted not only with the condition of roads of which they are in charge but with those in the surrounding neighbourhood. They are provided with a map of the district and are familiar with all local features.

They also report any obstruction, unrolled metal, floods, roads "up," and indicate alternate routes to members. The registered number of every car, motor cycle, and cycle car is, as far as possible,

recorded by patrols on their number sheets

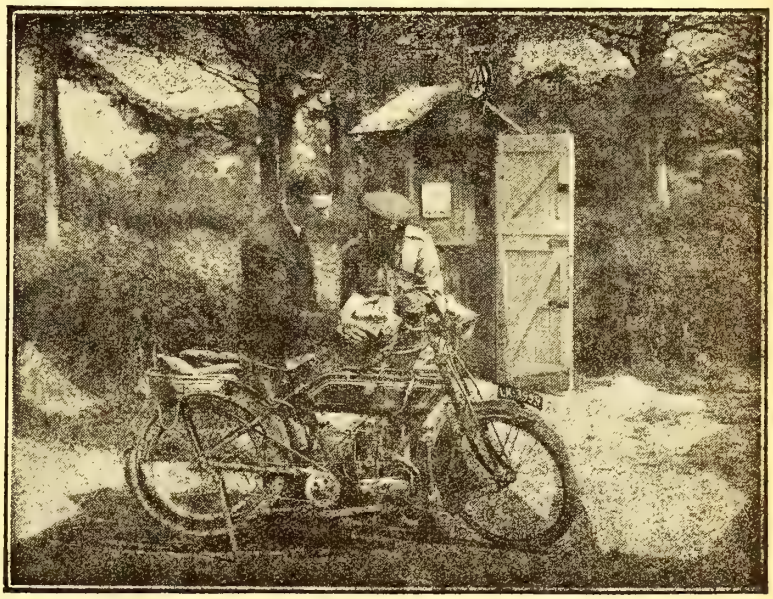
on the road, also the time and place at which they pass, and the direction in which travelling. These reports often prove useful in tracing stolen cars or "joy-riders."

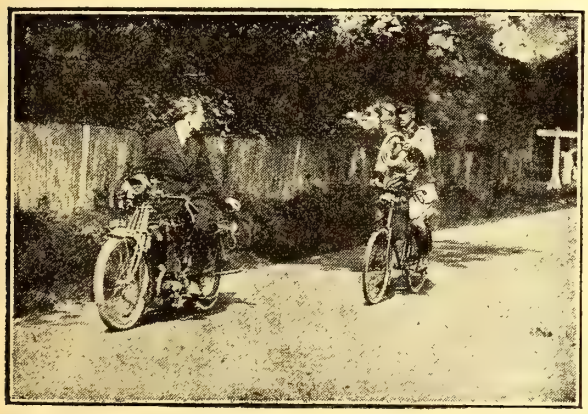
All property found on the road by a patrol is sent to the office to which he is attached and full particulars to the London Office. If the article is of any value a full description is given to the local police and advertised in the motoring press.

The patrols report upon all matters likely to affect the relations between

motor cyclists and the general public.

Their reports give the date, time, and place, number of cycle, name and address of owner, names and addresses of all persons present, with any information they are prepared to give, particulars of road, situation, condition, etc.





Patrols are forbidden to ask for gratuities. Nor are they permitted to ask for or receive, directly or indirectly, any sum by way of commission or allowance from the Association's Official Repairers or others, for the introduction of business.

Each patrol is supplied with a packet of telegraph forms for the convenience of members who may wish to send telegrams.

In addition to being entitled to the services of the A.A. patrols in the above connections, members of the Automobile Association

enjoy other privileges,

including Free Legal Defence and Advice, Special Insurance Facilities, Engineering Assistance, the Preparation of Tours (home and abroad), Appointed Repairers and Hotels throughout the United Kingdom, etc.

Every motor cyclist who desires information as to all the privileges enjoyed by members of the Automobile Association should read the booklet, "The Key to the Open Road," a copy of which can be obtained from the Secretary, A.A. & M.U., 41, Fanum House, Whitcomb Street, London, W C.2

Send a post-card to-day.

CIVIL AERIAL TRANSPORT NOTES.

United Kingdom.

The Crown Prince of Roumania, accompanied by Lady Mainwaring, made his first flight on July 1st in a Handley Page, piloted by Lieut.-Col. Douglas. The machine flew over London at a great height.

WESTON-SUPER-MARE.

Two aerodromes are to be built at Weston-super-Mare, one on the sands. The promoters expect to run a passenger service to Cardiff, Barry and Bristol. There is difficulty in securing a suitable landing ground at Cardiff.

LIVERPOOL.

The formation of a flying club at Birkdale is under consideration. The beach is a fine expanse of hard and level sand, suitable for an aerodrome. The objects would be to enable ex-Service pilots to continue their flying, to organise competitions and to encourage aerial transport. Correspondence should be addressed to Major W. G. McMinnies (late R.A.F.), 18, Gloucester Road, Birkdale, Lancs.

AVRO JOY RIDES.

If an average of 100 people, paying something over £1 each, are flown every day in three Avro machines, one would think that the owners of the machines ought to pay a dividend. The proprietors of the machines, A. V. Roe and Co., Ltd., certainly did during the war, and are now doing their best, to make money out of civil aviation. They have obtained the services of Lieut.-Col. G. L. P. Henderson, M.C., and have put him in charge of the flying, and have started their first passenger-carrying at Hounslow, a good spot, but terribly inaccessible. They have hired a hangar from the Government, who, helping Civil Aviation all they can, charge 5s. for each landing made, and require the engines to be overhauled as soon as they have nicely recovered from the last overhauling.

Major A. G. Taylor, A.F.C. (late R.F.C. and R.A.F.) is in charge at Hounslow, and has four or five ex-R.A.F. pilots as his assistants

At present there are seven machines in flying order, two 5-seaters, two 3-seaters, a two-seater with dual control, a Baby Avro, and the limousine 3-seater, in which the honeymoon couple recently went down to Cornwall.

Some 250-300 passengers are carried on Saturdays, and on Mondays about 60, which is certainly not bad for the worst day of the week. More than half the ladies want to be stunted, and one of 78 years of age appears at the aerodrome regularly, and says that her health is much better now she has taken up flying —perhaps it is the castor oil.

Business men who wish to go anywhere in a hurry can hire a machine at any time, and tickets for joy-rides may be obtained at all the London theatre agencies.—G. L. D.

The Avro Flight Aerodrome near Manston, Kent, is under the direction of Captain Duncan Davis, A.F.C. (late R.A.F.). Seventy-four passengers, including the Baroness Campbell, were taken up during the week ending July 6th. The Managing Director of John Barker and Co., who is staying in the district, intends to fly to London this week.

The Ladies Mile Aerodrome at Brighton, under the management of Captain D. I. M. Kennard, will be opened on Saturday, July 12th.

The following interesting flights were made during the week ending July 6th :—

On Thursday, July 3rd, representatives from the Palladium flew over London in a five-seater Avro machine, dropping Joy Loan leaflets.

On Saturday, July 5th, a three-seater machine made a cross-country flight to Woburn Sands and return.

Since Thursday, July 3rd, the "Evening Standard" has been delivered daily to Southsea.

The Rev. A. W. R. Little made use of an aeroplane on Sunday, July 6th, in order to fulfil his engagements.

In the morning he preached at the Blackpool Parish Church; in the afternoon he travelled to Blackburn by train and preached there, and directly afterwards he flew back to Blackpool in an Avro, arriving in time to preach at the Peace Thanksgiving Service on the Princess Parade.

India.

The Government is considering a definite project for an aerial mail service between Cairo and Karachi, *via* Baghdad.

France.

M. Henri Deutsch de la Meurthe, President of the Aero Club of France, has given £80,000 to the club for the purpose of organising flying meetings.

Germany.

An advertisement in the "Deutsche Zeitung" states that an air service has been started by the Luft Fahrzeug Ges. m.b. H. from Stralsund to Sassnitz, Binz, Sellin, Gohren and connections with the air line, Berlin-Stralsund of the aviation traffic company, Sablatnig.

The rates for passengers from Stralsund to any of the above seaside resorts is 150 marks; from Berlin to any of the above, 750 marks, and from Berlin to Stralsund 600 marks.

The Hamburg-Amerika Line advertises regular air services, daily, for passengers and freight, between Berlin-Leipzig-Weimar, Berlin-Hanover-Gelsenkirchen, Berlin-Hamburg.

Rumpler Werke A.G. Berlin. In the general meeting held recently a dividend of 15 per cent. was voted, and it was decided to wind up the company. The liquidation will not be done at once, but will take several years. The Board is of opinion that it is impossible to make machines for peace or civilian uses without heavy loss. Directors Rumpler and General Oschmann have been re-elected. Director Aumer of the Bavarian Rumpler Works has been elected liquidator of the company.

According to the "Nieuwe Rotterdamsche Courant" of June 29th, the Hanseatische Flugzeugwerke Karl Caspar A.G. of Hamburg have decided to wind up.

According to the "Hamburg Correspondent" of June 18th, the "Deutsche Luft Rhederei" has introduced a tariff in order to increase the use of the aerial packet. The freight is 5 marks per kilogram (minimum 10 marks with a maximum weight of 10 kg. per parcel). Parcels are accepted every day up to 2 p.m. for that day's journey, starting at 3 p.m., in the office of the Hamburg-Amerika Line, 25, Alsterdam, Hamburg.

According to the "Hamburg Nachrichten" of June 17th, owing to shortage of raw materials the aerial postal services will be discontinued.

Although the first account is the more detailed, it is difficult to say which paper is less given to untruthfulness.

During the Kiel week (regatta) the train service will be relieved by special air lines.

Aeroplanes will be ready in Hamburg to collect travellers coming by air from Berlin, and take them to Kiel. At the same time, from Kiel, aeroplanes will connect with the regular Hamburg-Berlin service. Further, aeroplanes will be available at Kiel for short flights. If successful, the new Kiel-Hamburg service will be maintained.

Holland.

Mr. A. H. Fokker is conducting a series of lectures on the use of the aeroplane for surveying and topographical purposes.

Fokker, who is making great efforts to popularise aviation in Holland, has now decided to run an aeroplane with no motor. This will be trailed in the air by a Fokker machine and will then be released. The builder has secured the services of Serjt. Van der Drift to do this highly risky and needless flight.

From July 1st a passenger and goods service will be undertaken by Fokker, starting from the beach at Scheveningen. Various Dutch authorities have promised their assistance. In the former Scheveningen power house, the aeroplane will find both a repairing shop and shelter. This makes an aerial port of The Hague. On June 27th the chief pilot, van der Drift, brought the first aeroplane from Amsterdam to Scheveningen. This is the first machine for the new service.

In order to examine the possibility of creating a postal Air Service, Amsterdam-Groningen, a hydroplane left Amsterdam on June 17th to fly to Paterwoldscke Meev. The crew was composed of a naval officer and a corporal

The city of Amsterdam has granted a subsidy of 130,000 guilders to the E.L.T.A. (aeroplane exhibition).

Italy.

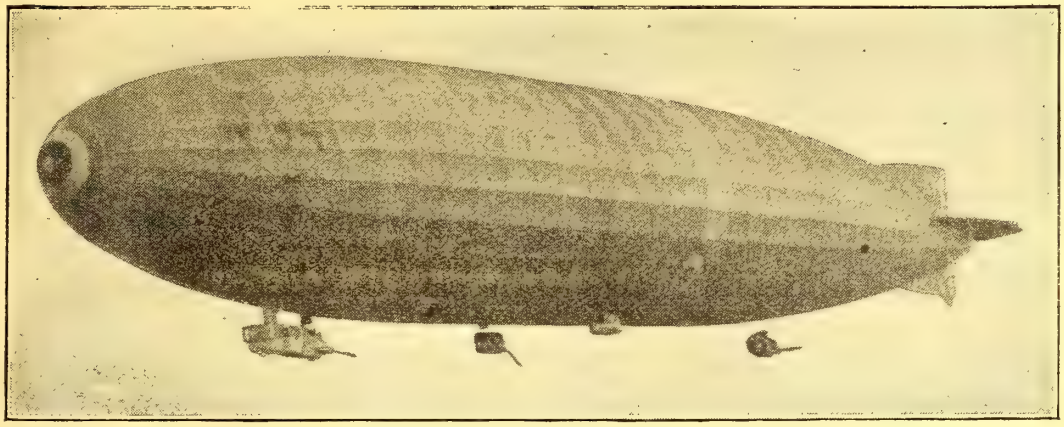
The Fiat Company of Turin, Italy, are arranging a non-stop flight from Rome to Kenley, near Croydon, a distance of 1,100 miles, early in July.

The machine, a two-seater biplane, type B.R., fitted with a 650-700-h.p. 12-cylinder engine, is entirely Fiat built. The maximum speed is 160 m.p.h., and it is expected that an average speed of 145 m.p.h. will be attained.

After the arrival in London the machine will continue its flight to Copenhagen, and from thence to Amsterdam for the Aeronautical Exhibition.

Denmark.

The aviation experience of Copenhagen has shown that Denmark is taking a lively interest in the new industry, and that the country will probably be a fine market for all aviation industries. There is no reason to wonder at it since several interested nations have been working Denmark as a prospective client. The Hamburg pilot, Thiele, is trying with Swedish and Danish capital to realise a plan whereby a regular aerial service could be maintained from Copenhagen to Germany. Fifteen Fokker machines are to be sent from Germany for that purpose. With these aeroplanes, each of which can carry four paying passengers,



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An unbroken record of successes on all types of Aeroplanes and Airships.

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it is expected to establish regular aerial connections all over Denmark.

Further, it is proposed to establish an aviation works near Copenhagen together with a flying school. To realise these plans, all that is needed now, is the official authority. Meanwhile both from the Austrian and the English side there is very lively competition. The Phœnix works in Vienna has sent two of its star flyers, Spermann and Perrini, to Copenhagen, and expects to find a ready market there for these machines.

From the English side Vickers have sent a machine to Copenhagen of the same type as the one which accomplished the trans-Atlantic flight.

The machine is able to carry, besides its crew, 11 to 17 passengers as well as fuel for a 5 hours' journey.

As regards postal or other parcels 2,900 kilos. can be carried. Major Jullerot, of Vickers, Ltd., is expected to examine the possibility of establishing a London-Copenhagen service.

SCANDINAVIA.

A Scandinavian Committee is negotiating with the newly founded Luftfartsrederei in order that Bergen be made a starting point of new aviation routes and, further, in order that an aviation ground and school be established there.

The conference held a few days ago in Christiania, between the Scandinavian accident insurance companies, has decided to syndicate all Scandinavian companies in respect of risks resulting from aviation. Fourteen Danish, four Finnish and four Norwegian companies are joining the syndicate.

SWITZERLAND.

From Interlaken comes the news that an English concern of aerial transporters are engaged in pourparlers with the authorities and the Verkehrsvereine for the hire of an aerodrome on l'Allmenda Unterseen. It is stated that their idea is to start a passenger service between London and Paris, and Interlaken, Lucerne, and Lausanne with super machines carrying thirty to forty persons!

It took Bider exactly 7 hours 28 min. to accomplish the Tour de Suisse. His stages were as follows:—Bale-Geneva, 1 hr. 54 min.; Geneva-Lausanne, 21 min.; Lausanne-Bellinzone, 1 hr. 55 min.; Bellinzone-Ems, 53 min.; Ems-Bale, 2 hrs. 25 min.

It is reported that Lieutenant Bider, who was the first aviator to cross the Alps and the Pyrenees, crashed while flying near Dübendorf, and was killed.

U.S.A.

PREPARING THE WAY.

The following is taken from an American official publication:

In the interest of recruiting and for the purpose of charting, laying out an aerial mail route, and collecting data as to municipal and emergency landing fields a special trans-continental flight will be organised by the Air Service of the Army to leave Hazelhurst Field, L.I., N.Y., on or about July 6th, having as its destination Seattle, Washington.

The tentative route will be across the States of New Jersey, Pennsylvania, Ohio, Indiana, Illinois, Wisconsin, Minnesota, North Dakota, Montana, and Idaho. Stops will be made at Philadelphia, Pittsburg, Columbus, Indianapolis, Chicago, Milwaukee, St. Paul, Minneapolis, Fargo, Bismarck, and other points en route. A distance of some 3,200 miles will be covered.

The aircraft used will consist of four Curtiss J.N.4H. planes, and Type R. Obs. balloon.

The feature of the trip will be the observation balloon demonstration. This will be transported on trucks and inflated at several of the places where stops are made. The observation balloon will be the type R. used on the front.

The motor transport equipment will consist of a complete machine shop with all the repairing machinery necessary carried on trucks and lorries.

Special attention will be given to photography so that when the trip is finished no data will be lacking for the laying-out of a perfect aerial lane from New York to Seattle.

The personnel of the party has not yet been decided, but it will consist of 16 officers and 36 enlisted men.

Eighteen to 20 weeks' time will be devoted to the work, and the results will determine the route of the return trip.

PROGRAMMES, PEACE, AND PYLONS.

No one could call the Hendon Peace Meeting, which occurred on Saturday, July 5th, a big event or a success. It was lucky for the public that it was not advertised more, for had it been perhaps more than the few hundreds of people who did go to see it would have been disappointed.

Outside the entrance gates one was set upon by small boys demanding threepence for a souvenir programme, the souvenir part of it consisting of a sparkling account of the Aerial Derby, surely a little stale now. With the programme a sixpenny copy of the Hawker-Grieve souvenir is thrown in, slightly older still, but apparently given to afford some reading matter during the long waits during the heats of the race.

The following is the list of pilots and machines flying in the speed handicap according to the souvenir programme:—

1. Lieut. C. Turner, A.F.C. B.A.T. "Bantam" (170-h.p. A.B.C. "Wasp").
2. Capt. P. R. T. Chamberlayne. Grahame-White "Bantam." (80-h.p. Le Rhône).
4. Lieut. R. S. Park, A.F.C. Avro (110-h.p. Le Rhône).
5. Major R. H. Carr, A.F.C., D.C.M. Grahame-White "Bantam "(80-h.p. Le Rhône).
12. Major C. H. C. Smith, D.S.C. Bristol monoplane (80-h.p. Le Rhône).
14. Lieut.-Col. G. L. P. Henderson, A.F.C., M.C. Avro "Baby" (35/40-h.p. Green).
19. Capt. D. H. Robertson, A.F.C. Avro (110-h.p. Le Rhône).
20. Capt. G. R. Hicks, D.F.C. Avro (110-h.p. Le Rhône).
21 Capt. G. Gathergood, A.F.C. Airco "D.H. VI." (90-h.p. R.A.F.)

On glancing down it one is struck by the fact that there is only one racing machine mentioned, the B.A.T. "Bantam," and that machine did not perform, neither did the Bristol monoplane, so it was impossible for the race to be extraordinarily thrilling.

According to the souvenir programme again, the Hendon Peace Meeting was at 3.30 p.m., and the speed handicap over the aerodrome pylon course at 4 p.m. What was one expected to do between 3.30 and 4—rejoice a little? Except listening to the band or watching the carroty Avros taking up passengers there was nothing else to do, with the exception of getting wet, which was very easy, and getting wet *externally* does not go well with rejoicing.

Eventually four machines lined up with their tails towards the audience: Gathergood on the D.H.6, Park on his Avro, Robertson on a carrot Avro, and Chamberlayne on the G.W. monoplane. The D.H.6 was given 19 seconds' handicap allowance, and the Avros 13 seconds. Before starting the pilots were muddled as much as possible by contradictory rules of the race given by the various officials—strange people.

The D.H.6 went off first, and the Avros having the same handicap were started after 10 sec. interval. Park, in the first Avro, caused a little excitement by sweeping the ground with his right wing tip when taking off. They went round the pylons four times, all flying as close to the ground as possible, the G.W. passing the two Avros and coming in second.

The second heat occurred some time afterwards. Lieut.-Col. Henderson, on the "Baby" Avro, having 19 seconds' start of Hicks and Carr, both on Avros, was passed by them easily.

Then the rain came down in earnest, and there was a rush for the pavilion, and many wished to obtain tea, but the waitresses were insufficient. The rain delayed the final till six o'clock, and no entertainment was provided. Lieut.-Col. Henderson and Lieut. Park wisely departed before the final event.

In the final, Capt. Gathergood, D.H.6, was given 28 secs. handicap allowance, Carr and Hicks, on Avros, 19 secs., and Chamberlayne on the G.W. monoplane was scratch. In the second of the six laps Capt. Gathergood had to land owing to engine trouble, and Capt. Chamberlayne, passing the Avros, came in first, winning the race.

Capt. Chamberlayne went up again after the race, and after doing some stunting struck a hangar support and crashed, but was not seriously hurt.

In the long intervals between the heats no entertainment was provided, no professors did parachute descents, nor did anyone stunt. Perhaps it was intentional, so as to draw attention to Mr. Grahame-White's land-yacht, which ambled slowly up and down the asphalt path. It was very slow.—G. L. D.

THE HENDON SUMMER MEETING.

A 20-mile cross-country handicap for the Hendon Trophy and £30, will be held at the London Aerodrome, Hendon, at the Summer Meeting, on Saturday afternoon next, July 12th, at 4 p.m.

The course, of which five laps must be flown, is round the aerodrome pylons and a point about two miles out, i.e., Bittacy Hill—a distance of approximately four miles.

It is expected that the pilots will include Mr. C. B. Prodger, Major C. Draper, and Mr. C. Turner on B.A.T. machines; Mr. Chamberlayne, Major Carr, Messrs. Hicks and Robertson on Grahame-White biplanes; Mr. Park and Mr. Hammersley on Avro biplanes, the latter flying the Avro "Baby"; Capt. Gathergood and Mr. Manton on Airco biplanes; and Major Smith on a Bristol monoplane.

Entries close at 12 noon on Thursday next, the 10th inst.

At intervals during the day, Special Flying Displays and Passenger Flights will be carried out, and these will be repeated on the following day.

Additional enclosure accommodation has now been provided, and admission to the aerodrome is now from 9d., plus tax. Children half price.

Special Flying Displays will be given on the following afternoon, Sunday.

"CIVIATORY."

It is notified by the Air Ministry for information that "Civiatory" has been registered as the telegraphic address of the Civil Aviation Department, Air Ministry, India House, Kingsway.

Historic Peace Message

Brought to H.M. The King by Airco 4a.

THE aeroplane which brought the historic Peace message on Saturday June 28th from Mr. Lloyd George to the King was one of the famous Airco 4A machines with a Rolls-Royce Motor.

This machine has constantly been selected by the authorities for conveying urgent messages between London and the Peace Conference, while Mr. Bonar Law, General Seely, and other Ministers of State have made numerous journeys in it.

The Airco 4A makes the 250 miles flight from Paris to London in an average time of 2¼ hours, and it is the sheer speed of this machine which renders it an indispensable means of communication between the two Capitals.

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Lot. S.B.5/15. Standard type—42 American Type Kite Balloons. New and complete with all Spares, packed in crates ready for transport.
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,, Canvas secondhand--In fair condition about 20 tons repairable Covers, Walls and Curtains, etc., for Aircraft Hangars—Packed in bales ready for transport—suitable for use as Tarpaulins. Stored at Midland Railway Granary Stores, St. Pancras.

AIRSHIP GASBAG MATERIAL (Secondhand).

Lot. S.B.5/15. Rubber proofed Cotton Fabric lined with Goldbeater's skin—quantity about 7,000 square yards—weight about 2½ tons, now lying at R.N. Store Depot, White City, W.12.

BALL BEARINGS.

Lot. S B.6/16. Hoffman, Skefko, Volvo, R.B.F., S.R.O., M.A.B. and other makes, about 6,900 in various sizes.

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The Controller, Aircraft Disposal Department, Kingsway, W.C.

Tenders are returnable by July 21st, 1919.

For Detailed List of all Surplus Government Property for Sale apply at the nearest Bookstall for "Surplus," Price 3d., the official organ of the Surplus Government Property Disposal Board.

AIRCRAFT FINANCE

THE POSSIBILITIES OF A REGISTRY.

There is some inspiration to be derived from the appointment of the Standing Advisory Committee on Civil Aviation. This inspiration springs not so much from the specified objective of the Committee, but rather from the personality and qualifications of the Committee itself.

NAMES TO CONJURE WITH.

First of all there is Lord Inchcape of the P. and O., who is pre-eminent in the shipping industry and has a very considerable and an active interest in other things, including banking. Then there is also the Chairman of Lloyd's (Mr. Charles Irving de Rougemont). The combination of these two authorities may result in appreciable benefits to the aviation industry. The remainder of the Committee are excellent in their particular spheres, but one is inclined to attach more significance to the conjunction of the leader of shipping and the head of Lloyd's.

PATIENCE WILL BE REWARDED SOON.

In the opinion of some people the question of a Registry of Aircraft and also of Pilots and Navigators generally, on the lines of Lloyd's Shipping Register, is not advancing so promisingly as one would wish in the interests of aviation and the immediate future of the industry.

This is a pity. Perhaps some people, however, are inclined to be just a little impetuous, forgetting not only the natural obstacles inseparable from the creation of a new scheme, but also the fact that aviation, as a commercial proposition, has not yet reached puberty.

ESSENTIAL FACILITIES.

When everything is taken into consideration, the impatience is justifiable. No one can deny that a Register of Aircraft and of Navigators, on similar lines to Lloyd's system in connection with shipping, is positively essential for the proper and efficient development of commercial aeronautics. The matter was fully discussed herein a few months ago, and was considered premature in several quarters.

A START IS NEEDFUL.

In taking the parallel of shipping one must confess that the Registry grew up with the progress of that particular industry, and only attained its present perfection by years of strenuous work and unremitting care. Likewise must the Aircraft Registry grow. It is, as a matter of fact, growing coincidently with the increase in insurance facilities and the expansion in that business.

CENTRALISATION IMPERATIVE.

But it is not growing on centralised lines. On the contrary, each Office necessarily considers that the knowledge collated through its individual experience of aviation insurance is its own private property and is not for the benefit of any competing Office. This attitude is quite justified. But it is obvious that development on such lines necessarily vitiates the general utility of the scheme.

There must be centralisation to begin with, and the principles laid down for the standardisation of aircraft must be determined by a representative and competent body of experts fully conversant with all that pertains to practical aeronautics and aircraft construction. Without such a representative body there will be the idiosyncrasies of faddists and the disabilities of incompetents to fight against.

THE INITIAL EXPENDITURE IS AN OBSTACLE.

The initial cost of the elaboration of such a scheme is an obstacle of some difficulty. Frankly, in the course of time a Registry must come. It will grow concurrently with the development of commercial aviation, but in a case like this it would be better to anticipate events with a view to accelerating progress rather than allow matters to drift along normally.

THE PARALLEL OF SHIPPING.

In these circumstances it would appear to be the soundest policy for the State to take a participating interest in the elaboration of the scheme. The State has enacted certain regulations with the object of safeguarding the public. It is but a small step to collaborate with the pioneers of commercial aviation, and for the State to enlarge its interest so as to enable the industry to start its career with some degree of standardisation.

The benefits would be reciprocal. The cost of the pioneering, if divided between the State and the industry (through the agency of the insurance world) would be whittled down appreciably.

Those who are impatient at the absence of any definite development on these lines may take heart from the appointment of the Committee. Already there exists a scheme of registration for navigators. The State, through the medium of the Board of Trade, puts the hall-mark of efficiency in navigation and seamanship on mariners. Similarly Lloyd's acts as a sort of deputy for the State in branding ships. It is up to the State to do likewise with the next industry, commercial aviation.

W. J. DAVIES.

CURRENT TOPICS.

PROPOSED WHITEHEAD AIRCRAFT LIQUIDATION.

The affairs of the Whitehead Aircraft (1917) seem to be developing rapidly. A voluntary liquidation is now proposed. With this object in view an extraordinary meeting is called for the 11th at Cannon Street Hotel, E.C. The resolution to be submitted is: "That the company be wound up voluntarily, and that Oliver Sunderland, of 15, Eastcheap, accountant, and chairman of the Creditors' Committee, and Charles Furley Oldham, of Feltham, representing the shareholders, be and they are hereby appointed liquidators for the purpose of winding up."

Should the resolution be passed by the requisite majority, it will be submitted as a special resolution to a second extraordinary meeting to be subsequently convened. But why voluntary liquidation?

NEW COMPANIES.

BISHOP-BARKER AVIATION CO., LTD. Private company. Registered May 31st. Capital, £10,000 in £1 shares (5,000 participating preference). To carry on in the United Kingdom, the U.S.A., France, Canada, and elsewhere, the business of carriers by air, flying school owners, proprietors and compilers of registered aircraft, aerial cinematographers, manufacturers of aircraft and spare parts, etc. The subscribers (each with one preference share) are:—J. F. Seacombe, 18, Finch Lane, E.C.3, clerk; H. J. Gay, 18, Finch Lane, E.C.3, clerk. First directors: Lt.-Col. W. A. Bishop, V.C., etc., Lt.-Col. W. G. Barker, V.C., etc., and Capt. R. L. Lott. Solicitors: Simmons and Simmons, 18, Finch Lane, E.C.

AVIATION TRANSPORT INTERNATIONALE, LTD. Private company. Registered June 5th. Capital, £1,000 in £1 shares. Manufacturers of and dealers in aircraft (including flying boats), operators of postal, passenger and freight services in the United Kingdom and elsewhere, etc. The subscribers (each with one ordinary share) are:—T. F. Cowan, 15, Duke Street, Adelphi, W.C. aero engineer; J. G. Freeman, 18, Eldon Street, E.C., solicitor. T. F. Cowan is permanent governing director. Registered office: 15, Duke Street, Adelphi, W.C.

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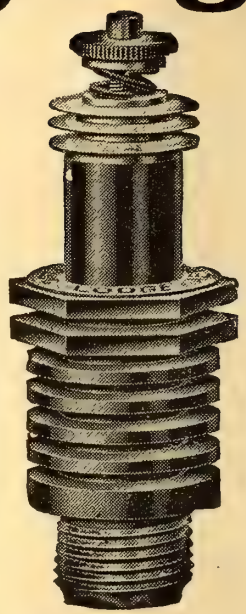

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NAVAL & MILITARY AERONAUTICS

GREAT BRITAIN.

NAVAL.

ADMIRALTY APPOINTMENTS.

The following appointments have been made :—
July 1st.—Art. Engr.—F. W. M. May, to "Vindictive," June 20th.

* * *

It was reported from Kem on June 30th that British seaplanes operating with the Royal Navy had bombed the Bolshevik positions. Damage was done to various buildings and a train was destroyed. Two of the seaplanes were shot down by machine gun-fire, but the crew contrived to reach the British lines. There were no casualties.

During the end of June or the beginning of July the Naval seaplanes took part in an action on Lake Onega, and succeeded in sinking a Bolshevik paddle steamer which was conveying troops.

* * *

It was stated in the Press on July 5th that a detachment of the Royal Navy will take part in the Peace Celebrations at Southend on July 19th. A Flying Squadron will be included in the detachment.

MILITARY.

FROM THE "LONDON GAZETTE."

WAR OFFICE, July 2nd.

REGULAR FORCES.—ROYAL REGIMENT OF ARTILLERY.—R.H. and R.F.A.—Maj. V. A. H. Taylor to be secd. for service with the R.A.F., Aug. 22nd, 1918.

WAR OFFICE COMMUNIQUÉ.

The War Office made the following announcement on July 2nd :—

MURMANSK.—Our seaplanes have bombed the station of Kyapeselga, 15 miles south of Medvyega Gora, and secured a direct hit with a heavy bomb on a moving train. A portion of the train was demolished, and the engine is reported as lying in a crater. Enemy A.A. guns and machine-guns have been very active against our planes, several of which have been hit. One machine brought down by machine-gun fire crashed in the forest, both pilot and observer found their way back to camp.

The R.A.F. have done splendid work, both along the railway and against the enemy's flotilla. After an attack by bombs and machine-guns one of the enemy vessels ran ashore. Successful bombing by seaplanes and also observation of gunfire has been rendered very difficult by forest fires.

The following casualty was announced on July 2nd :—

CANADIAN FORCES.—WOUNDED.—Neil, Lt. D., Can. For Corps, attd. R.A.F.

* * *

A message dated June 15th states that during the recent fighting to relieve Jandola, Afghanistan, aeroplanes were used to assist in the dispersal of the tribesmen.

* * *

It is now reported by Bolshevist wireless that the two British aviators taken prisoners in the Astrakhan district are Col. Van der Spuy and Mr. Ingram (rank unknown). They have been taken to Moscow. A third aviator was killed while attempting to escape.

AIR FORCE.

FROM THE "LONDON GAZETTE."

AIR MINISTRY, July 1st.

R.A.F.—The following temp. appts. are made at the Air Ministry :—Staff Officer, 2nd Class (P.).—Paymr. Lt.-Comdr. H. L. Jackson (R.N.), Feb. 13th, and is granted a temp. commn. as Maj. (T.).—Lt. J. G. N. Clift, April 1st, 1918, to Sept. 1st, 1918, and to be actg. Maj. whilst so empld.

Staff Officer, 3rd Class (T.) —Lt. (actg. Maj.) J. G. N. Clift, Sept. 2nd, 1918, from S.O., 2nd Class, relinquishing the actg. rank of Maj., and to be actg. Capt. till April 30th.

The following temp. appt. is made :—Staff Officer, 3rd Class (P.).—Capt. R. R. L. Thom, June 1st.

FLYING BRANCH.—Maj. R. B. Ward to be actg. Lt.-Col. whilst empld. as Lt.-Col. (A. and S.), June 16th.

Capt. L. P. Paine, D.S.C., to be graded for purposes of pay and allces. of Capt. (S.), and to be actg. Maj., without the pay and allces. of that rank, March 25th.

Capts. to be graded for purposes of pay and allces. of Capts. whilst empld. as Capts. :—L. C. W. Trend (A. and S.), Feb. 3rd; L. G. Le B. Croke (O.), May 1st; Lt. R. P. M. Whitham to be actg. Capt. whilst empld. as Capt. (A.), from April 30th, 1918, to April 30th.

Lt. T. A. Warne-Brown, D.S.C., to be graded for purposes of pay and allces. of Capt. whilst empld. as Capt. (A.), May 1st.

Lt. S. W. Symons to be Lt. (A.), from (T.), Dec. 31st, 1918.

Sec. Lts. to be Lts. :—(Hon. Capt.) A. A. J. Poole, May 31st, 1918; (Hon. Capt.) F. R. Ashmead, Aug. 23rd, 1918 (substituted for notification in "Gazette," March 7th); F. Coxen, Nov. 2nd, 1918; A. E. N. Ashford, April 25th.

R. E. Shears (temp. Lt., Glouc. R.) is granted a temp. commn. as Sec. Lt. (O.), Oct. 27th, 1918, and to be Hon. Lt. (substituted for notification in "Gazette," Dec. 10th, 1918).

The following relinquish their commns. on ceasing to be empld. :—Lt. (Hon. Capt.) J. Hirschberg (Capt., N.Z. A.S.C.), Dec. 28th, 1918; Sec. Lt. S. Hodgson (Sec. Lt., Suff. R.), April 2nd; Capt. I. C. Barclay (Capt., Seaforth Highrs.), April 16th; Lt. E. F. J. Bull (Lt., Worc. R.), June 12th; Sec. Lt. (Hon. Capt.) H. R. Dennison (Capt., Brit. Col. R.), Lt. C. R. Hall (Lt., Quebec R.), June 18th; Sec. Lt. (Hon. Lt.) J. W. Grant (Lt., E. Ont. R.), Lt. E. T. Lough (Lt., actg. Capt., Manitoba R.), June 19th.

Transferred to the unempld. list :—Lt. H. H. Howard, Jan. 28th; Sec. Lt. J. D. Ford, Feb. 15th; Lt. G. G. Newbury, Feb. 19th; Lt. J. Chapman, March 1st; Sec. Lt. L. S. Davis, March 17th; Lt. A. G. Fletcher, March 18th; Lt. A. S. Rawlinson, March 30th; Sec. Lt. L. A. Holley, April 1st; Lt. W. Hall, April 2nd; Sec. Lt. R. J. H. Ganson (Gordon Highrs.), April 9th; Capt. R. H. Hood, April 10th; Sec. Lt. A. J. C. Gormley, Sec. Lt. A. J. McGoldrick, April 11th; Sec. Lt. C. S. Lammiman, April 12th; Sec. Lt. L. J. Emerton, Lt. R. I. Fowler, Lt. J. L. Haight, Sec. Lt. W. N. Harrison, Sec. Lt. J. John, April 13th; Sec. Lt. W. R. Gatewood, Capt. C. S. Hay, A.F.C., Capt. (actg. Maj.) J. McKelvie, April 15th; Sec. Lt. S. F. Morice, April 17th; Sec. Lt. R. A. P. Johnson, Lt. G. F. Metson, April 18th; Sec. Lt. J. U. Eddy, Lt. F. W. McCarthy, Sec. Lt. G. L. Winterbottom, April 19th; Sec. Lt. S. Horne, Sec. Lt. C. T. R. John, April 21st; Sec. Lt. O. F. Harrison, Sec. Lt. (Hon. Lt.) C. J. Paterson, April 22nd; Sec. Lt. J. H. Mitchell, April 23rd; Sec. Lt. C. E. Jackson, Sec. Lt. C. W. Jones, April 24th; Sec. Lt. E. Havers, Sec. Lt. J. A. Howard, April 25th; Sec. Lt. (Hon. Lt.) C. G. R. Lewis, April 26th; Sec. Lt. L. Edwards, April 27th; Capt. E. de C. Halifax, D.S.C., Sec. Lt. R. C. Howken, April 28th; Lt. E. R. Haines, Lt. C. H. Harrison, April 29th; Lt. J. C. H. Hartley, May 1st; Lt. C. A. W. Gallagher, Maj. J. W. Jardine, May 5th; Sec. Lt. N. Little, May 6th; Sec. Lt. (Hon. Capt.) B. R. Collison (Capt., King's Lpool. R., T.F.), Sec. Lt. T. Jones, Sec. Lt. M. R. Jordon, May 8th; Sec. Lt. A. Hawthorn, Lt. R. S. Warwick (substituted for notification in "Gazette" of May 20th), May 9th; Sec. Lt. A. C. Harper, May 13th; Sec. Lt. R. Stafford-Langan, May 14th; Lt. H. A. Hannay, Capt. J. Hodson, Lt. W. E. Watts, May 15th; Lt. D. R. MacLaren, D.S.O., M.C., D.F.C., May 16th; Lt. C. W. Browne, Sec. Lt. J. D. Hall, Lt. G. S. L. Hayward, Sec. Lt. T. R. Lole, Lt. R. Wallace, Lt. F. H. Webb (R. War. R.), May 17th; Lt. J. G. Prestwich (R.A.S.C.), Sec. Lt. J. Wallis, May 18th; Lt. E. I. Cummings, Sec. Lt. H. Eckley, Sec. Lt. B. F. Hale, Sec. Lt. A. P. Hancock, Sec. Lt. D. C. Hay, Sec. Lt. H. Northrop, Sec. Lt. W. B. Richardson, Lt. F. W. Scriver, Sec. Lt. G. J. C. Tigar, May 20th; Lt. G. R. Hake, Sec. Lt. F. Wilde, May 21st; Capt. W. C. Gage (substituted for notification in the "Gazette" of March 21st), Lt. E. S. C. Sen, May 23rd; Sec. Lt. E. D. Cowdery (R.F.A.), May 25th; Lt. F. H. St. C. Sargant, D.F.C., May 26th; Lt. R. A. Nunn (Middx. R., T.F.), Sec. Lt. W. H. Taylor, May 27th; Lt. B. J. Bevan, Sec. Lt. F. L. Collison, Lt. T. H. Formby (R.G.A.), Lt. C. C. Miller, Lt. D. H. Montgomery, Lt. F. P. Turner, May 28th; Lt. T. J. Arthur, Lt. T. G. Rae, May 29th; Sec. Lt. A. H. Allardyce, Sec. Lt. J. D. Dick, Sec. Lt. C. C. Fisher, Sec. Lt. (Hon. Capt.) H. H. McColl, M.C., May 30th; Sec. Lt. G. R. B. Dixon, Sec. Lt. J. B. Erskine, Sec. Lt. G. D. Green, Sec. Lt. W. O'Brien, May 31st; Sec. Lt. R. Cookson, Lt. C. Curtis, Maj. S. T. Dockray, Sec. Lt. K. L. Gomm, Capt. D. L. Ingpen, Sec. Lt. R. H. Taylor, June 1st; Sec. Lt. F. A. L. Addison, Sec. Lt. R. Clarkson, Sec. Lt. F. T. Edwards, Sec. Lt. A. G. Harris, Sec. Lt. D. Miller, Lt. C. M. Mortimer (R.F.A.), June 2nd; Lt. L. E. Edmunds, Sec. Lt. A. H. Fraser, Sec. Lt. W. Geary, Sec. Lt. B. W. Hammond, Lt. J. T. Rymer, June 3rd; Lt. (Hon. Capt.) C. G. Bellord, Lt. W. H. Jackson, Lt. E. Squire, Capt. S. J. Woolley, June 4th; Sec. Lt. G. G. Creusen, Sec. Lt. W. L. Field, Sec. Lt. W. George, Lt. R. V. Jennings, Lt. (Hon. Capt.) W. J. Mostyn, Lt. H. S. Newman (Welsh R.), Capt. C. R. H. Stewart, Lt. C. E. Stuart, June 5th; Lt. D. F. Evans, Lt. H. J. C. Spencer, Sec. Lt. A. Wroot, Lt. G. Ezard, June 6th; Lt. H. L. Jones, Sec. Lt. W. D. Moffatt, June 7th; Sec. Lt. W. D. Brownlee, Lt. A. S. Selby, Sec. Lt. I. J. Whittal, June 8th; Lt. F. R. Walpole, June 9th; Lt. E. R. Bruce, Lt. H. Burns, Sec. Lt. C. F. D. Evans, Sec. Lt. A. E. Griffiths, Sec. Lt. V. H. Lawrence, Lt. R. R. Macintosh, June 10th; Lt. N. McN. Beaton, Sec. Lt. H. Carding, Sec. Lt. W. F. C. Cooper, Sec. Lt. M. de Verteuil, Sec. Lt. S. I. Foster, Capt. J. Gamon, D.S.C., June 11th; Sec. Lt. L. S. H. Bartlett, Capt. H. C. Morris, Sec. Lt. W. H. Morris, Lt. F. V. Webb, June 12th; Sec. Lt. R. P. S. Davidson, Lt. R. A. Fawcett, Lt. D. Gardiner, Lt. L. S. V. Gedge, Sec. Lt. C. B. S. Gilliat, Sec. Lt. P. A. C. Gillies, Capt. H. Meintjes, M.C., Lt. H. C. M. Nangle, Sec. Lt. J. F. Strugnell, June 13th; Sec. Lt. E. G. Barnes, Sec. Lt. L. C. Ellis, Sec. Lt. E. Glaholm, Lt. B. L. Norton, Lt. A. Simmons, Sec. Lt. R. F. Thesen, June 14th; Lt. K. K. E. Bonnerjee (Capt., R. Sussex R., T.F.), June 15th; Lt. H. W. R. Banting, Capt. F. Billinge (Manchester R.), Sec. Lt. D. A. McGregor, Lt. R. E. Mansfield, Lt. D. W. M. Miller, D.F.C., Lt. J. G. W. Saulez, Lt. R. H. Stainbank, June 16th; Lt. G. Bainbridge, Lt. H. B. Cumming, Sec. Lt. F. G. W. Gough, Sec. Lt. W. R. Foster, Sec. Lt. G. F. Morse, June 17th; Lt. J. C. Akester, Capt. H. V. Knox, Sec. Lt. S. A. Lane, Lt. G. C. Mumford, June 19th; Lt. T. Chilton (R.F.A., T.F.), June 21st; Lt. C. H. F. Nobbs, June 22nd; Lt. G. H. M. Colyer, Capt. E. J. Garland, Lt. A. C. Macvie, Lt. C. Miller, June 25th; Lt. J. K. Finlay, Lt. A. G. Mcl. Jennings (substituted for the notification in the "Gazette" of March 14th), Sec. Lt. J. M. Loggie, June 26th; Lt. A. MacDonald, June 28th.

Lt. W. H. Gibson relinquishes his commn. on account of ill-health contracted on active service, and is permitted to retain his rank, June 18th.

Lt. D. J. Allen (Manitoba R.) relinquishes his commn. on account of ill-health contracted on active service, May 3rd.

The following Sec. Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank :—W. S. Winter, contracted on active service (substituted for the notification in the "Gazette" of Feb. 7th), M. S. Dickinson (substituted for the notification in the "Gazette" of March 18th), S. J. Bolitho, June 12th (substituted for the notification in the "Gazette" of March 14th), May 20th; H. T. Watts, June 19th.

The rank of Lt. T. M. Cornish is as now described, and not as stated in the "Gazette" of May 9th.

The initials of Sec. Lt. C. D. Neill are as now described, and not "C. W." as stated in the "Gazette" of May 2nd.

The initials of Sec. Lt. I. L. Wood are as now described, and not "T. L." as stated in the "Gazette" of May 9th.

The initials of Sec. Lt. A. Sykes are as now described, and not "Arthur A." as stated in the "Gazette" of May 23rd.

The surname of Lt. E. R. Trendell is as now described, and not "Tundell" as stated in the "Gazette" of May 13th.

The surname of Capt. C. Gordon-Davis is as now described, and not "C. G. Davis" as stated in the "Gazette" of May 20th.

The surname of Lt. B. F. Smith-Clebourne is as now described, and not "B. F. S. Clebourne" as stated in the "Gazette" of May 20th.

The name of Lt. E. F. Van der Riet, D.F.C., is as now described, and not as stated in the "Gazette" of May 23rd.

The notification in the "Gazette" of Sept. 6th, 1918, concerning Sec. Lt. W. E. Baxter is cancelled.

The notification in the "Gazette" of Jan. 24th concerning Sec. Lt. G. J. C. Tigar is cancelled.

The notification in the "Gazette" of March 21st concerning Sec. Lt. E. J. Norris is cancelled.

The notification in the "Gazette" of April 1st concerning Lt. E. N. MacDonald is cancelled.

The notification in the "Gazette" of April 29th concerning Sec. Lt. (Hon. Lt.) A. E. Overton is cancelled.

The notification in the "Gazette" of May 13th concerning Sec. Lt. A. G. Middleton is cancelled

The notification in the "Gazette" of May 16th concerning Lt. R. J. Marshall is cancelled.

The notification in the "Gazette" of June 10th concerning Lt. R. B. Wainwright is cancelled.

The notification in the "Gazette" of June 20th concerning the following officers is cancelled:—Sec. Lt. J. Martin, M.M., Sec. Lt. T. E. Winckworth.

The notification in the "Gazette" of June 24th concerning Sec. Lt. L. C. Phippen is cancelled.

ADMINISTRATIVE BRANCH.—Maj. K. L. Buist to be Maj., from (S.O.), June 2nd.

Capt. A. M. Wilson to be actg. Maj. whilst empld. as Maj., May 1st.

G. N. F. Powell (Maj., London R.) is granted a temp. commn. as Capt., and to be Hon. Maj., April 1st, 1918.

Sec. Lt. F. T. L. Avis to be actg. Capt., whilst empld as Capt., May 1st.

Lt. H. W. Sidley to be Lt., from (S.O.), May 23rd

Lts. (A.) to be Lts.:—D. H. Bell, M.C., C. A. Ombers, June 11th; G. D. Daly, June 12th.

The following are granted temp. commns. as Sec. Lts.:—C. A. Maddams, H. E. Philip, June 28th

The following relinquish their commns. on ceasing to be empld.:—Lt. Lord H. Cecil, Jan. 18th (substituted for notification in "Gazette," April 18th, 1918); Lt. (Hon. Capt.) W. C. Sharpe (Capt., R.W. Surrey R.), April 15th; Capt. (actg. Maj.) D. G. F. Darley (Capt., Dragoon Guards), April 24th; Capt. J. T. Waller, M.C. (Capt., Leic. R.), June 4th; Lt. N. A. Arthur (N.Z. Wellington R.), June 11th.

Transferred to unempld. list:—Sec. Lt. P. Hammond, Jan. 20th; Sec. Lt. A. H. Durand, Jan. 25th; Lt. F. Crossley, Feb. 7th; Lt. E. N. MacDonald, Feb. 27th; Sec. Lt. R. S. Maitland-Edwards (Coldstream Grds.), April 12th; Sec. Lt. J. Mellor, April 15th; Sec. Lt. (Hon. Lt.) A. E. Overton, April 16th; Sec. Lt. T. W. Hopley, April 25th; Maj. W. B. Crossley (Lanc. Fus., T.F.), May 1st; Sec. Lt. E. A. North, May 15th; Sec. Lt. A. W. Jennings, May 18th; Sec. Lt. L. C. Phippen, May 19th; Lt. W. H. Steele, May 2nd; Lt. A. S. H. O'Brien, Sec. Lt. J. R. Wilson-Haffenden, May 23rd; Lt. H. E. Tee (Glouc. R., T.F.), May 25th; Lt. E. R. Rudling (R.W. Surr. R., T.F.), May 28th; Sec. Lt. W. E. Cotton, Sec. Lt. A. W. Mann, June 2nd; Lt. E. St. T. W. Freer (Suff. Yeo.), June 3rd; Sec. Lt. J. W. A. Wymark, June 8th; Lt. (Hon. Capt.) W. H. Charlton (Capt., Northumb. Yeo., T.F.), June 9th; Lt. (Hon. Capt.) J. S. Flanagan, Lt. A. Mackenzie, June 11th; Capt. J. R. Fox, June 12th; Capt. E. W. M. Wheldon, Sec. Lt. A. G. Groom, June 13th; Lt. (Hon. Capt.) P. V. G. Van der Byl, M.C., June 15th; Sec. Lt. (Hon. Lt.) G. Newton, Sec. Lt. F. C. Walker, June 18th; Lt. H. S. Brackenbury, Capt. M. L. Fitzgerald, June 19th; Lt. W. A. Dewhurst, June 25th; Sec. Lt. L. P. Kirk, June 27th.

Lt. (Hon. Capt.) J. W. Holdsworth relinquishes his commn. on account of ill-health, and is permitted to retain the rank of Capt., May 14th

Capt. H. T. Holdstock, M.C., relinquishes his commn. on account of ill-health, and is permitted to retain his rank, June 19th.

The following Sec. Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank:—J. D. Dalzell, June 19th; I. C. Bannister, June 27th (substituted for notification in "Gazette," March 11th); C. M. de L. Norman, July 2nd

The rank of Lt. F. D. Owen is as now described, and not Sec. Lt. as stated in "Gazette," June 20th.

The notifications in "Gazette," May 23rd and June 6th, concerning Lt. J. W. Houldsworth are cancelled.

The notification in "Gazette," March 14th, concerning Lt. H. Townsend is cancelled.

The notification in "Gazette," May 13th, concerning T. W. B. Hill is cancelled.

The notification in "Gazette," May 16th, concerning Lt. M. R. Hellwell is cancelled.

TECHNICAL BRANCH.—Capt. W. C. Broadhead to be Capt., Grade (A), from Grade (B), from Aug. 12th, 1918, to April 1st.

Capt. R. N. Spence to be Capt., Grade (B), from (Ad.), April 1st, 1918.

Lts. to be Lts., Grade (A):—L. J. Anstey, from (O), April 1st, 1918 (substituted for notification in "Gazette," Oct. 4th, 1918); E. G. Taylor, from (Ad.), Feb. 26th.

Sec. Lt. (actg. Lt.) F. S. Stokes to be Lt., March 8th (substituted for notification in "Gazette," April 11th).

Sec. Lts. to be Lts., without pay and allowances of that rank:—T. H. Evans, April 2nd, 1918; S. Empsall, Dec. 16th, 1918; L. G. Sewell, May 7th.

Sec. Lt. (Hon. Lt.) B. T. Hood to be actg. Lt., whilst empld as Lt., Grade (B), from Oct. 17th, 1918, to April 30th

The following relinquish their commns. on ceasing to be empld.:—Capt. E. Graham (Lt.-Col., R.E.), May 9th; Lt. H. Marsden (Lt., Manchester R.), June 6th; Maj. H. C. Tweedie (Maj., N. Staffs R.), June 20th.

Transferred to unempld. list:—Capt. J. A. Holder, Jan. 14th; Sec. Lt. R. S. MacD. Salt, Feb. 8th; Lt. J. A. H. O'Hynes, Feb. 13th; Capt. E. H. Marsh, April 6th; Capt. W. F. Higgs, April 17th; Sec. Lt. (Hon. Lt.) W. E. Jones, April 20th; Sec. Lt. C. S. Hadley, April 22nd; Sec. Lt. A. A. Jones, April 26th; Lt. H. R. Hassé, May 3rd; Sec. Lt. H. M. Frederick, May 6th; Lt. J. Hooper, May 20th; Maj. T. B. Lloyd, Lt. E. T. Scale, May 25th; Capt. N. Lea, May 28th; Sec. Lt. J. Rowley, May 29th; Sec. Lt. (Hon. Lt.) T. R. Gilby, Capt. T. H. Harkness, Capt. K. H. McLean, May 30th; Capt. W. G. Gledhill (Norf. R.), June 1st; Capt. G. G. R. Fraser, June 3rd; Lt. J. H. Fletcher, Lt. W. H. Scanlan, June 5th; Lt. J. H. B. Foss, Lt. A. N. Meier, June 6th; Lt. A. W. Phillips, M.C. (R. Fus.), June 7th; Capt. S. E. Neal, June 8th; Sec. Lt. W. H. Miles, June 9th; Lt. W. G. Cooke, Sec. Lt. H. N. Farmer, June 12th; Sec. Lt. A. E. Mills, June 14th; Lt. W. B. Brett, June 15th; Lt. C. M. Denny, June 16th; Sec. Lt. D. H. W. Alexander, Sec. Lt. W. A. Baker, Lt. J. Burden, June 17th; Capt. P. H. Holder, Sec. Lt. W. F. Hendry, Lt. N. H. Mackrow, June 18th; Lt. H. F. Groves (North'd Fus.), June 20th.

The notification in "Gazette," March 18th, concerning Lt. T. W. Cave, M.C., is cancelled.

MOTOR-BOAT BRANCH.—Capt. H. Howard is transferred to unempld. list, March 28th.

MEDICAL BRANCH.—Lt. G. A. S. Madgwick is transferred to unempld. list, June 17th.

The initials of Lt. G. O. Roper are as now described and not G. A. as stated in "Gazette," April 1st.

DENTAL BRANCH.—Lt. H. H. Chapman is transferred to unempld. list, June 11th.

CHAPLAINS BRANCH.—The Rev. P. C. Barber is transferred to unempld. list, June 12th.

MEMORANDA.—The following Overseas Cadets are granted temp. commns. as Sec. Lts.:—178138 L. H. Allen, 178139 F. G. Allpass, M2/152634 R. B. Anderson, W. A. Allsopp, W. S. Armitage, 183979 J. H. Adler, 178141 C. R. Bowker, 178147 C. B. Bousfield, 178150 R. F. Bairdow, A. Blaikie, 178154 J. Balsille, 178142 E. W. G. Barty, 178149 W. H. Bousfield, 178151 M. A. B. Banfield, 178148 S. C. Botha, 178143 E. F. Biddulph, 184889 J. R. Burness, 292362 L. W. Burns, 2003532 H. A. Bullock, 6647 H. Bouts, 536031 R. W. N. Burroughs, 460471 G. Blythe, 178145 C. R. Brickhill, 16106 G. Blagrove, 11562 J. S. Butler, 2064 J. Bowie, 183982 F. E. Blackwell, 2862 G. G. Biddington, H. Brophy, 178156 M. Carlisle, 178160 L. E. Carter, 183991 A. E. Coote, 183992 G. W. Cruikshank, 183988 H. G. E. Clark, 452046 A. F. Cook, 316149 A. J. Cook, 117188 A. H. Church, 183990 M. E. Collier, K. Campbell, 183987 H. F. Chick, 183989 C. A. Colepepper, J. E. Colepepper, 138994 E. M. Davis, 110695 H. Dawson, 316122 P. W. Douglas, 109321 W. M. Dynes, 966521 E. Dawe, 183996 J. L. Didcott, 6927 R. C. Doyle, 183995 D. Deeves, 183997 E. W. M. Driver, W. E. R. T. Duff, A. E. Dale, V. A. Evans, G. G. Edwards, 442374 R. J. Eades, 178165 L. N. Estment, 178164 K. L. Ellis, W. F. Erickson, 184912 W. Francis, 178168 E. H. Fitt, 178167 J. G. Forbes, 178169 C. E. Freeman, 184002 T. L. Flindt, 13985 R. H. Ferguson-Brown, 94 E. C. Fey, 3328?8 A. J. Fisher, 316140 J. H. Fee, 183004 F. C. L. Furse, 184001 L. H. Field, 178171 A. H. Gale, 178170 J. H. George, 178466 D. R. Garrett, 184004 W. G. E. Gale, 1412 J. M. Gie, S. H. Green, 213364 P. A. Gammill, 184007 C. L. Godwin, 184006 F. M. Geerdts, 184008 J. L. Goldsmith, 184009 B. R. Gordon, 178176 C. F. Heyns, 176174 S. R. Hogan, 178173 M. C. Henry, D.C.M., 178177 K. A. Hodgson, 184016 A. T. Henderson, 178172 R. A. Heydenrych, 184013 L. G. Harling, 2143 R. Hughes, M.G.C., 33 C. W. Hooper, 184114 R. Hawthorne, 184015 A. C. Hellawell, 184016 V. S. Henderson, 184020 G. N. Hornby, 184019 G. W. Holey, S/S35386 B. S. W. Holden, 52640 H. H. Hutchings, 184012 N. F. Hanbury-King, 184021 H. A. Hoyer, 184018 A. R. Hojem, 184026 C. E. Jones, 107343 E. W. Jones, 184024 G. St. C. James, 184023 L. A. H. Jackson, 4897 G. E. Jobson, 184022 H. C. Jackson, 184025 L. W. H. James, 184026 C. E. S. Jones, 6173 F. W. Kurtz, R. R. Kelly, 184029 W. L. King, 184028 H. G. King, F. Kingsley, 178186 R. F. Lister, 178187 R. V. Lotz, 178184 G. Lewis-Williams, 184032 T. L. De R. Labistour, 229299 J. Laberge, 178185 G. T. Loser, 184036 C. Lowe, 184033 R. C. Lambson, 184034 E. C. Leach, 184035 P. J. Le Roux, 184037 J. E. Lyons, 178193 K. A. McLeod, 178191 R. G. F. Murgatroyd, 178190 K. McQuade, 184039 H. Maguire, 184048 G. W. C. Moxley, 184038 S. M. McDonald, 316128 L. McCammon, 316135 F. McInnes, 316106 R. T. McFarlane, 316126 K. F. Munroe, 184042 L. P. McGuire, 316129 C. Marshall, 690370 W. E. May, 184047 J. Morton, M2/152754 R. H. Murdoch, M2/157729 C. H. Melville, 184043 B. K. Menne, 184044 D. M. Millar, 184046 L. A. E. Moon, 184045 A. E. Mitchell, 184041 E. Martindale, W. F. Nelson, 178198 J. O'Reilly, 178197 T. J. Olver, 178199 H. A. Oxenham, 178195 W. W. Olver, 316002 H. B. O'Heir, 178196 C. P. Orpen, 184050 H. C. Oates, A. L. Povall 178204 D. H. Paxton, 178200 C. F. J. Povail, 184059 H. A. Penfold, 316132 E. F. Porter, 198649 G. R. Pinkard, 316111 R. F. Prentice, 576 W. W. Phillips, 316133 A. Peirce, 178201 H. R. Poulton, 171091 H. C. Pitman, 832298 H. E. Petinas, 177072 F. G. Pursell, G. H. Prevost, 184053 L. J. Poley, F. J. Phillips-White, 184051 G. Payn, 171379 P. W. E. Read, 178206 E. B. Robson, 178207 N. McL. Robertson, S. M. Riddell, 541247 R. P. Richardson, 513027 N. I. Reed, 778161 R. B. Rae, 1260947 B. C. Rochester, R. S. Rachmann, 148056 K. A. Rawlinson, 184058 T. A. S. Ross, L. Ramville, 550222 C. G. Roe, 178210 C. R. Sparkes, M2/153041 J. F. Stephen, M2/153419 G. P. Spackman, 184063 R. E. Sherriffs, 193432 J. Stewart, 184062 L. L. Shearer, 117154 C. A. Schjolsstb, 500713 W. C. Spettigue, 523767 D. M. Strachan, 89139 J. B. Symington, 184059 S. G. Saville, 184061 E. C. H. Schleicher, 184779 J. J. Steytler, 184064 H. L. Somers, 184060 M. Sewell. 184065 J. Straw, 178208 B. R. Spencer, 178216 A. W. H. Tedder, 178217 F. W. Tolbutt, 178215 J. C. Tindall, 178214 C. S. Thorne, 178218 C. Teubes, 793027 T. Troy, 2899 B. Toy, 184081 C. J. R. Taylor, 178229 G. M. Thornhill, 310706 A. Thomson, 184066 J. J. Turnbull, 178221 P. A. Van Der Byl, 184067 A. E. Vaughan, 1476 A. S. Venter, 178222 M. G. Van Renen, A. Watt, M. Wolpert, 178224 F. E. K. Wiener, 178223 L. Wuister, 316115 R. Ware, 476822 T. Williams, 302 H. Watkins, 516 V. E. Williams, 154676 J. J. White, 489753 W. A. Warner, 184071 H. V. Whyte, 2184 A. C. Walker, 184070 C. L. Whitfield, 184068 L. J. Warren, 184071 A. F. Wright, 184072 S. C. Wigginton, 71 A. R. West, 316838 T. P. Wooding, Feb. 15th.

The following Cadets are granted Hon. commns. as Sec. Lts.:—178763 J. M. Rice, Jan. 17th; 117244 F. V. Ames, Feb. 19th; 52390 L. Morris, March 2nd; 19018 W. A. Sharp, March 5th; 137080 C. R. Stainton, March 10th; 249124 E. A. Jerome, March 20th; 33178 W. T. Tredgett, March 26th; 89757 R. S. Munday, March 27th; 66300 E. A. Suter, April 6th; 178012 L. R. Jenkins, April 11th; 27163 A. E. Jones, April 21st; 291067 W. A. Jacobs, 50379 H. Stanhope, April 22nd; 85738 W. H. Coates, April 28th; 176760 F. B. Dickie, 120644 V. L. Taylor, May 4th; 177941 R. J. Santer, May 6th; 30949 T. Simpson, May 11th; 181167 W. C. Hazelwood, July 1st (substituted for notification in "Gazette," June 10th).

Lt.-Col. H. C. H. Hudson, M.V.O. (Capt. (Bt. Maj.), Hussars), relinquishes his commn. on ceasing to be empld., June 17th.

Temp. Hon. Lt. C. G. Whinfrey relinquishes his commn. on ceasing to be empld., June 30th.

Transferred to unempld. list:—Maj. C. L. Baillieu, from (S.O.) March 27th; Lt. C. W. Hogg, from (S.O.), April 23rd; Capt. M. J. Goldring, from (S.O.), May 20th, Capt. J. M. Mitchell, M.B.E., from (S.O.), June 11th; Capt. F. T. Bridger, from (S.O.), June 15th.

AIR MINISTRY, July 4th.

R.A.F.—The following temporary appointments are made at the Air Ministry:—

Staff Officers, 1st Class.—(Air).—Lt.-Col. A. C. Winter, O.B.E., July 1st, vice Maj. H. A. Moore, C.B.E., M.C.

Staff Officers, 2nd Class.—(Air).—Maj. E. J. Hodsoll, July 1st, vice Maj. W. J. C. Kennedy-Cochran-Patrick, D.S.O., M.C. (Q.)—Lt. (Hon. Capt.) H. W. Clarke, July 1st, vice Capt. Lord St. Oswald

Staff Officers, 3rd Class.—(Q.).—Lt. F. J. Cooke, July 1st, vice Lt. (Hon. Capt.) H. W. Clarke.

Staff Officers, 4th Class.—(T.).—Sec. Lt. L. B. Hobgen, Nov. 6th, 1918, and to be actg. Lt. till April 30th.

The following temp. appts are made:—Area Comdr.—Col. (actg. Brig.-Gen.) C. A. H. Longcroft, C.M.G., D.S.O., A.F.C., March 8th, to retain actg. rank of Brig-Gen., and to be graded for purposes of pay and allces. of Maj.-Gen. while so empld., vice Col. (actg. Brig.-Gen.) P. W. Game, C.B., D.S.O.

Group Comdr. (graded for pay and allces as Col., Staff).—Lt.-Col. G. W. P. Dawes, D.S.O., June 25th.

FLYING BRANCH.—Lt.-Col. (actg. Col.) R. H. Clark-Hall, D.S.O., to retain actg. rank of Col. while empld. as Col. (A. and S.), June 5th.

Lt.-Col. C. Bovill to be Lt.-Col. (A.), from (S.O.), May 23rd.

Capt. G. H. Bowman, D.S.O., M.C., to be actg. Maj. while empld as Maj. (A.), June 7th.

Capt. T. E. Salt, A.F.C., to be graded for purposes of pay and allces. of Maj. while empld. as Maj. (A.), May 1st.

Capt. (actg. Lt.-Col.) C. E. Wardle to be Capt. (A.), from (S.O.), and to relinquish actg. rank of Lt.-Col., March 24th.

Lt. H. O. Long to be Lt. (O.), from (Ad.), June 10th.

Sec. Lt. H. J. Ashley to be Lt., April 31st

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Lt. T. W. Morse (Capt., Cent. Ont. R.), Oct. 24th, 1918; Lt. H. Johnson (Capt., Can. Fld. Art.), Dec. 14th, 1918; Sec. Lt. (Hon. Lt.) R. K. Armstrong (Lt., Can. Art.), Lt. (Hon. Capt.) R. A. Boger (Maj., R.E.), April 14th; Lt. H. C. Sootheran (Capt., W. Ont. R.), April 23rd; Lt. F. L. Baker (Lt., W. Ont. R.), April 25th; Maj. P. C. Sheeren (Maj., New Brunswick R.), May 2nd; Capt. P. B. Tabernacle (Capt., E. Ont. R.), May 7th; Lt. J. W. Langmuir (Capt., Can. Local Forces), May 30th; Lt. D. A. Gordon (Lt., Brit. Col. R.), June 3rd; Sec. Lt. E. A. H. Goodwin (Sec. Lt., R. Suss R.), June 4th; Lt. C. A. S. Bean (Lt., Brit. Col. R.), Sec. Lt. (Hon. Lt.) H. S. Stidston (Lt., Sask. R.), June 5th; Sec Lt. (Hon. Lt.) F. G. Black (Lt., Cent. Ont. R.), June 23rd; Lt. J. A. Parker (Lt., R. Scots Fus.), July 5th (substituted for notification in "Gazette," June 13th)

Transferred to the unempld. list:—Lt. E. G. Nuding, Feb. 4th; Lt. T. L. Meares, Feb. 7th; Sec. Lt. G. Lamont, March 1st; Sec Lt. H. V. Peeling, March 14th; Sec. Lt. E. L. McCowan, March 15th; Capt. P. Johnson, March 28th; Capt. R. Leckie, D.S.O., D.S.C., D.F.C., March 31st; Sec. Lt. W. A. Jackson, April 1st; Sec. Lt. C. Butcher, April 3rd; Lt. J. Burness, April 11th; Sec. Lt. J. R. H. Hall (substituted for notification in "Gazette," April 15th), Sec. Lt. P. G. Horlington, April 13th; Sec. Lt. W. O'M. Bedard, April 15th; Sec. Lt. J. A. MacDonald, April 16th; Lt. W. A. Lane, Lt. P. D. Learoyd, April 17th; Lt. C. C. Ivens, Capt. G. P. Powles, April 18th; Sec. Lt. C. S. Casey, Sec. Lt. R. E. Jellison, Sec. Lt. T. J. Roberts, April 19th; Sec. Lt. F. C. Powell, April 21st; Sec. Lt. (Hon. Lt.) J. W. Lunn, April 22nd; Lt. B. S. Chantrill (Glos. R.), April 23rd; Sec. Lt. (Hon. Lt.) J. Edwardes, M.C., Lt. G. D. Jenkins, April 24th; Lt. C. H. Dickins, April 25th; Sec. Lt. D. McN. Livingstone, April 28th; Sec. Lt. J. Longley, April 30th; Lt. A. C. Lester, May 3rd; Lt. S. F. Lydon, May 4th; Lt. R. I. Dines (Lond. R.), Sec. Lt. (Hon Lt.) C. W. Langdon, Sec. Lt. G. E. Pratt, May 7th; Lt. R. F. Jenyns, Capt. C. N. Jones, Capt. H. J. Lloyd, May 8th; Sec. Lt. H. A. Hamlet, May 10th; Sec. Lt. A. W. Green, Lt. A. E. Lancashire, May 14th; Sec. Lt. R. W. L. Pearson, May 15th; Sec. Lt. G. E. Lewtas, May 19th; Sec. Lt. J. B. Eberts, Sec. Lt. F. J. Griffiths, Sec. Lt. A. D. Hollingsworth, Lt. H. T. Leslie, Sec. Lt. J. B. Jackson, Sec. Lt. L. W. Killeen, Sec. Lt. R. Smith, May 20th; Sec. Lt. P. Marsland, May 21st, Sec. Lt. R. Shillinglaw, May 24th; Sec. Lt. F. W. V. Blommestein (Lond. R., T.F.), Lt. M. Pennycock, Sec. Lt. A. W. Piper, Sec. Lt. H. N. Thornton, May 29th; Lt. (Hon. Capt.) T. E. Laing, May 30th; Lt. A. J. R. Adam, Capt. R. V. James, D.F.C., Sec. Lt. G. B. Nicholas, D.F.C., Lt. S. H. Owens, May 31st; Lt H. A. Love, Sec. Lt. O. Plant, Sec. Lt. W. F. Woodland, June 1st; Lt. E. Foster, Sec. Lt. C. S. Gordon, Sec. Lt. N. M Harrison, Lt. J. W. G. Price, June 2nd; Sec. Lt. B. Chadwick, Lt. J. B. Elliott, Lt. H. S. Goodliffe, June 3rd; Sec. Lt. C. L. Henn, Lt.-Col. C. F. Pollock, O.B.E., Capt. B. A. Smart, D.S.O, June 4th; Lt. I. C. G. Simpson, June 5th; Sec. Lt. R. Goldman, Lt. W. P. Lester-Jones, June 6th; Sec. Lt. J. Forsyth, June 7th; Lt. A. E. Watkinson, June 8th; Sec. Lt. G. M. Jeffrey, June 9th; Sec. Lt. H. Dabney, Lt. R. L. Dingley, Sec. Lt. W. Emery, Sec. Lt. R. H. Price, Sec. Lt. W. G. Robinson, June 10th; Lt. K. L. Grant, Sec. Lt. H. T. J. Jagger, Capt. C. H. Pixton, Sec. Lt. R. T. Tarrant, Lt. W. T. Willcox, June 11th; Sec. Lt. W. L. Goddard (Bord. R.), Lt. A. L. Pinkerton, Sec. Lt. G. McG. G. Sloan, June 12th; Sec Lt. B. C. Gibaud, Lt. W. A. E. Taylor, A.F.C., June 13th; Lt. S. E. Lawrence, Lt. J. S. McNeil (R.E), Sec. Lt. D. M. Pretorius, Sec. Lt. J. W. W. Probert, Lt. C. R. Thompson, D.F.C., Sec. Lt. S. T. Woodyatt, June 14th; Sec. Lt. V. B. Paré, June 16th; Sec. Lt. T. H. Pearson, Lt. P. H. West (E. Surr. R., T.F.), June 17th; Lt. E. H. Lawford, June 18th; Sec. Lt. T. A. Bowditch, Lt. L. E. Gawthorne, Sec. Lt. H. J. Marshall, June 19th; Lt. F. H. Cave, Lt. G. B. Gates, D.F.C., Lt. A. H. Love, Lt. N. B. Lovemore, Lt. G. P. Morris, Sec. Lt. K. G. Vandervord, June 20th; Sec. Lt. S. B. Atkinson, Sec. Lt. (Hon. Capt.) A. M. F. Hill, Capt. W. G. Pigott, Sec. Lt. M. A. Price, June 21st; Lt. W. E. Gray, D.F.C., June 22nd; Capt. E. R. M. Griffin, Lt. C. W. Peckham, Lt. H. W. Phear (R.F.A.), June 23rd; Lt. H. S. Preston, June 24th; Sec. Lt. J. D. O'Brien-Saint, Sec. Lt. A. B. Williams, June 28th; Sec. Lt. E. J. Addison, July 2nd.

Capt. A. E. Godfrey, M.C., A.F.C., relinquishes his commn. on account of ill-health, and is granted the rank of Maj., June 25th.

Capt. T. G. M. Stephens relinquishes his commn. on account of ill-health contracted on active service, and is permitted to retain his rank, June 26th.

Sec. Lt. E. H. Fry relinquishes his commn. on account of ill-health, and is permitted to retain his rank, June 24th.

Sec. Lt. W. C. Treen, M.C., D.F.C., D.C.M. (R.F.A.), relinquishes his commn. on account of ill-health caused by wounds, June 20th

The initials of Lt. (actg. Capt.) E. C. Morris are as now described, and not "E. E.," as stated in "Gazette" of May 9th.

The initials of Sec. Lt. F. N. Hargreaves are as now described, and not "F. U.," as stated in "Gazette" of May 13th

The initials of Sec. Lt. I. D. Macintyre are as now described, and not "J. D.," as stated in "Gazette" of May 16th.

The initials of Sec. Lt. S. G. Cockburn are as now described, and not "F. G.," as stated in "Gazette" of May 20th.

The initials of Sec. Lt. R. E. Barrett are as now described, and not as stated in "Gazette" of May 23rd.

The initials of Sec. Lt. J. H. Perring are as now described, and not "G. H.," as stated in "Gazette" of May 20th.

The initials of Sec. Lt. F. N. York are as now described and not "F. W.," as stated in "Gazette," May 23rd.

The initials of Lt. J. A. N. Fleming are as now described, and not "J. A.," as stated in "Gazette," May 27th.

The surname of Lt. F. W. Trend is as now described, and not "Trench," as stated in "Gazette," May 9th.

The surname of Lt. W. H. Rilett is as now described, and not "Relett," as stated in "Gazette," May 13th.

The surname of E. W. Everiss is as now described, and not "Encriss," as stated in "Gazette," May 20th

The surname of Lt. A. W. Matson is as now described, and not "Watson" as stated in "Gazette," May 23rd.

The surname of Lt. A. V. Wells is as now described, and not "Wills" as stated in "Gazette," May 27th.

The name of Sec. Lt. J. McRobb is as now described, and not "J. M. Robb," as stated in "Gazette," May 20th.

The notification in "Gazette," March 11th, concerning Sec. Lt. A. R. Giroux is cancelled (substituted for notification in "Gazette," April 11th).

The notification in "Gazette," March 18th, concerning Sec. Lt. F. W. V. Blommestein is cancelled

The notifications in "Gazette," April 1st, concerning the undermentioned officers are cancelled:—Lt. R. A. Maddock, Lt. W. C. McMurray.

The notification in "Gazette," May 27th, concerning Lt. O. A. Moore is cancelled.

The notification in "Gazette," June 27th, concerning Lt. R. C. F. Nailer is cancelled

Administrative Branch.—Capts. to be Capts., from (S.O.):—E. R. Whitehouse, April 11th; A. P. M. Sanders (on reduction of estab.), May 1st; F. J. Gray, O.B.E., June 1st.

E. Tuttle, D.C.M. (Capt. and Qrmr., R. Berks R.), is granted a temp. commn. as Capt., April 1st, 1918.

Lts. (A.) to be Lts.:—A. L. C. Hartland-Rowe, Sept. 3rd, 1918 (substituted for notification in "Gazette," Oct. 22nd, 1918); J. D. G. MacRae, June 18th

Lts. to be Lts.:—A. A. Kennedy, from (S.O.), April 28th; F. D. Wright, from (K.B.), June 19th.

Sec. Lt. (Hon. Lt.) G. Simmers to be actg. Lt. while empld. as Lt., from Feb. 1st to April 30th.

Sec. Lt. H. A. Pippett to be actg. Lt., without pay and allces of that rank, whilst empld. as Lt., from Sept. 16th, 1918, to April 30th.

Sec. Lt. (Hon. Lt.) G. Dodds to be Sec. Lt. (Hon. Lt.), from unempld. list, March 24th, prec. next below D. H. C. Newth.

Sec. Lt. F. H. M. Francis-Hawkins (late Gen. List, R.F.C., on prob.) is confirmed in rank as Sec. Lt., Sept. 18th, 1918.

The following relinquish their commns. on ceasing to be empld.:—Lt. S. H. Evans Sec. Lt., N. Staffs. R.), Aug. 26th, 1918; Capt. H. S. Blockey (Capt., S. Staffs. R.), June 23rd

Transferred to unempld. list:—Sec. Lt. H. I. Dowell, Jan. 17th; Lt. W. C. McMurray, Feb. 23rd; Sec. Lt. J. Martin, M.M., March 3rd; Lt. W. H. McGee, March 5th; Lt. R. A. Maddock, March 18th; Lt. W. L. Roblon, March 19th (substituted for notification in "Gazette," April 4th); Lt. P. F. Lines, March 26th; Lt. J. B. Jackson, April 11th; Sec. Lt. O. L. Jones, Sec. Lt. A. C. Lamb, April 22nd; Sec. Lt. G. A. Lomas, April 24th; Lt. G. N. Jackson, April 25th; Capt. J. F. Hay, Lt. K. S. Sexton (W. Rid. R., T.F.), May 1st; Sec. Lt. C. E. Haines, May 2nd; Lt. E. C. Haggart, May 6th; Sec. Lt. G. E. Leaman, May 13th; Lt. A. E. Dyer, May 14th; Sec. Lt. R. H. Staines, May 20th; Sec Lt. D. P. Scott, May 29th; Sec. Lt. L. S. Webb, June 3rd; Lt. T. B. W. Spencer, June 4th; Sec. Lt. W. W. Pritchard, Sec. Lt. H. S. M. Papplewell, June 8th; Lt. (Hon. Capt.) J. I. C. O. Gairdner, June 11th; Sec. Lt. (Hon. Capt.) T. Sutherland, June 12th; Sec. Lt. S. R. Mustoe, June 13th; Capt. E. A. Nash, June 15th; Lt. R. C. F. Nailer, Sec. Lt. H. West, June 17th; Capt. O. C. Purnell, June 20th; Lt. H. W. Piper, June 30th.

The initials of Lt. R. S. C. D. Ashby are as now described and not as stated in "Gazette," May 27th.

The notification in "Gazette" of March 4th concerning Sec. Lt. L. H. Meyer is cancelled

The notification in "Gazette" of March 25th concerning Lt. S. F. Thompson is cancelled.

The notification in "Gazette" of May 6th concerning Lt. W. U. Hughes is cancelled.

The notification in "Gazette" of May 23rd concerning Sec. Lt. (actg. Capt.) W. Lienard, M.B.E., is cancelled.

The notification in the "Gazette" of June 27th concerning Sec. Lt. J. Dale is cancelled.

Technical Branch.—Lt. (Hon. Capt.) (actg. Capt.) W. E. Smith to be actg. Maj. whilst empld. as Maj., Grade (A.), from Sept. 9th, 1918, to April 30th.

Lt. G. G. Bailey, D.F.C., to be Lt., Grade (A.), from (Ad.), May 24th.

Sec. Lt. H. Nixon to be Sec. Lt., Grade (B.), from (Ad.), June 20th.

Sec. Lt. E. G. Hellard (late Gen. List, R.F.C., on prob.) is confirmed in rank as Sec. Lt., Grade (A.), May 14th, 1918.

Sec. Lt. (Hon. Capt.) C. B. Dick-Cleland (Capt., N.Z.A.S.C.) relinquishes his commn. on ceasing to be empld., May 2nd

Transferred to unempld. list:—Capt. (Hon. Maj.) J. G. Y. Delmar-Morgan, Jan. 21st; Capt. S. P. Martin, Feb. 2nd; Sec. Lt. (Hon. Lt.) A. R. Handcock, Feb. 15th; Lt. H. V. Manly, March 28th; Sec. Lt. S. J. Laidler, April 10th; Capt. W. G. Cleghorn (R.G.A., T.F.), April 23rd; Capt. A. H. Hayes, May 21st; Capt. H. M. Lyons, May 30th; Capt. F. D. H. Bremner, Lt. S. P. Dobbs, May 21st; Sec. Lt. (Hon. Lt.) R. P. N. Dunphy, June 2nd; Lt. H. C. Roberts, June 9th; Lt. E. P. Jay, Lt. L. J. Pibworth, June 11th; Sec. Lt. F. C. Layton, Lt. S. S. Tyler, June 12th; Sec. Lt. O. W. Penny, June 16th; Capt. F. J. H. Palmer, June 17th; Capt. A. J. Dreydel, June 21st; Lt. S. F. Feast, June 22nd; Lt. F. W. Helsby, June 24th; Lt. C. J. Pender, June 25th; Capt. J. K. Mountain, June 29th.

Lt. (Hon. Capt.) C. A. E. Lloyd relinquishes his commn. on account of ill-health, and is granted the rank of Maj., June 24th.

Capt. R. C. Gallop (Scottish Rif.) resigns his commn., and is permitted to retain his rank, July 5th.

Capt. B. May (R. W. Kent R.) relinquishes his commn. on account of ill-health contracted on active service, June 1st (substituted for notification in the "Gazette" of April 25th).

The initials of Sec. Lt. R. B. Cherry are as now described, and not "R. O.," as stated in the "Gazette" of May 9th

The initials of Sec. Lt. L. T. W. Sanderson are as now described, and not "L. T. K.," as stated in the "Gazette" of May 20th.

The surname of Sec. Lt. R. G. Wells is as now described, and not "Wills," as stated in "Gazette," May 20th.

The notification in "Gazette," May 13th, concerning Sec. Lt. H. J. Wadkin is cancelled.

The notification in "Gazette," June 14th, concerning Sec. Lt. J. Dale is substituted for the notification in "Gazette," May 27th.

Physical Training Branch.—Lt. G. L. Moss, M.C., is transferred to unempld. list, June 2nd

Medical Branch.—Transferred to unempld. list:—Capt. R. G. Lyster, April 8th; Capt. P. L. Moore, Maj. H. Pritchard, June 1st.

Dental Branch.—G. F. Charles is granted a temp. commn. as Lt., July 1st.

Memoranda.—Sec. Lt. (actg. Capt.) W. Lienard, M.B.E., to be Lt., Feb. 24th, and to retain his actg. rank till April 30th.

The following Overseas Cadets are granted temp. commns. as Sec Lts:—316214 R. W. Atkinson, 1082165 T. S. Bailey, 82495 E. C. Braund, 9270 A. O. Bower, 1061 H. S. Cowper, 15464; R. S. Chisholm, 510371 T. V. Cryer, 40546 J. Colling, 767137 B. J. Colin, 28265 E. P. Croll, 316122 P. W. Douglas, 175026 F. T. Everett, 42866 F. B. J. Fenelon, 110088 P. St. Hill, 127640 S. H. Kittker, 463782 W. P. Lund, 154227 K. P. McIntee, 767436 E. McTurk, 176012 H. Newell, 255641 C. G. Smith, 316407 J. A. Trotter, 110677 H. E. G. Upton, V. E. Williams, Feb. 15th.

The following Cadets are granted hon. commns. as Sec. Lts.:—72710 W. H. Whiteside, Feb. 17th; 54215 J. S. Bruce, Feb. 21st; 117522 M. Back, 50880 C. Childs, 117623 J. Haldane, Feb. 22nd; 110359 A. E. Calow, 175604 R. Green-Armitage, 176240 J. W. Hobson, 03481 R. E. Mason, 100913 J. C. Nicholson, 4548 W. E. Orchard, 114320 D. H. S. Sanderson, Feb. 27th; 128707 H. H. McConchie, Feb. 24th; 117766 A. E. V. Barton, 128510 T. W. H. Chichester, 557050 E. J. Morgan, 87068 W. Newton, Feb. 28th; 133688 B. A. Botwood, 205288 R. Giltrow, 55/628 G. Gasches, March 1st; 176206 J. C. Bewick, 64477 C. F. Heath, 176341 G. M. Johnston, 14660 T. Sissum, 19837 W. A. Watson, March 4th; 12666 S. L. Bishop, 54770 A. T. Parsons, 227744 J. C. Wade, March 6th; 13057 J. S. Brewer, 108786 P. E. Cherriman, 07553 G. W. Delaney, 215508 R. Fellows, Z100 E. E. Gardner, 51403 R. M. Hood, 202762 A. Makepeace, 514845 J. H. Mason, 6/38741 J. E. Rosevear, 128086 J. Sparks, March 7th; 133137 W. E. J. Barry, 594658 S. G. J. Gogswell, 10/156365 T. S. Hamilton, 26373 P. Lancaster, 170251 J. Pady, 110860 C. Parker, 405882 F. Wilson, March 8th; 214808 E. S. Bestwick, 106646 J. T. Edwards, 137436 F. Prosser, 176306 J. E. Tibbert, 175770 G. R. Mountford, March 10th; 175364 J. H. Barton, 137263 E. V. Grudge, 175582 W. E. Davies, 128833 E. W. Ditchbourn, 38340 F. D. James, March 11th; 117707 L. Balfrey, 102444 J. Crawford, 128788 A. Healey, 110376 E. F. Knight, 52657 N. D. Sellars, 1412 D. Smith, 82616 W. Storr, March 13th; 624536 B. G. Cochrane, 176082 B. W. Cross, 117557 E. Conson, 626033 G. F. Elliott, 137775

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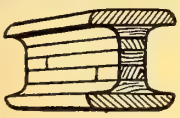

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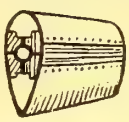

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A. J. R. Moss, March 14th; 117604 H. Lund, March 18th; 11403 E. L. Hill, 117138 C. R. H. Morley, 69634 V. W. Neate, 160286 S. W. Smith, March 20th; 110016 L. E. Barker, 4241 A. Hunt, March 21st; 176227 A. S. Evans, 176103 R. H. Lyne, 15110 A. O. A. Rollard, 71808 C. A. York, 10629 R. M. Williams, March 22nd; 176284 W. B. Thompson, March 25th; 149450 W. J. Angove, 175039 R. Benson, 175166 T. E. Buncle, 117526 C. E. Cox, 117573 E. M. Cheers, 518 J. S. Clarke, 15117 R. G. Goodacre, 6342 W. H. Matthias, 175154 G. T. Peard, 53900 H. E. Rogers, 175960 R. A. B. Williams, March 27th; 02682 A. McQ. Galbraith, M2/021389 A. Peart, 87076 W. C. Spriggs, March 28th; 685557 W. T. Ballisat, 244131 E. Bungay, 117708 A. J. Creek, 240013 H. W. Revell, March 29th; 21015 V. Davey, 175810 H. W. Evans, F379 R. F. Oliver, April 1st; 118431 S. Ploughman, April 2nd; 5/105008 C. L. Atkinson, 110680 W. J. Bevan, 96429 G. C. Brookes, 25302 F. R. Buckland, 102511 R. A. Clarke, 13936 F. W. Gill, 110705 B. T. Hill, 117890 G. H. Hollis, 123104 R. B. Harrison, 25686 L. Q. Hignell, 40532 A. L. Howarth, 117663 S. E. Lewis, 14640 G. D. Levin, 1388 H. Maynard, 117322 R. A. Murray, 110064 J. Nixon, 128769 E. Porterfield, 91973 E. F. Prideaux, 320475 J. T. Pike, 433/434010 G. R. R. Roberts, 200225 F. V. Shepherd, 48431 A. R. Smith, 98078 H. D. Wilson, April 3rd; 240017 L. A. Brinkman, 9/921275 E. C. Edmonds, 23471 V. G. Hervien, 128649 J. H. Johnson, 1/19760 H. G. Martin, 110862 J. Manson, 63394 J. A. Ogden, 52667 F. H. M. Wilson, April 4th; 110321 W. I. Adam, 16602 F. R. Banks, 110406 R. Cook, 11844 S. B. Edwards, 225990 H. W. Fenwick, 13085 T. A. S. Harpham, 10/90376 L. C. J. Jennings, 10/91332 R. T. Rodgers, 556753 C. L. Stevens, 23211 C. V. Starr, 117745 W. H. Westgate, April 5th; 176235 E. P. Geary, 200973 L. Horne, 138229 J. W. V. P. Jennings, 137443 T. E. J. Pearl, 175214 H. Roy, 73702 R. P. B. Radcliffe, 137458 E. L. Spidy, 110415 H. F. W. Thellussun, April 7th; 12012 H. Parker, 51736 S. Waite, April 10th; 413744 P. J. Harrex, M/204538 W. R. Johnston, 137415 N. Lyall, 175222 L. Schofield, 175665 J. E. Stone, April 11th; 9179 R. N. Catley, 100612 J. B. MacCallum, 175032 T. H. C. Teague, April 14th; 43707 A. S. Rogers, April 16th; 73194 L. S. Elliman, April 26th; 171288 P. Fothergill, April 29th; M/317435 D. H. G. Richardson, May 3rd; M/324726 S. H. Foster, 50192 P. Nunns, May 6th; 110960 T. C. Callaghan, May 11th; 831637 W. L. Harris, May 14th; W. H. Bradstock, F/25073 F. G. Chapman, 176410 A. J. Coveney, 200041 L. E. Cosby, C. S. North, 176133 M. H. Thomson, 176143 R. L. Wilkinson, 189933 H. M. M. Williams, May 17th; 176875 C. H. Hiscock, May 20th; 110184 C. E. A. Carney, 230588 A. D. Lock, 155129 V. M. Richards, 177989 F. T. Stone, 10655 W. S. Venn, May 21st; 78252 R. A. J. Roff, May 25th.

Temp. Hon. Lt. M. P. Holmes relinquishes his commn. on ceasing to be empld., Feb. 16th.

Transferred to unempld. list:—Lt.-Col. C. H. Meares, May 1st; Sec. Lt. H. M. Piper, from (S.O.), May 24th; Lt. G. E. Moore, from (S.O.), Sec. Lt. A. K. Spens, from (S.O.), May 31st; Capt. H. R. Radford (Lond. R., T.F.), from (S.O.), June 4th, Lt. E. G. Roberts, from (S.O.), June 7th; Lt. (Hon. Capt.) G. W. Rogers (N. Staffs. R.), from (S.O.), June 19th.

The notification in "Gazette," March 7th, concerning Sec. Lt. (actg. Capt.) W. Lienard, M.B.E., is cancelled.

Sec. Lt. C. W. Kerr to take rank and prec. as if his appt. as Sec. Lt. bore date March 22nd, 1918.

The notification in "Gazette," June 6th, concerning 184268 Cadet P. H. Mellet is cancelled.

* * *

The Air Ministry made the following announcement on July 7th:

The Air Council invites applications from duly qualified men for appointment as Commissioned Dental Officers at a salary of one pound per diem, together with a war bonus of 28s. per week, and certain allowances where quarters are not available. Successful applicants will be required to engage under contract for 12 months or until their services can be dispensed with, whichever will happen first, and will be granted an outfit allowance of thirty pounds.

Applications should be made to the Secretary, Medical Department, Air Ministry, London.

* * *

The Home Secretary stated on July 4th that the W.R.A.F. will not be disbanded, as this corps is able to perform duties for which women are better suited than men.

* * *

The London "Evening News" understands that Salisbury Plain has been selected as the peace-time central training depot of the Royal Air Force. The various establishments in different parts of the country are being transferred there as rapidly as possible.

It is believed that only 400 permanent commissions in the R.A.F. will be granted, but about 3,000 officers will be offered commissions for a period of four years.

[This should be taken for what it is worth. It has not, so far, been officially confirmed.—Ed.]

* * *

On July 4th, Lieut. King, R.A.F., met with an accident while flying at Brooklands. His machine, in falling, narrowly missed some cottages and struck a tree, near Plough Bridge, Byfleet. Mr. King was taken to the hospital suffering from bruises.

* * *

The following are the competition results of Royal Naval, Military, and Air Force Tournament:—

July 2nd.—Wheel Changing and Driving Competition by Women Motor Drivers.—1, Women's Legion, marks 21¾, time of wheel changing, 70 secs.; 2, Women's Royal Air Force, marks 20½, time of wheel changing, 85 secs.

Wheel Changing and Driving Competition by Women Drivers.—The Women's Legion and the Voluntary Aid Detachment tied for first place with 22 marks each. The Women's Royal Air Force was second with 21½ marks.

July 3rd.—Wheel Changing and Driving Competition by Women Motor Drivers.—Women's Legion, 20½ marks (time in wheel-changing, 75 secs.), 1; V.A.D. (General Service Section), 20 marks time, 78 secs.), 2; Women's R.A.F., 18 marks (time, 90 secs.), 3; Women's R.N.S., 16 marks (time, 94 secs.), 4; Q.M.A.A.C., 14 marks (time, 118 secs.), 5.

July 4th.—Wheel Changing and Driving Competition by Women Motor Drivers.—Q.M.A.A.C., 18¾ marks, time of changing, 89 2-5 secs., 1; Women's Legion and W.R.A.F., tied for second place with 17¾ marks, time 87 secs.

July 5th.—Wheel Changing and Driving Competition by Women Motor Drivers.—Q.M.A.A.C., 21 marks, time in wheel changing, 80 1-5 sec., 1st; Women's Legion, 21 marks, time in wheel changing, 74 sec., 2nd; W.R.A.F., 20 marks, time in wheel changing, 75 3-5 sec., 3rd; V.A.D. (General Service Section), 19 marks, time in wheel changing, 83 sec., 4th; W.R.N.S., 13¾ marks, time in wheel changing, 101 sec., 5th.

W.R.N.S. and W.R.A.F., 22 marks each, tied for first place; Q.M.A.A.C. and Women's Legion, 21¾ marks each, tied for 2nd place; V.A.D. (General Service Section), 3rd.

The final of the teams is: Women's Legion, total, 165¾ marks, 1st; W.R.A.F., 163 marks, 2nd; Q.M.A.A.C., 158 marks, 3rd; V.A.D. (G.S. Section), 152¾ marks, 4th; W.R.N.S., 142¾ marks, 5th.

Tug of War (130 stone) by Navy, Army, and Air Force Teams: No. 5 Stores Depot R.A.F. (Earl's Court) beat H.M.S. "Erebus" (Sheerness) by two pulls to nil.

July 7th.—Women's Motor Driving and Wheel Changing Competition.—1, Women's Legion Motor Drivers (Miss S. Egan, Miss G. Garden), 165¾ points, fastest time wheel changing, 74 seconds, by Miss Egan; 2, Women's Royal Air Force (Miss H. Cross, Miss H. Wight), 163 points, fastest time wheel changing, 75 3-5 seconds, by Miss Cross.

FRANCE.

The "Petit Journal" of July 3rd confirms the report that the Government has decided to appoint Aeronautical Attachés to the French Embassies and Legations in Allied and Associated countries.

The first Aeronautical Attaché to Washington is Captain Guy de Lavergne.

The following has been received from our Paris correspondent:

Nungesser, back again in Paris from a little trip to London, is spreading his delight to all his French comrades, anent the maniability of the Bat people's "Bantam," which he flew whilst in England and with which he was extraordinarily delighted. He said it could be handled more easily than any of the 120 different types of machines he had previously flown, and if war broke out again he could think of nothing more amusing than to fly a "Bantam" and get a roving commission from the French Government to go up and down the lines on his own account killing Huns. He reckons that with the Bantam he could collect Huns at twice his pre-Armistice speed.

Contrary to expectation, it is now established that Garros was not killed by a German bullet, but was the victim of his own inventive and perfective instinct. In order to obtain a quicker rate of fire from his guns firing through the airscrew he had made several modifications to his machine. At the moment that he attacked a Boche, nosediving with the motor full on, the synchronisation of the speed of fire and of the airscrew became defective. The propeller was splintered badly, setting up such vibration that the machine broke in the air.—F. T. N.

GERMANY.

A wire from Bremerhavn, dated June 26th, states that on the night of Wednesday, June 25th, at about 12 o'clock, an airship was visible which came from the sea taking a course for Bremerhavn, Geestemunde, and returned to the sea again. For a certain time searchlights were playing from the airship, and the mark H.C.34 could be read on the sides of the vessel.

In other seaside resorts the same kind of visitor has been noticed. Immediately afterwards the H.Q. of the Marine station of the North Sea issued an order whereby every photograph of any such airship is to be sent in at once to Headquarters. It is thought that the airship was English.

HOLLAND.

The Dutch Colonial Office has bought 24 aeroplanes from Great Britain with accessory reserve motors and spare parts.

The machines are intended for use in the East Indies. They are of two types; D.H.9 fighting aeroplanes and Avro machines for training.

U.S.A.

In a eulogy on the American Navy, which was published in the "Times American Supplement" on July 5th, the following appeared:—

In the air the American Navy grew from 50 seaplanes in July, 1917, to 100 seaplanes in the middle of 1918, taking no account of 324 seaplanes used for training. Much coastal patrolling in England, Ireland, and France was done by the United States Naval Air Forces.

* * *

On July 1st five persons were killed at the Naval Airship Camp, near Baltimore, by the explosion of an airship. The ship had

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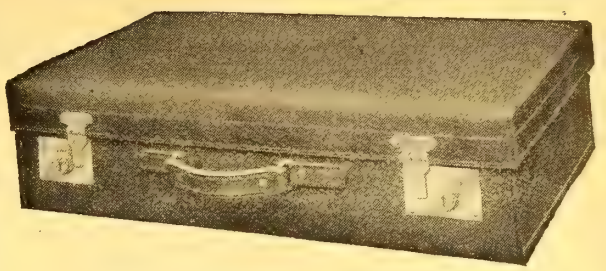

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NOTICE.

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The Marquess of Cholmondeley.	The Countess of Limerick.
Mrs. Winston Churchill.	The Lord Lough.
The Viscountess Cowdray.	The Lord Lurgan
Sir Arthur Du Cros, Bart.	Princesse de Monaco.
Lady Cunard.	Lady O'Hagan.
The Viscount Curzon.	Sir Milsom Rees, C.V.O.
The Lord D'Abernon.	Lady Rees.
The Lady D'Abernon	The Lord Ribblesdale.
The Countess of Drogheda.	Major-Gen. Ruck, C.B.
Sir Alfred Fripp, K.C.V.O.	The Duke of Rutland, K.G.
Lieut.-Col Cecil Grenfell	Major-Gen. Sir John Seely, C.B., D.S.O.
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Mrs. Claude Grahame-White.	Lady Tree.
The Hon. Sir Sidney Greville, K.C.V.O., C.B.	Mrs. Hall Walker.
The Princess Hatzfeldt	Lord Weir.
Lieut.-Gen. Sir David Henderson, K.C.B., K.C.V.O., D.S.O.	The Duchess of Westminster.
The Hon. Mrs. Lionel Guest.	Mrs. Hwfa Williams.

A social and sporting club, formed to promote and encourage flying and aerial travel of all descriptions, the "London Flying Club" will be in every way a Club de luxe and, located as it is at the hub of British aeronautics, the recognised social centre of the Flying World.

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In addition to flying, the Club will offer many other attractions in the way of sports, games, Thé dansants, etc. A particular feature for the present summer season is a Hawaiian Band, specially brought over from America for the exclusive use of the Club.

The Club will be justly famed for its choice catering, which will be under the management of the well-known Restaurateur, Cavre. R. Nobile, late of Claridge's and the Hotel de la Plage, Ostend.

A number of Motor-cars are owned by the Club and are kept exclusively at the call of members by telephone for use between Town and the Club at a moderate charge.

The London Headquarters of the Club are at the Ritz Hotel where Club Cars will attend every day at stated hours.

Ladies and Gentlemen are eligible for membership, which carries outside advantages allied to the Club.

For full particulars and application for membership, apply to THE SECRETARY,
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PLAIN IMPRESSIONS

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descended owing to trouble with its steering gear, and a large crowd had surrounded it when it exploded.

* * *

The following regulations as to flying in the U.S. Air Service have been issued by the office of the Direction of Air Service, War Department, U.S.A. :—

I. 1. Flights in aircraft under the control of the Air Service are authorised for all training or war purposes and such other purposes as are set forth below :—

(a) For the proper execution of any approved project of the Air Service or of the Air Service in co-operation with any other branch of the Service or department of the Government—special approval of this office to be secured in each case.

(b) For the demonstration of aircraft and aircraft development to officers of the Executive, legislative, and judicial branches of the Government.

(c) For the rapid transportation of military or civilian officials of the Government, of messages or parcels in cases of urgent necessity and for the convenience of the Government.

(d) For the assistance of stranded civilian aviators or where it is necessary for the saving of human life.

2. The following may be carried as passengers in aircraft under the control of the Air Service :—

(a) Any person necessary to be carried as a passenger to accomplish the purpose of any of the flights authorised in paragraph No. 1, above.

(b) Officers and enlisted men of the Army, Navy, and Marine Corps, both active and reserve.

(c) Officers and enlisted men of foreign armies, as a courtesy when they are visiting the United States.

3. No person will be permitted to pilot aircraft under the control of the Air Service except regularly authorised Air Service pilots or bona fide student-pilots of the Air Service.

II. 1. Persons operating aircraft who are not in the military service or who are not under the jurisdiction of the Air Service will be permitted to use Government facilities at Air Service stations contingent upon their proper observance of the air and ground rules in force at the particular station in question, and subject to the discretion of the Commanding Officer thereof as not interfering with the proper conduct of official business of his station, as follows :—

(a) They may be permitted to land and take off from flying fields.

(b) They may be permitted to place airplanes in Government hangars overnight or for a short time pending repairs.

2. The sale of gasoline, oil, spare parts, etc., or the furnishing of the labour of Air Service mechanics in any form to pilots not in the military service is forbidden.

* * *

An official U.S. Army message from Washington, D.C., dated June 16th, 1919, says that upon the heels of the instructions of the War Department to treble the Air Force on the Mexican border the Director of Air Service late this afternoon issued orders to send three flights of six planes each to Fort Bliss. These flights will probably not be formed into a squadron on account of the large area to be patrolled, as it will require separate bases for operation. These flights were ordered to move from Kelly Field (San Antonio) and Ellington Field (Houston), Texas, at the earliest possible moment. These squadrons will be equipped with De Havilland Liberty planes.

At first a flight of only six planes was ordered, but the General Staff considered the situation of such import to warrant the increase of the Forces, and late this afternoon the necessary telegraphic instructions were issued. The general opinion around the Air Service headquarters yesterday was that the work required would be that of an observation squadron, and that the better plan on account of the rapid demobilisation in the United States and the need of thoroughly trained personnel was to send an arriving overseas squadron immediately, and then relieve it as soon as competent personnel could be mustered from the training schools throughout the United States.

It developed that the Twelfth Aero Squadron, the most famous corps observation squadron in France, and one which formed the first observation group at the Front would arrive at New York to-morrow afternoon from Brest. Brigadier-General William Mitchell, Chief of Training and Operations of the Air Service, requested orders last night from Major-General Charles T. Mencher, Director of Air Service to have the Twelfth Aero Squadron ordered intact upon arrival to El Paso, Texas, and placed at the disposition of the General commanding the United States Forces in Mexico.

As expressed last night by Major E. R. Haslett, assistant to Brigadier-General Mitchell, the object of the contemplated rapid movement of this famous oversea squadron to the border was to take over the operation of the aeroplanes which would be flown from Houston and San Antonio, Texas, and when competent personnel could be gathered in the United States the Twelfth Aero Squadron would be relieved in case the situation did not become too serious.

The Twelfth is in such splendid state of organisation that they can operate immediately, and the personnel is thoroughly experienced, having served throughout the Chateau Thierry, Saint Mihiel and Argonne offensives.

There was much speculation at Air Service headquarters last night as to who would command the new Air Expedition. The Chief of Operations, Lieut.-Col. L. H. Brereton, who was the first Commanding Officer of the Twelfth at the Front, and Major Elmer R. Haslett, who was the Chief Observer of the squadron at the Front, both formally volunteered their services last night for the expedition, and it was considered probable by many that Colonel Brereton would be designated to command the new expedition, and Major Haslett would be designated as Chief Observer and second in command on account of the wide experience of these officers at the Front.

There was some talk that if the situation developed Brigadier-General William Mitchell, who commanded the Air Service at the Front would personally assume command. Major Reed M. Chambers, an American ace, now commanding the Ninety-fourth Aero Squadron, which was the old squadron of Rickenbacker, was in Washington yesterday, and made application to be assigned to the expedition in any capacity should it be necessary to utilise the services of a pursuit aviator. At present, however, it is believed that it will only be necessary to use observation planes which can also be used for firing on the infantry on the ground.

AFGHANISTAN.

The following story, dated June 19th, appeared in the "Times," and, one thinks, the "Times" should have the credit therefor :—

The rumours that four aeroplanes had arrived at Kabul for the Afghans originated in the fact that, in order to reassure the frightened population, the Ameer caused four dummy aeroplanes to be secretly constructed. The people were so much alarmed by our planes that they insisted that Amanulla should procure some. Unaware of the fraud practised on them, they are now being regaled with wonderful stories of imaginary exploits of Afghan airmen.

PERSONAL NOTICES.

NAVAL.

ENGAGEMENT.

TRAVERS—FRASER.—A marriage is arranged between Major Herbert Gardner Travers, D.S.C., R.A.F., second son of Mr. and Mrs. J. L. Travers, of Horton, Warlingham, Surrey, and Hermia Edith Margaretta, younger daughter of Lieut.-Col. E. A. Fraser and Mrs. Fraser, of Bodicote Lodge, Banbury.

MARRIAGE.

DONALD—STACY.—On June 30th, at St. Bartholomew-the-Great, London, E.C., Capt. Graham Donald, D.F.C. (late Flt.-Cmdr., R.N.), elder son of the late Capt. D. P. Donald, of Johnstone, Renfrewshire, Scotland, was married by special licence to Claira Sylvia, third daughter of Lt.-Col. J. H. Stacy, T.D., R.A.M.C. (T.), of Great Yarmouth (late of Norwich).

MILITARY.

DEATH.

LYSTER-SMYTHE.—Captain and Flt.-Commdr. Richard Litton Lyster-Smythe, R.A.F., formerly Lieut. 3rd Gordon Highlanders, was drowned while bathing at Jaffa on June 19th. He was the youngest son of Col. and Mrs. Lyster-Smythe, of Barbavilla, Westmeath, and was 22 years of age.

IN MEMORIAM.

McCUDDEN.—To the memory of our dear son and brother Jim (Major J. T. Byford McCudden, V.C., etc., R.A.F.), killed on his way to duty in France, July 9th, 1918, aged 23 years. R.I.P. From his sorrowing Father, Mother, sisters and brother.

MARRIAGES.

CARTLEDGE—PRITCHARD.—On July 2nd, at Barnes Parish Church, Reginald Arthur (late H.A.C. and R.A.F.), elder son of Arthur Cartledge, 9, Chislehurst Road, Richmond, Surrey, was married to Laura Winifred May, eldest daughter of the late Thomas Pritchard, C.E., and Mrs. Pritchard, of 56, Treen Avenue, Barnes, by the Rev. Bernard M. Kitson, M.A.

CHARTERIS—VALENTINE.—The marriage of Capt. Ronald Charteris (late R.F.C. and R.A.F.) and Mrs. James Valentine took place very quietly on July 3rd at the Chapel Royal, Savoy. The bride, who is the daughter of the late Major-General G. W. Knox and of Lady Sybil Knox, sister of the Earl of Lonsdale, was given away by her brother, Mr. Henry Knox, and Capt. Ellice Sassoon, R.A.F., was best man. Only the nearest relatives were present, these being Lady Louisa Charteris (mother of the bridegroom), Colonel Nigel Charteris, C.M.G., D.S.O., and Mrs. Charteris, Mrs. Drury Lowe, the Countess of Lonsdale, the Hon.

Lancelot Lowther and Mrs. Lowther, Mr. Christopher Lowther, M.P., Mrs. Henry Knox, Capt. Charles Chaplin, and Major A. C. T. Veasey.

The bride, who is the widow of the late Major James Valentine, D.S.O., R.F.C., one of the earliest of British aviators, was for three years a French military nurse in France, and was awarded the Médaille des Epidémies and the Palmes d'Honneur by the French Government.

The bridegroom, who was the first officer to join the Special Reserve of the Royal Flying Corps in 1912, holds the 1914 Star, having gone to France with the first detachment of the R.F.C. at the outbreak of war. He is Managing Director of the famous A.B.C. Motor firm, and except for his service with the R.F.C., has devoted himself entirely during the past nine years to the improvement of aero-engines.

Among those most closely concerned with aviation Captain Charteris has always been liked for himself and respected for his pluck in sticking to his self-imposed task of producing a really good British engine, and all who have had to do with him will wish him and his bride every happiness in their future life

PERRIN—GRAZEBROOK.—On June 30th, at Lillington Parish Church, Capt. Eugene Courtenay Perrin, O.B.E. (4th Bn. Cheshire Regt., and R.A.F.), elder son of John E. Perrin, of Hoylake, Cheshire, and Mrs. Perrin, was married to Katherine Arthur Mary Violet, widow of Capt. C. A. Glazebrook, K.R.R.C., and daughter of the late Arthur Hickman and Mrs. Morgan, of Radlett, Herts., by the Rev. Canon Barker, great uncle of the bride, assisted by the Rev. S. B. Williams.

BIRTH.

HILTON.—On June 30th, at the Sarum Road Nursing Home, Winchester, to Phyllis, wife of Capt. R. Hilton, M.C., D.F.C., R.A. (late R.A.F.), a son (Peter).

AIR FORCE.

DEATHS.

FOWLER.—Lieut. Donald Alexander Fowler, R.A.F., who was accidentally killed while flying at Winchester on June 26th, was the son of the late Lieut.-Col. B. W. Fowler, R.A.M.C., and of Mrs. Fowler, 15, St. Minver Road, Bedford. He was 24 years of age.

LATHAN.—At the inquest at Islington on July 7th on the body of Edgar George Lathan, aged 20, lately residing at Kingsley Road, Palmer's Green, who was killed by the collision with a motor-omnibus of a motor-cycle on which he was riding, it was stated that as a lieutenant in the R.A.F. Lathan had been seriously wounded in action at a height of 14,000 ft. or 15,000 ft. His goggles were struck by shrapnel and the bridge of his nose was smashed. While descending he was again wounded by anti-aircraft guns, and fell a distance of two miles. He recovered from his wounds and was bright, vigorous, and active.

The inquest was adjourned in order that the driver of the cycle, who was seriously injured, might give evidence.

ENGAGEMENT.

PERMAN—RICE.—The engagement is announced of Lieut. Ian M. Perman, R.A.F., son of Mr. W. H. Perman, Inchiquin, County Clare, to Norah, only daughter of Major-General Sir Gerald C. S. Rice, of Cliff Court, County Donegal.

MARRIAGES.

BOYS ADAMS—CARNEGY ARBUTHNOTT.—On July 2nd, at St. Paul's, Knightsbridge, Lieut.-Colonel Wilmot Boys Adams, late R.A.F., was married to Enid, second daughter of J. Carnegy Arbuthnott, of Balnamoon, Brechin, and 34, Roland Gardens, S.W.

DICK—WISEMAN.—The marriage took place on July 1st at St. Mary Abbot's Church, Kensington, of Capt. Arnold John Dick, late R.A.F., eldest son of the late Mr. Walter David Dick and Mrs. Dick, of Hillhead, Glasgow, and Miss Margery Elizabeth Wiseman, third daughter of Elizabeth Lady Wiseman and the late Captain Sir William Wiseman, R.N. The service was conducted by the vicar, the Rev. E. Marling Roberts.

PAINE—NORTON.—On June 3rd, at St. Alban's Church, Westcliff-on-Sea, Lieut. James T. Paine, R.A.F., was married to Mabel, youngest daughter of Mrs. Norton and the late Fredk. Norton, of 20, Gordon Road, Lowestoft.

TOLFREE—NASH.—On June 26th, at Cairo, Lieut. H. Norman Tolfree, R.A.F., son of Mr. and Mrs. W. H. Tolfree, of Winsford, Cheshire, was married to Frances Winifred, only child of Mr. and Mrs. Francis R. Nash, of Camelot, Guildford.

BIRTH.

TURNER.—On July 4th, at Wanstead, the wife of Captain Bertrand Turner, R.A.F.—a son.

THE ROYAL AERO CLUB.

TECHNICAL AND COMPETITIONS COMMITTEE.

A meeting of the Technical and Competitions Committee was held on Monday, June 30th, 1919, when there were present: Lieut.-Col. F. K. McClean (in the Chair), Mr. Griffith Brewer, Lieut.-Col. T. O'B. Hubbard, M.C., R.A.F., Major R. H. Mayo, Lieut.-Col. Alec Ogilvie, R.A.F., and Mr. H. E. Perrin, Secretary.

CLASSIFICATION OF AERODROMES.—The Committee considered the draft scheme for classification of aerodromes received from the Air Council. A report was drawn up for submission to the committee of the club.

JACQUES SCHNEIDER MARITIME CUP.—The arrangements in connection with this competition were considered.

FLIGHT FROM ENGLAND TO AUSTRALIA.—The supplementary regulations suggested by the Australian Commonwealth were considered and approved.

COMMITTEE MEETING.

A meeting of the Committee was held on Tuesday, July 1st, 1919, when there were present: Brig.-Gen. Sir Capel Holden, K.C.B., F.R.S. (in the Chair), Mr. E. C. Bucknall, Mr. G. B. Cockburn, Lieut.-Col. T. O'B. Hubbard, M.C., R.A.F., Lieut.-Col. F. K. McClean, Lieut.-Col. Alec Ogilvie, R.A.F., Col. C. R. Samson, D.S.O., R.A.F., Mr. A. Mortimer Singer, and Mr. H. E. Perrin, secretary.

NEW MEMBERS.—The following new members were elected:—Capt. Sir John Alcock, K.B.E., Lieuts. Sir Arthur Whitten Brown, K.B.E., and Douglas Henry Walter Arnot (Argyll and Sutherland Highlanders), Basil Johnson, Major Charles Henry Chichester Smith, R.A.F., Sir Charles Cheers Wakefield.

CLASSIFICATION OF AERODROMES.—The report of the Technical Competions Committee was received and approved and ordered to be sent to the Air Council.

JACQUES SCHNEIDER MARITIME CUP.

The Jacques Schneider Maritime Cup having been won in 1914 by C. H. Pixton on a Sopwith siplane, the nominee of the Royal Aero Club representing the British Empire, the race for 1919 will be held in England early in September next, the exact date and place will be announced later.

The race will be over a distance of 200 nautical miles exclusively at sea, in a closed circuit having a minimum course of five nautical miles, and situated outside any port or enclosed harbour. At least two alightings must be made on the water at points fixed by the officials.

The Committee of the Royal Aero Club will select the three competitors to represent the British Empire, and reserves to itself the right to hold climinating trials.

Entries are to be made at the Royal Aero Club, 3, Clifford Street, London, W.1, not later than July 31st, 1919. Each entry must be accompanied by the Entry Fee of £20.

AVIATION INSURANCE.

The Royal Aero Club has given its official approval to the Aviation Policies of the Aviation and General Insurance Co., Ltd., 56, St. James Street, London, S.W.1, and arrangements have been made for Members of the Club to receive a rebate of 20 per cent. upon all premiums

A feature of the Policy issued by the Aviation and General Insurance Co., Ltd., is that in the event of any difference of opinion arising the same shall be settled by an arbitrator or arbitrators to be appointed by the Committee of the Royal Aero Club, whose decision shall be binding.

GOLD MEDALS FOR CAPT. SIR JOHN ALCOCK, K.B.E., AND LIEUT. SIR A. WHITTEN BROWN, K.B.E.

The Committee at its meeting on June 17th, 1919, unanimously resolved to award the Gold Medal of the Club to both Capt. Sir John Alcock, K.B.E., and Lieut. Sir A. Whitten Brown, K.B.E.

These medals were presented by the Chairman of the Club, Brig.-Gen. the Duke of Atholl, K.T., M.V.O., D.S.O., at the Club's banquet on June 23rd, 1919.

FLYING SERVICES FUND COMMITTEE.

A meeting of the Flying Services Fund Committee was held on Wednesday, June 18th, 1919, when there were present: Lieut.-Col. T. O'B. Hubbard, M.C., R.A.F. (in the Chair), Mr. Chester Fox, and Mr. Harold E. Perrin, secretary.

GRANTS AND ALLOWANCES.—The following Grants and Allowances were made:—

(27) A Grant of £5 to an Ex-Petty Officer in the Royal Naval Air Services who had been incapacitated on active service

(51) An allowance of £2 a month for six months to the widow of a Sergeant in the Royal Flying Corps who had been killed on active service.

(73) An allowance of £2 a month for six months to the widow of a 3rd Class Air Mechanic in the Royal Air Force who had been killed on active service.

(76) An allowance of £3 a month for six months to the father of a Corporal in the Royal Flying Corps who had been killed on active service.

(90) An allowance of £4 a month for six months to a 2nd Lieutenant in the Royal Flying Corps who had been incapacitated on active service.

(106) An allowance of £2 a month for six months to the widow of a 3rd Class Air Mechanic in the Royal Flying Corps who had been killed on active service.

(111) An allowance of £1 10s. a month for six months to the widow of a private in the Royal Flying Corps who had been killed on active Service.

(112) A Grant of £20 to the widow of a 1st Class Air Mechanic in the Royal Air Force who had been killed on active service.

(113) An allowance of £4 a month for six months to the widow of a Flight-Serjeant in the Royal Flying Corps who had been killed on active service.

(121) An allowance of £2 a month for six months to the widow of a 2nd Class Air Mechanic in the Royal Flying Corps who had died on active service.

(122) An allowance of £5 a month for six months to the widow of a 2nd Class Air Mechanic in the Royal Flying Corps who had died on active service.

(197) A Grant of £15 to the mother of a Flight Cadet in the Royal Air Force who had been killed on active service.

(200) A Grant of £10 to an Ex-Corporal in the Royal Flying Corps who had been incapacitated on active service.

(201) An allowance of £2 a month for six months to the mother of a Serjeant Mechanic in the Royal Air Force who had died on active service.

(204) An allowance of £2 a month for twelve months, for the upbringing of her child, to the widow of a 2nd Class Air Mechanic in the Royal Air Force who had been killed on active service.

(211) A Grant of £5 to the widow of a Private in the Royal Air Force who had died on active service.

(212) An allowance of £1 10s. a month for six months to the mother

of a 2nd Class Air Mechanic in the Royal Naval Air Service who had been killed on active service.

(213) An allowance of £2 a month for six months to the widow of a Chief Mechanic in the Royal Air Force who had died on active service.

(214) A Grant of £10 and an allowance of £2 a month for six months to the widow of a Private in the Royal Air Force who had died on active service.

(216) An allowance of £2 a month for six months to the widow of a Private in the Royal Air Force who had been killed on active service.

(218) An allowance of £2 a month for six months to the widow of a Private in the Royal Air Force who had been killed on active service.

(219) An allowance of £1 10s. a month for six months to the widow of a 3rd Class Air Mechanic in the Royal Air Force who had died on active service.

CERTIFIED TRIALS.

General Regulations.

(Under the Competition Rules of the Royal Aero Club.)

Object.

1.—The object of the Trials is to test the merits of an aircraft as a whole or in part of an accessory under various conditions The competitor may make a request to have any particular quality or merit tested and certified.

Certificates.

2.—The Club will give a Certificate of the actual performance during the Trial, and an official observer, or observers, will be provided for the Trial by the Club. The Certificate shall be a record of the Trial, containing such details of the aircraft or part thereof under Trial, and any observations the Club may find desirable. The Club undertakes that a copy of each Certificate shall be published in the Official Organ of the Club.

Observation.

3.—The Trial shall be under the control and observation of the Club. The Club reserves the right to stop a Trial if, in its opinion, such Trial from any cause would tend to endanger life or limb.

Trial Void.

4.—Should the competitor be prevented from carrying out the Trials owing to the absence of the observer, or from any cause within the Club's control, the Club may issue such Certificate as the occasion warrants, and at its discretion return the whole or part of the entry fees. Should the Trial be postponed or cancelled at the request of the competitor, the entry fee will not be returned.

Withdrawal.

5.—The competitor may, at any time before the completion of the Trial, give notice in writing to the Club that he wishes to withdraw from the Trial, and shall state his reason. In the event of such notification, the aircraft shall, at the discretion of the observer, remain under observation until the cause thereof has been investigated and the aircraft released by the Club.

Working Hours per Day.

6.—An aircraft in flight shall not be observed save between the hours of sunrise and sunset, unless particular provision is made therefor in the Regulations agreed to by the Club.

Start and Finish.

7.—Trials shall start from, and finish at, or be held at, such places as may be agreed to by the Club. The competitor shall give notice to the observer of his intention to commence the Trial, and the observer shall record the moment of starting.

Entries.

8.—Every entry shall be made upon the official Entry Form of the Club, and shall state the nature of the Trial, and the number of days to be occupied.

No entry will be accepted unless accompanied by the entry fee, which is not returnable, except as laid down herein

The Club reserves the right to refuse any entry without giving a reason, or to limit the length of any Trial at its discretion.

Fees.

9.—Fees for the Trial shall be determined by the Club in accordance with the nature, duration, and venue of the Trial.

Advertising the Trial

10.—A competitor by entering for a Trial agrees to accept the official records of the Club, and authorises the Club to publish them in such manner as the Club thinks fit. The competitor may publish only the full and complete Certificate issued by the Club. In the event of his desiring to publish, by way of advertisement or otherwise, any other matter relative to the Trial, he shall submit a proof of such matter to the Club before its publication, and he undertakes not to publish any such matter until he has received the written authority of the Club.

Unrecognised Trials.

11.—No Trial shall be recognised except such as is officially observed or sanctioned by the Club. Should an unrecognised Trial be held, and should any publicity or advertisement be given thereto, any person taking part in such Trial and/or the manufacturers and/or the machines shall be liable to disqualification and suspension.

Responsibility for Damage.

12.—A competitor by entering waives any right of action against the Club for any damages sustained by him in consequence of any act or omission on the part of the officials of the Club or its representatives or servants or any fellow-competitor.

The aircraft shall at all times be at the risk in all respects of the competitor, who shall be deemed by entry to agree to waive all claim for injury either to himself, or his aircraft, or his employees or workmen, and to assume all liability for damage to third parties or their property, and indemnify the Club in respect thereof.

13.—In these regulations the word "aircraft" shall be held to mean the aircraft and/or its parts and/or accessories, whether under tests or not; the word "competitor" shall include any person or body making entry for or taking part in any Trial or Competition, except any passenger other than the driver or mechanic; the word "entrant" shall mean the person or persons entering the aircraft for a Competition.

Interpretation of Regulations.

14.—The interpretation of these Regulations shall rest entirely with the Club, which may from time to time alter, add to, or omit from them, and may in the case of any special Trial modify the Regulations to suit any particular case.

CERTIFIED TRIALS.—SPEED.

(Under the Competition Rules of the Royal Aero Club.)

Regulations (Aeroplanes).

1.—Certificates of speed will be delivered in respect of flights over a straight course of not less than one kilometre. Each Trial shall consist of four flights out and back in quick succession, and the times will be taken at the moment of passing each mark. The speed of the Trial shall be the mean of the speeds of the flights out and back.

2.—The Competitor shall rise from the ground to the height at which he proposes to cover the measured distance, and shall maintain approximately the same level throughout the trial.

3.—All flights must be controlled by one official observer assisted by at least one official timekeeper, both previously approved by the Club, and a mark-keeper approved by the observer, at each mark.

4.—The course over which the flight is accomplished must be certified by a surveyor approved by the Club, and checked by the observer, the surveyor's plan being lodged with the Club.

5.—Entries must be made upon the Entry Form provided for the purpose, and must be accompanied by a remittance of £5 5s., the amount of the fee. The Entry Form, which must be duly filled up as regards the nature of the test and full particulars of the Aeroplane, must reach the Secretary at least seven days prior to the Trials.

If desired by the Competitor the carried weight shall be recorded on the Certificate. For details, see Regulations 1, 2 and 3, Weight carrying.

CERTIFIED TRIALS.—VERTICAL SPEEDS.

(Under the Competition Rules of the Royal Aero Club.)

Regulations (Aeroplanes).

1.—Certificates for vertical speed, *i.e.*, climbing speed, will be delivered in respect of flights recorded by barograph and controlled by an official observer appointed by the Club.

2.—The barograph must be provided by the Competitor, and be provisionally approved, set, and sealed by the observer prior to the start.

3.—The record sheet of the barograph must travel at least 6 inches in one hour.

4.—The test shall be reckoned to have commenced at the time when the Competitor shall have risen 100 feet as registered on the barograph.

5.—The Certificate will state the time taken to rise 1,000 feet, 2,000 feet, and so on per 1,000 feet above the 100 feet starting level. Failure to attain a height of 1,000 feet above the starting level will be recorded on the Certificate.

6.—After the descent the Competitor shall deliver the barograph to the observer, who shall take charge of it and deliver it sealed to the Royal Aero Club for examination. In the event of the Competitor alighting at a distance from the starting point, he shall immediately take steps to inform the observer of his whereabouts.

7.—Entries must be made upon the Entry Form provided for the purpose, and must be accompanied by a remittance of £5 5s., the amount of the fee. The Entry Form, which must be duly filled up as regards the nature of the test and full particulars of the Aeroplane, must reach the Secretary at least seven days prior to the Trials.

If desired by the Competitor the carried weight shall be recorded on the Certificate. For details, see Regulations 1, 2 and 3, Weight carrying.

CERTIFIED TRIALS.—HEIGHT.

(Under the Competition Rules of the Royal Aero Club.)

Regulations (Aeroplanes).

1.—Certificates of height will be delivered in respect of flights recorded by sealed barograph. The ascent must be performed in the presence of an official observer, who will, independently of the barograph, record the time of leaving the ground, and, if possible, alighting.

2.—The barograph must be provided by the Competitor, and be provisionally approved, set, and sealed by the observer prior to the start.

3.—After the descent the Competitor shall deliver the barograph to the observer, who shall take charge of it and deliver it sealed to the Royal Aero Club for examination. In the event of the Competitor alighting at a distance from the starting point, he shall immediately take steps to inform the observer of his whereabouts.

4.—Entries must be made upon the Entry Form provided for the purpose, and must be accompanied by a remittance of £5 5s., the amount of the fee. The Entry Form, which must be duly filled up as regards the nature of the test and full particulars of the Aeroplane, must reach the Secretary at least seven days prior to the Trials.

If desired by the Competitor the carried weight shall be recorded on the Certificate. For details, see Regulations 1, 2 and 3, Weight carrying.

CERTIFIED TRIALS.—WEIGHT CARRYING.

(Under the Competition Rules of the Royal Aero Club.)

Regulations (Aeroplanes).

1.—Certificates for weight or passenger carrying will be delivered in respect of flights where each passenger carried must be at least 18 years of age and not less than 10 stone 3 lb. in weight.

2.—The carried weight shall comprise the weight of the Competitor, passenger (if any) and ballast, but shall not include fuel.

3.—The weight must be verified by an observer appointed by the Club, immediately before and after the flight and all weighing must be done on Government tested machines, provided by the Competitor and approved by the Club..

4.—The attempt shall be for a minimum flight of 15 minutes.

5.—Entries must be made upon the Entry Form provided for the purpose, and must be accompanied by a remittance of £5 5s., the amount of the fee. The Entry Form, which must be duly filled up as regards the nature of the test and full particulars of the Aeroplane, must reach the Secretary at least seven days prior to the Trials

Should a further Certificate be desired for speed with a given weight, vertical speed with a given weight, or height with a given weight, the Regulations for the respective tests will be followed, in addition to the above, as far as applicable.

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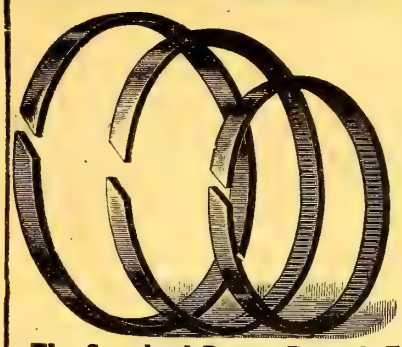

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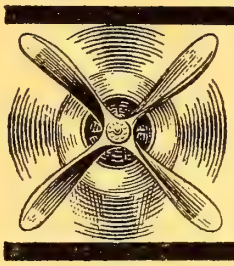

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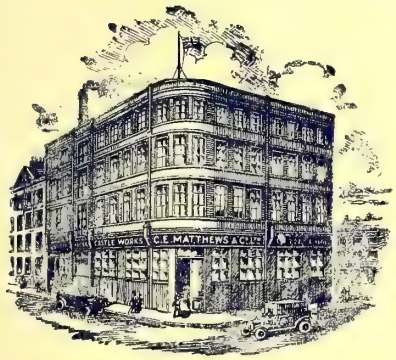

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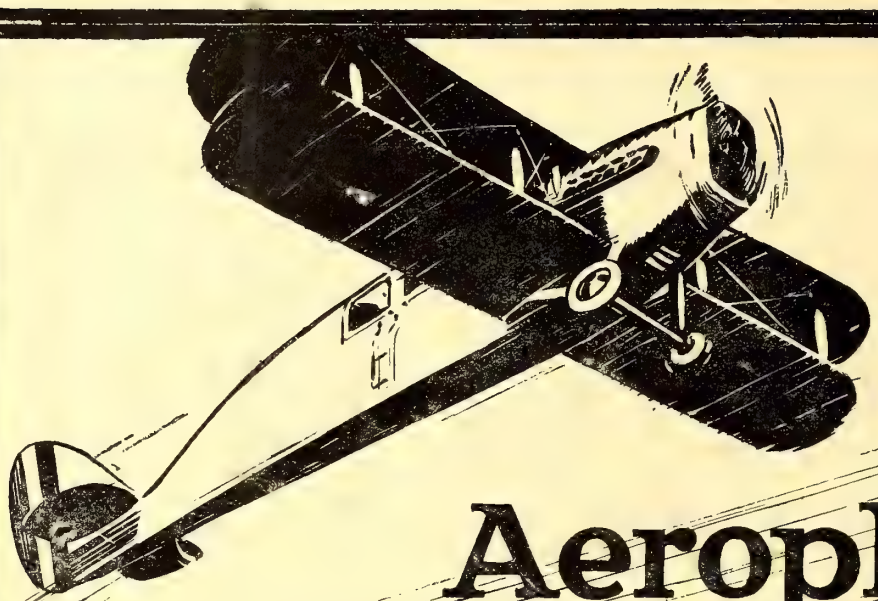

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ON PREPARING FOR WAR.

Imprimis, let it be understood that this article is not intended to give anybody good advice. It is not a sermon; it is purely an expression of personal opinion which includes a few prophecies. Therefore, by way of a change, I propose to drop for the time being the customary impersonal form of editorial address and to assume the first person singular. If the readers of this paper do not want my personal opinions they need not read any more of this article. They will get excellent value for their money in the rest of the paper, so they cannot complain that they have been done in any way. Let us therefore to our subject.

We are now theoretically at peace. The fact that there are twenty-seven minor wars going on at the moment need not worry us. The more important fact remains that Germany, France, Great Britain, and the United States are at peace—subject only to the ratification of impossible peace terms by various non-representative Governments. Even that need not worry us, for impossible peace terms are very like a life sentence for manslaughter. After a few years people forget about the sentence and the condemned person is let off.

Being at peace, we ought obviously to turn our attention to preparing for war, in accordance with the old injunction, "In time of peace prepare for war," and the old axiom, "The surest guarantee of peace is preparation for war."

If we were governed by an autocracy, or an aristocracy, or even by an intelligent oligarchy, or plutocracy, or bureaucracy, we might reasonably expect such preparations to be made without anybody having to jar the Government into action. But, unfortunately, we happen to be a limited monarchy almost completely in the hands of a democracy tempered by plutocracy.

Now, democracy means government by the "demos" or people. And nobody has seriously disputed Carlyle's dictum that the population of these islands consists of so many millions of people, "mostly fools." Therefore we are actually governed mostly by fools, or, alternatively, by knaves who have humbugged the fools into electing them to the places of government. Nobody who has ever attended a session of the House of Commons or who has read Hansard can have any lingering doubts on that point. Consequently we cannot expect this or any other Government to prepare for war until that war actually breaks out, as was the case in the late lamented European squabble.

But there does happen to be an intelligent minority, fairly evenly spread over all grades of society, among our millions of fools, which realises that we must prepare for war if we are to remain a Nation, let alone an Empire. Before this war the Navy League, by constant agitation, which was made possible largely by the financial and social help of that fine example of the English gentleman, the late Mr. Robert Yerburgh, managed to squeeze enough money out of successive and always reluctant Governments to enable the Admiralty to build the biggest Navy in the world, albeit perhaps not the most intelligently or efficiently organised.

The mere size of that Navy secured this country against invasion, and played a decisive part in ending the war by starving the German people into a low state of moral. For this we have to thank Mr. Yerburgh, and Mr. Pat Hannon, the Secretary of the Navy League during its most active years, more than the British Government or the majority of the British People.

Aircraft in the Next War.

It is evident that in the next war aircraft will play a part similar to, but far more important than, that played by the ships of the King's Navy in this war.

In the first place our anti-aircraft defences—which ought forthwith to be established as a permanent institution on a far larger scale than the coast defences under the Army—will have to assure the immunity of this country from invasion by air.

In the second place, our seagoing aircraft will have to protect our trade routes against attack by enemy submarines and surface ships.

In the third place, our aircraft with the Army in the field will have to do all the air work required by the Expeditionary Force.

And, fourthly, another force of aircraft, bigger than all the other sections put together, will have to carry war into the enemy's country.

Thus it is easy to see that the task of the Flying Services in the next war will be far greater than that of any other of the King's Armed Forces. And to-day it is proposed by our democratic Government, not only to cut down our Navy (which can be spared, if our Air Force is built up to proper strength), and to cut down our Army (which cannot be spared, because an Army of Occupation in enemy territory is the only guarantee that a war is won), but to cut down our Air Force to a size which in the next war will be in pretty well the same proportion to our needs as the historic first four squadrons were to our needs in this war.

The Task of a Territorial Association.

That is what Democracy is going to do for us, if we allow it. There is thus evident need for a strong organisation of the intelligent minority to do for the Air Force what the Navy League did for the Navy. It might be done by a purely propagandist body, such as a reorganised and thoroughly vitalised Aerial League might become. But my personal opinion is that it can be done still better by a practical organisation such as a Territorial Air Force Association may become if it is founded by the right people, if it secures the right patrons, and if it is conducted by an energetic secretariat.

The task of a Territorial Air Force Association would be precisely similar to that of the T.F. Association in connection with the Army, but on a far grander scale, for it would include sea work as well as land work. And one believes that it would ultimately have to deal with greater numbers of men.

It must have men of unimpeachable honesty of purpose at its head. And it must be conducted in a dignified and yet energetic manner. It must use the public Press to the utmost in popularising the movement. But it must not allow itself to be run by the Press for advertisement purposes.

Thus, and thus only, shall we be able to build up an adequate Air Force in preparation for the next war. Volunteer aviation must become a national sport, as archery was in the days when England was becoming a World Power.

How the details are to be organised I leave to cleverer brains than mine, but to those who approve of the general idea I recommend that they read "The Army of a Dream" written by Mr. Kipling some fifteen years ago. Therein they may find inspiration for their task.

Why a Next War?

"But," some people may ask, "why a next war? Have we not formed a League of Nations to ensure that there shall be no next war? Have we not President Wilson's Fourteen Points? Are not small nations to self-determine themselves, and thus remove all possible causes of war? Is not the International Police Force to be formed to stop any threatening war before it begins? Are not national armies to be limited so as to make wars impossible?"

As they say in Parliament, "The answer is in the negative." So long as man is a fighting animal, so long will war continue. Leagues and alliances may avoid or check war for a while, but war must come in the end. History, as I have remarked on several occasions, is the greatest plagiarist in all literature.

An Historic Plagiarism.

Read what a great historian has to say concerning a League of Nations formed for "the mutual preservation of states, so that the more powerful might not oppress the less powerful, and that each should keep what rightly belongs to him."

The League in question was formed in 1495 between Spain, the Holy Roman Empire, the Pope, Milan, and Venice to check the ambition of Charles VIII. of France. The words quoted are those in the assertion of the basis on which the League rested. Do they differ from the pious assertions of Mr. Lloyd George and President Wilson?

Here is what the late Dr. Mandell Creighton, the Bishop of London, had to say on this precious League in his monograph on Cardinal Wolsey, published in 1906:—

"This League marks a new departure in European affairs. There was no mention of the old ideas on which Europe was supposed to rest. There was no recognition of papal or imperial supremacy; no principle of European organisation was laid down. The existing state of things was to be maintained, and the contracting Powers were to decide amongst themselves what rights and claims they thought fit to recognise. Such a plan might be useful to check French preponderance at the moment, but it was fatal to the free development of Europe. The States that were then powerful might grow in power; those that were not yet strong were sure to be prevented from growing stronger. . . . European affairs were to be settled by combinations of powerful States."

Reading Germany for France, is there anything in that statement which does not apply precisely to our present preposterous League of Nations? See, then, what Dr. Creighton has to say as to the outcome of the League:—

"The results of this system were rapidly seen. France, of course, was checked for the time; but France, in its turn, could enter the League and become a factor in European combinations. The problem now for statesmen was how to use this concert of Europe for their own interests. . . . The notion of a maintenance of European equilibrium faded away before such a prospect.

"This prospect, however, was only in the future. For the present there was an opportunity for endless scheming. The European League for the preservation of the existing state of things resisted any expansion on the part of smaller States, but encouraged compacts for aggression amongst the more powerful."—Be it noted in passing that we have just been informed of an alliance between France, Great Britain, and the United States, excluding Italy and our nineteen other Allies.

I recommend the study of the history of this League of 1495 to those who may be so foolish as to believe in the League of 1919, and I recommend the study of Cardinal Wolsey's diplomacy to those who imagine that we of to-day are any different from the Englishmen of four hundred and twenty odd years ago. The chief difference is that whereas Wolsey kept England out of that particular League and used her splendid isolation, as the great Marquess of Salisbury did, to swing the balance of power as he willed, our politicians of to-day, not being statesmen, rush into the League, so that they must either be swung with the rest or, if they wish to maintain our British independence, must withdraw from the League when occasion demands and so give our enemies another charge to throw at "perfidious Albion." In fact, this alliance with France and the United States is already incompatible with the idea of a general League of Nations, though it is an eminently sensible alliance when regarded from the point of view of the older and more practical diplomacy.

However, there you have the League of Nations of 1495. Consider whether it did anything to stop war. So far as history shows, it carried on war with considerable success from 1495 till 1515 in its effort to stop war. And it then produced a Universal Peace, which lasted from 1515 till 1518—three whole years.

Our recent squabble has been shorter and perhaps our peace may be longer, though my personal opinion is that this peace will merely merge in a new series of wars, as I hope to show hereafter. Meantime we are at peace with our late enemies and at war with the majority of the greatest of our former Allies—Russia to wit, which was certainly the greatest of our Allies in point of size of area and population. For, be it noted, Bolshevik means nothing more nor less than a member of the majority (mostly fools—as aforesaid).

With Whom the Next War?

At present we are too near the recent war to see it in quite the right historic perspective. Our ignorant journalists have hailed it as Armageddon, to be followed by Universal Peace, and the Kingdom of Christ upon Earth. In all reverence I wish that such were the truth. But if we wish to attain to something like the right perspective it is necessary to consider the view of a great Chinese mandarin, who, when asked somewhere about the middle of the war what he thought of the Great World War, replied philosophically: "We in China pay but little attention to the tribe-fights of Western barbarians."

I have quoted this saying before, but it seems apposite and necessary to repeat it. For in no sense has this been a race-war. It is true that it began as a race-war between the Slavs and the Teutons, but the Teutons soon held the Slavs at bay. The real fighting developed into a struggle in which the Teutonic tribes of Germany and Austria contended with the Teutonic Franks, Burgundians, Belgicæ, and Anglo-Saxons. There were a few odd Slavonic and Semitic (*id est*, Turkish) tribes forced in as auxiliaries on one side, and there was an assortment of Latins and Kelts, together with a vast variety of coloured races, persuaded, bribed, or conscripted as auxiliaries on the other side.

Be it remembered that Italy has never had any quarrel with Germany, and but little with Hungary. Her

sole desire was to get back certain small patches of territory inhabited by Italians. And Italy has as little love for her Jugo-Slav neighbours to-day, now that they are an independent republic, as she had for them when they were part of the Austro-Hungarian Empire. The purely Latin tribes of Southern France took but little personal interest in the war, as anybody can bear witness who knew that area during the past four years.

The real race-war, when it comes, will be between the Teutonic Race and the Slav Race. There may be many minor wars before that comes, but that will be the first great race-war since the Teutonic tribes began to over-run Gaul in the later days of the Roman Empire.

A Minor Prophecy.

This is by no means a new idea, for in the issue of this paper published on August 5th, 1914, the day after the declaration of war, I wrote:—"Thanks to the machinations of politicians who pose as statesmen, the Powers find themselves grouped quite in the wrong way. Our alliance with France is as it should be, but that the two leading civilised nations should find themselves allied with Russia against Germany and Austria is altogether unnatural. The alliance with Russia is against all reason. 'Scratch a Russian and you find a Tartar' is an ancient proverb. Scratch a Tartar and you find a Chinaman is a logical sequel. The Slav is the real 'Yellow Peril,' for the Slav is at bottom an Asiatic.

"If Russia comes out on top in this present war, does anyone think that her gratitude to us for our support will cause her to keep her hands off India when she can spare men from her German frontier? Those who know the Russo-Indian problem will remember the admonition of the old shikarri in Mr. Kipling's famous allegory—'Make not your peace with Adam-zad, the bear that walks like a man.'"

Already Russia is working out that prophecy. The Bolshevik outbreaks in India, and the Afghan attacks on the North-West Frontier, stirred up by Russian emissaries and encouraged by Mr. Montagu's political imbecilities, show how Russia is working, now that she has nothing to fear from Germany.

In that same article I continued:—"However, nothing on God's Earth can excuse Germany's unprovoked attack on France, and we have got to see France through her trouble on that account. A smashed Germany is not as good a bulwark against the advance of the Slav peoples as a solid Germany backed by France and Italy would be, but perhaps a smashed Germany may be less dangerous than a top-heavy Germany ready to fall at any moment on us and our friends the French. Therefore, in the name of common sense, let us have at it, and smash Germany thoroughly, once and for all."

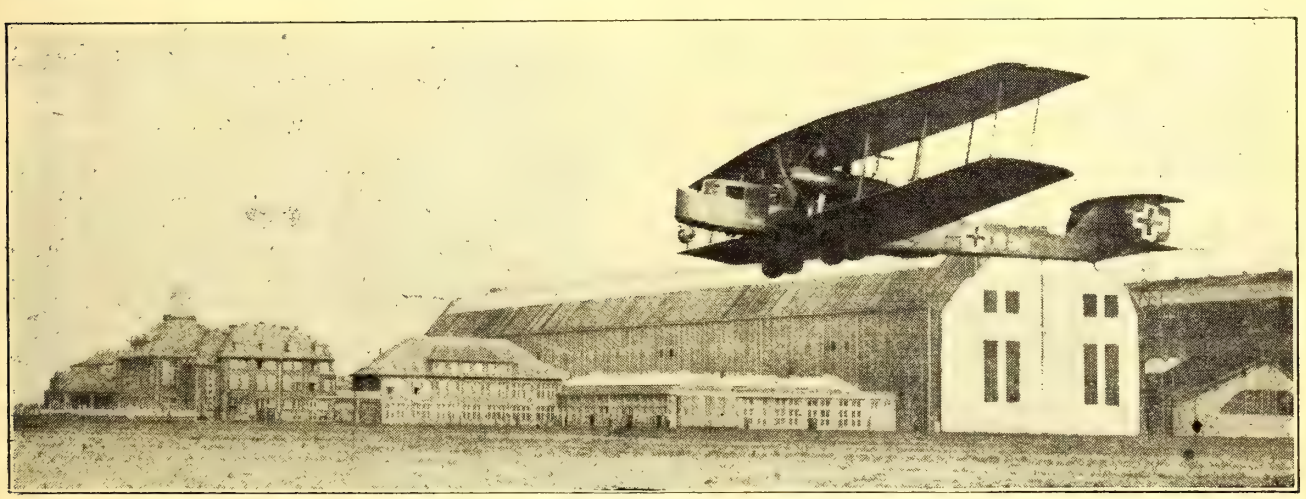
It is true that there was no excuse for Germany's attack on France, but there was a very good reason. France had been drawn into that unnatural alliance with Russia. When Russia and Germany declared war, Germany was open to attack by Russia's Ally France, and it was therefore politic, if not morally right, to hit France hard and keep her quiet while Germany smashed Russia. If Great Britain had kept out of the war, as some of our politicians desired, that is probably what would have happened. But it would have been bad policy in the end, for it would have left the Prussians, a Slav tribe, dominant in Europe. So our muddled policy ultimately worked out for the best.

The War That Had to Come.

We were bound to have a war with Germany, sooner or later. From my earliest days as a kid at school, some thirty-five years ago, I remember that my older relatives and friends in the Navy regarded a fight with Germany as their sole reason for existence, and for several years before the war I knew precisely where the British Expeditionary Force was to be placed in relation to the French Army when the war came. The war just had to come, as a fight comes at school between two boys who have no immediate *casus belli*, but have just been irritating one another for months. And generally they are better friends afterwards.

There were, however, many minor causes for the war. In the issue of THE AEROPLANE dated August 12th, 1914, I wrote:—"One cause certainly seems to be that the enormous spread of Socialism in Germany, as shown at the last elections, has so scared the Prussian *junkers*, or land-owners, that the war has been forced on in the vain hope that a wave of patriotism will swamp the Socialists.

"Another cause seems to be that German traders throughout the world have so overrun their financial capabilities that they have been going bankrupt by the thousand and so have broken the banks which have been backing them, with the result that the big financiers behind the banks have fostered the war spirit so as to get their money back out of profits on armament and military equipment. In doing so they have plunged their country into a war which is more likely to prove their ruin than anything else."



AN INTERESTING GERMAN MACHINE.—A 4-engined Zeppelin-Staaken "Giant" (four 250 h.p. Maybach engines) converted into a passenger-carrier by removing the fifth engine which was carried in the nose of the fuselage and substituting an enclosed cabin.

One sees little in those paragraphs with which to disagree five years later. But the financiers have been cleverer than was expected. Five years ago we in this country knew less about International Finance than we do now. The wonderful organisation of the great Jewish financiers was less understood.

Financial Pressure.

In the light of present knowledge it would seem that just as the financiers rushed forward the start of the war, so they ended it prematurely for their own benefit. Is it possible that Marshal Foch and the commanders of the Allied Armies would have allowed the Germans an armistice when they did if they had not been ordered to do so by the Allied politicians acting under orders from the International financiers?

When the Armistice was declared the German Army was on the point of breaking, but it had not broken. The Independent Air Force was on the point of bombing Berlin and wrecking the Rhine cities. A month more of war would have seen the victorious armies of the Allies in the wealthiest part of Germany. And not the most rigid discipline would have prevented the looting of the captured towns. The situation was perilous for the German Jew financier and his chief seat, the city of Frankfort.

And so the politicians ordered the Armistice, and the German Army retired into Germany beaten, but unbroken.

All for the Best.

Perhaps it was all for the best. When that great race-war with the Slavs breaks out we shall need the help of the German Army. And then it may be well that the Germans have not altogether lost their moral.

When, after the Battle of Mons, the British Army was in full retreat, Mr. Hamilton Fyfe, in his famous dispatch to the Sunday edition of the "Times," said, "The British Army is a beaten army, but not a broken army." It was the one consolation to the British Nation in the greatest, and most salutary, shock which it has had during the war. Similarly, when the Teuton Race has to array itself against the Slav, it may be well for us to remind the Germans that, though theirs was a beaten army, it was not a broken army.

The Germans will need little reminding, for one remembers that when the Guard returned to Berlin after the Armistice they were received with banners and flowers, as soldiers who had kept the horrors of war from the soil of the Fatherland. And very justly so, for when the Allied Armies set foot in Germany they came in peace, and no actual fighting has taken place in Germany itself.

The Whirligig of Time.

The idea of our needing Germany in the future may seem unthinkable to the narrow-minded, but as an historical fact it is not merely probable, but practically certain. History, as ever, must keep on repeating itself.

One of the most exquisitely humorous episodes in my own experience occurred just a week before the signing of the Armistice when I found myself sitting in a Hun hut in the middle of the devastated area in France, close alongside Velu Wood, between Bapaume and Cambrai, reading the account of the Battle of Waterloo as given in the British tourist's Bible, otherwise known as Baedeker. I read how "our gallant allies the Germans" held this position, how the stout Hanoverian troops held the other, how the brave Brunswickers carried such and such a strong point, and how a very considerable percentage of Wellington's Army were pure Germans. The book was lent me by a British officer, who carted a whole Baedeker library about with him, so that he should know something about the places which our troops were conquering at that period. The idea tickled him hugely.

Germany as It Was and Is.

It is in fact no more ridiculous to think of German troops as allies in a war with the Slav in the future than to think of them as allies in a war with France in the past. As I wrote in The Aeroplane of August 5th, 1914:—"Germany is built up of many incompatible elements. The Schleswiger is a Dane, and quite a good chap. The Alsatian is a Frenchman and hates Germany. The Bavarian is a peace-loving, hard-working, decent poor soul, and cordially dislikes his Prussian master. And the Pole is nothing in particular and loathes German, Russian, and Austrian with beautiful impartiality. The German Empire dissolved into its component parts may still be a useful barrier (against the Slav) and not a danger. It is Prussia, as usual, who is making a beast of herself, and it is Prussia rather than Germany whom we have to fight."

Again, in the issue of August 12th, 1914, I wrote:—"At the moment the German people are in the delirium of war fever, so they are not pleasant to meet, and for years they have been taught to hate the English, but the individual German is an easy-going, kind-hearted individual, singularly like an Englishman in most of his ways—especially in his quiet contempt for foreigners, and his offensive manner to strangers—and one hopes that when this affair is over, with all its waste of life and national wealth, we shall be better friends with our Germanic relatives. Meantime, Germany as an Empire has to be crushed out of existence, and the sooner it is done the better."

Was I very far wrong in what I wrote nearly five years ago, and before *any* news of any kind had come in from the war areas? If it seems that I have overestimated the decency of the Western German ask any of our people who has lived in Germany for the last few months with the Army of the Rhine.

If you remind me that German civilians, men and women, hooted and spat at our men when they were marched as prisoners through German towns early in the war, I ask you to explain why the good gentle people of Oswestry a week or two ago hustled and threw rotten eggs at a German officer whom they imagined to be Admiral von Reuter? The Germans acted in the heat of rising war fever. The people of Oswestry presumably acted the part of the noble and magnanimous conquerer to a beaten but gallant foe. Is that the explanation? Perhaps the kindest thing one can say about the Oswestry incident is that the place is nearly in Wales, and that the people are not typically English. One might perhaps find equally plausible excuses for various unpleasant incidents in Germany if one tried.

East Is East and West Is West.

Personally I do not like the average German. I can never forgive him for the fact that restaurant bands had to be invented to drown the noise of the Germans eating soup. But he is not half so black as he is painted, and he is not half so ill-mannered, or savage, or brutal as the Slav. The plain fact of the matter is that the farther East you go the greater is the innate savagery of the people.

German atrocities in France and Belgium were mere child's-play compared with Russian atrocities in East Prussia (although the East Prussians are themselves Slavs) during the temporary advance of the much advertised "Russian steam-roller" in 1914-15, or compared with Russian atrocities in Poland at any time in the last hundred years, or compared with the atrocities committed by the Bolsheviks on the minute percentage of decent

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people in Russia ever since the rebellion against His Imperial Majesty the Czar in 1917.

Brutal crimes are common to all nations, but you will find a higher percentage in England than in Ireland, a still higher percentage in France and Belgium than in England, a higher percentage still in Germany, and the highest of all in Russia. Which again is no excuse for the German. It is merely an explanation, and an ethnological fact which cannot be altered.

So far one has merely endeavoured to show that there must be a next war, with whom that next war must be, and why it is necessary for us to maintain a big Air Force in readiness for that war. Next week I hope to hazard a few prophecies as to the manner and time of coming of that war and the part which the Air Force must play therein. The subject is one which deserves careful thought, for on it depends our future existence.

(To be continued.) C. G. G.

THE JACQUES SCHNEIDER INTERNATIONAL RACE.

The race for the Jacques Schneider International Trophy will be held on Wednesday, September 10th, 1919, at Bournemouth. The course will be over a circuit of about 30 miles, starting from Bournemouth and taking in Swanage and Christchurch.

S. E. Saunders, Ltd., the well-known yacht and aircraft builders, of Cowes, Isle of Wight, have kindly placed their new erecting shops and slipways at the disposal of the Royal Aero Club for the accommodation of the competing machines.

Machines representing the British Empire must be ready not later than September 1st, 1919.

The Committee of the Royal Aero Club will select the three competitors to represent the British Empire, and reserves to itself the right to hold eliminating trials.

Entries are to be made to the Royal Aero Club, 3, Clifford Street, London, W.1, not later than July 31st, 1919. Each entry must be accompanied by the entry fee of £20.

This affair seems to have been arranged with all the ineptitude which one associates with Government Departments and elected bodies generally.

Bournemouth is a difficult place to reach by road, and is a hopeless place in which to find lodgings during the holiday season. Swanage is still less accessible and less habitable. As against these places there are far more attractive sites for the starting and turning points. Dover, Folkestone, Hastings, Eastbourne, and Brighton are all infinitely preferable. They are easier to reach from London, and there are more places in the vicinity in which people can live while preparing for the race.

The idea of housing the competing machines at Cowes is purely imbecile. One acknowledges that Mr. Sam Saunders has excellent accommodation, and his action in placing his shops at the disposal of the Club is worthy of his reputation for sportsmanship. But, apart from this, Cowes is about as suitable for the job as Scapa or Skibbereen.

The place is utterly inaccessible. The boat service is vile, and consequently competitors who want to get spares or material from London in a hurry will be hampered in every possible way. The housing problem in Cowes in September is as bad as it can be. And furthermore Cowes Harbour, in the yachting season, is the last place one would have chosen for the testing of racing seaplanes.

Also, the idea of housing the competing machines at Cowes and asking them to fly all the way to Bournemouth, with the attendant risks of collisions with boats in the Solent, and so forth, is as foolish as could well have been conceived. In fact the Royal Aero Club seems to be doing its best to make the event a failure instead of a success.

The only argument which one can discover in favour of the arrangement is that the house-boat of some motor-boat club or other—one forgets its name—is moored in Southampton Water, and so can, presumably, be towed round to Bournemouth if the weather is fine, so that the Committee of the Aero Club can "do" the race in ostentatious luxury, regardless of the convenience of British or Foreign competitors, heedless of the best interests of British aviation, and ruthless as to the ultimate results to the machines and those concerned with them.

It is quite bad enough to have the Department of Civil Aviation putting its hoof into it every time it awakes from its chronic lethargy and takes a step in any direction. There is some excuse for that Department, because nearly all the people who might have made it a success have been demobilised from the R.A.F. But it is a trifle too much when the Committee of the Royal Aero Club, the self-appointed Governing Body of the Sport of Aviation, joins the ranks of those who seem to be inspired to wreck Civil Aviation.

Quos Deus vult perdere prius dementat. It seems either that it is the will of Providence that Civil Aviation should be destroyed, or, which is what one hopes, that those who are misgoverning Civil Aviation should destroy themselves and thus leave room for competent people who think more about the progress of British Aeronautics than about either holding down their jobs or doing a little imitation yachting with the great International Seaplane Race as a kind of secondary consideration.

The Committee of the Royal Aero Club has not distinguished itself in the past by its intelligence in handling matters of real importance to British Aeronautics. One had hoped that the election of several practical aviators to the Committee might have brightened its collective intellect a trifle. It seems, however, that it still maintains the mental level and the angle of outlook of a parish council.—C. G. G.

ROYAL AERO CLUB

TECHNICAL AND COMPETITIONS COMMITTEE.

A meeting of the Technical and Competitions Committee was held on Tuesday last, July 8th, 1919.

JACQUES SCHNEIDER CUP.

The arrangements for the Jacques Schneider Cup were discussed, and it was decided to hold the race on Sept. 10th, 1919, and that the British competitors must have their machines ready not later than Sept. 1st, 1919, in case it is necessary to hold eliminating trials for the selection of the three competitors to represent the British Empire. The course for the race will announced later.

PRESENTATIONS TO THE CLUB.

The following framed prints have been presented to the Club by Capt. C. E. Bagram:—"Globe Aérostatique le Charles et Robert, 1783"; "A Consultation Previous to an Aerial Voyage from London to Weilburg in Nassau, Nov. 7th, 1836."

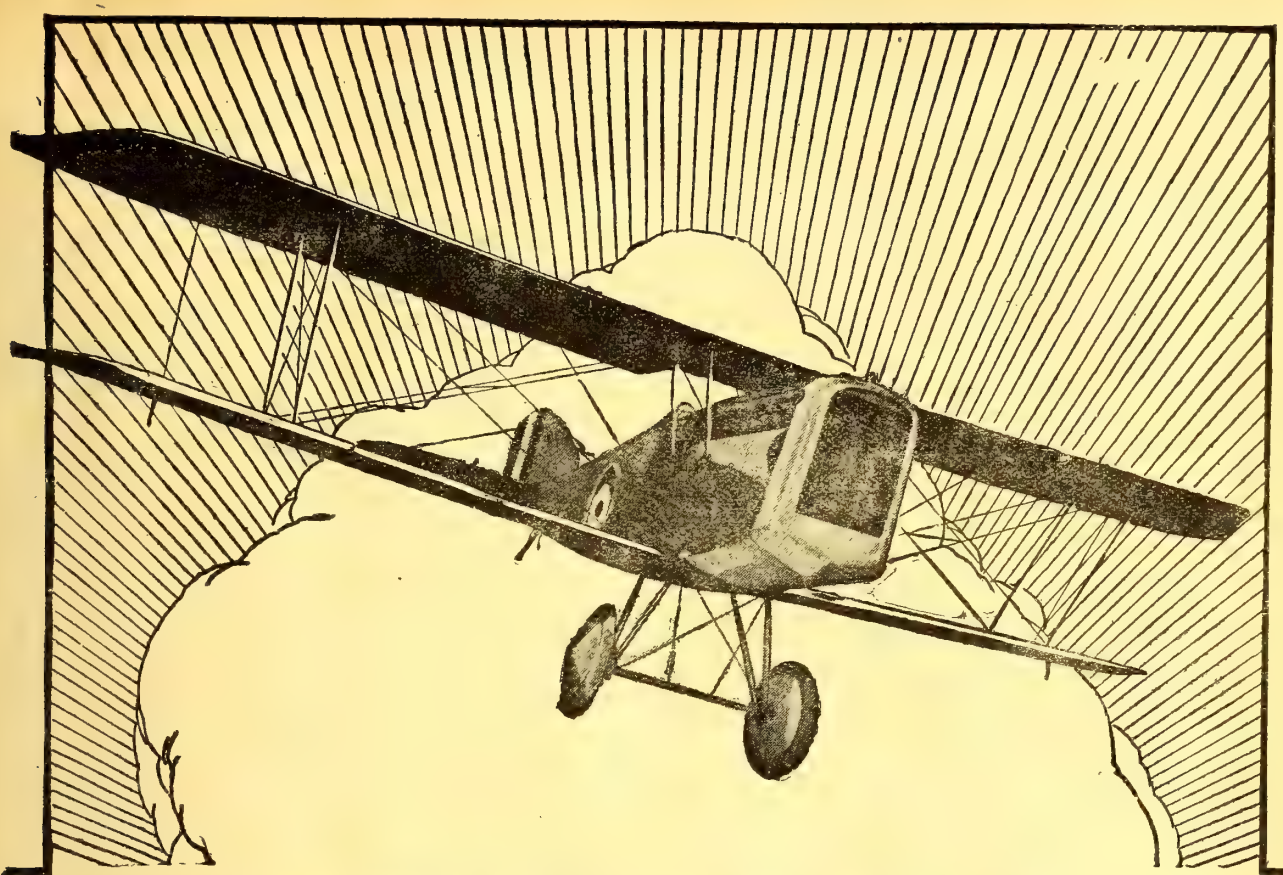
The following map has been presented to the Club by Miss Lockyer: "Time Map of the World."

The following books have been presented by the publishers to the Club library:—"Airy Nothings," by H. Barber (McBride, Nast and Co.); "Aerobatics," by H. Barber (McBride, Nast and Co.); "In the Royal Naval Air Service," by Harold Rosher (Chatto and Windus); "Guynemer: Knight of the Air," by Henry Bordeaux (Chatto and Windus); "All About Aircraft" (Car Publishing Co.); "Aircraft in War and Commerce" (Car Publishing Co.); "The Kingdom of the Air" (Car Publishing Co.); "V.C.s of the Air" (Car Publishing Co.); "The World's Air Routes" (Car Publishing Co.).

PEACE CELEBRATIONS.

In order that the House Staff may have a holiday, the House Committee has decided that no meals shall be served in the Club on Saturday, July 19th, 1919.—(By order) HOUSE COMMITTEE.

July 15th, 1919.



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PONS ASINORUM.

By CAPTAIN P. A. BARRON (late R.A.F.).

"Pray for an eye that sees spots in every sun and for a nose that smells carrion in every rose-bush," wrote Charles Kingsley in "Westward Ho!"

It is many years since one read it, but one remembers the injunction to "worship at the shrine of the great Goddess Detraction" and to "prove thyself wiser than the wise by pointing out the fool's motley that peeps from the rents in the philosopher's cloak." "Thus," wrote Kingsley, "shalt thou be clothed in purple and fine linen and sit in kings' palaces and fare sumptuously every day."

Few people read "Westward Ho!" nowadays, but a very large number see so many spots in every sun and smell so much carrion in every rose-bush that they miss entirely the glory of the one and the beauty of the other.

Incredulity and cynicism are characteristics of mediocre minds, and it is against the negative influence of such minds that the positive forces of progress are forever at war. Every man who has ever followed a line of original thought, and every inventor, has felt the weight of opposition and the prick of that very keen weapon, ridicule.

One feels that the first man who consumed a living oyster must have been regarded by his fellows as a person of most unpleasant habits. The hero who braved the derision of the mob by producing the Adam of all umbrellas was, quite naturally, pelted with every kind of missile from the *passé* egg to the feline in the process of dissolution.

In some dim period when our gentle ancestors did not know how to hurl each other into Hades with T.N.T., or assist their brothers to the happy hunting-grounds with poison gas, in that distant era, in short, that antedated the age of savagery in which we live, one may feel sure that the originator of a new fashion of wearing fig-leaves was outlawed by the orthodox followers of the prevailing mode.

The Union of Log Rollers.

In later times one supposes that if it were desired to move a heavy object, such as an invitation to dinner carved on stone, the postman would place rollers under the invitation and trundle it laboriously. Imagine the indignation of the union of log-rollers when the inventor of the wheel hit upon the idea of attaching the rollers to the object to be transported! Probably they allowed a love-letter to fall upon and crush the inventor of this labour-saving device.

And in the millions of years that have passed we have not greatly changed our mental attitude. All races are alike in this respect, for, as a French philosopher has pointed out, the only real difference between the nations is in the uniform of their police. In one's own lifetime one can recall the days when the harebrained scorcher who dashed madly about the country at the fear-inspiring velocity of twelve miles an hour was condemned to "twenty shillings or two days" as a danger to the public. One can remember boroughs that paid off the rates by persecuting cyclists and continued so to do till it was discovered that the invention of the motor-car had introduced a new and more lucrative industry for the police-courts.

One remembers a murky morning in November 1896, outside the Hotel Metropole, and the start of the historic run to Brighton which was arranged to celebrate the emancipation of motorists from the regulations that a mechanically propelled vehicle must be preceded by a man carrying a red flag.

How the mob jeered! How the Cockney satire flowed! . . . "Gawd, wot a 'eavenly smell!" . . . "Tie a moke to it, guv'nor!" . . .

And with what delight the reeking mob read that practically every one of the derided buzz-wagons had broken down! How they laughed over the efforts of the "Evening News" poet:—

"Forty little motor-cars drawn up in a line;
One blew up in Whitehall Place, leaving thirty-nine."

And so on. One quotes from memory. (No offer for a testimonial for Pelmanism will be considered.)

One remembers one's own efforts to nurse those early motor-bicycles, quadricycles, and cars that were continually "decanting their innards," to use the phrase of the immortal Mr. Pyecroft, and very vividly does one recall the cheap jeers of "the low-down whites" whenever one had trouble—which was all the time.

Yet a few enthusiasts carried on, and far-seeing people organised competitions. It was those long-distance races—Paris-Vienna, Paris-Petersburg, and so on—that first made the mocking mob realise that neither the undisciplined forces of interested enemies nor the organised opposition of the British Government could prevent the progress of an industry that would be of such vast value to the country.

And now we fly, and, glancing backwards, one sees that we are up against the *"pons asinorum"* that confronted us in the early days of motoring. Thanks to the blessing of the recent scrap, which has sharpened what little wit we have, the development of aeronautics has been more rapid than it would have been in the beer-bemuddled slackness of soul-destroying peace. But one may well ask, "What now?"

Everywhere one sees the negative forces of organised apathy opposed to progress. Our Postmaster-General states in Parliament that "aeroplanes are of only 60 per cent. efficiency," and that in consequence it is not proposed to establish aerial mail services.

A writer, and an R.A.F. officer at that, in the "Daily Mail" describes civil and commercial aviation as "a wash-out." The Air Ministry, blind to the lessons of history, scratched all the fastest machines that had been entered for the Aerial Derby. Miracle of incompetence!

A Crime Against Humanity.

Can it not be seen that by competition, and by competition only, can progress be made. If we have not the Germans to compete with then for God's sake let us have a little healthy competition among ourselves. To have limited the manufacture of aircraft by the Germans is a crime against human progress, as deep a blot in the history of the Allies as it would have been to say that the scientific investigation of disease must cease for fear that our late enemies should become a sounder race than we.

Among scientists there should be no petty tribal feelings. Nothing would be better for this country than to see Germany embark on a policy of aircraft construction that would show the world that she intended to make a bid for Admiralty in the Air.

Man is a fighting animal. The competitive instinct is the only good quality he possesses. If that instinct be repressed, he is little better than the beasts. In the animal kingdom man has only one friend, the dog, and he loves the dog chiefly because that high-spirited beastie fights for the sheer joy of fighting and kills inferior creatures at man's bidding.

The Road to Ruin.

In the industrial era which may be beginning, if the strikers do not bring about civil war, we need competition. If the Government and the Air Ministry pursue

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their present policy, we shall find that France or the United States of America will have beaten us in the element that is destined to be of more importance to us than the sea.

France is subsidising aerial mail services while our Postmaster-General burbles about "60 per cent. efficiency," and America is proving to her people the value of aeronautics by official demonstrations of the possibilities of the machines she produced for war.

Commercial aviation is not a "wash-out" because it has not yet been washed in. We are very much in the same position as we were a few months after the historic day in November, 1896, when the motoring restrictions were withdrawn. We want the driving force of competition, the official encouragement of international races, Governmental subsidies for mail and passenger carrying services, and the creation of a strong Volunteer Air Force Reserve.

Incidentally we need a body that would prove itself more enterprising than has either the Royal Aeronautical Society or the Royal Aero Club. When one remembers all that was accomplished by the motoring societies in early days, the masterly inactivity of the R.Ae.S. and R.Ae.C. forms an unpleasing contrast.

AN AIR MINISTRY RESIGNATION.

The Secretary to the Air Ministry announces that Sir John Hunter, K.B.E., administrator of works and buildings in the Air Ministry, has tendered his resignation to the Secretary of State for Air, and that this resignation has been accepted in view of the progress made in clearing up the war work of the Ministry and the desire of Sir John Hunter to return to Sir William Arrol and Co., Ltd., of Glasgow, as soon as possible.

An intimation of the cordial thanks of the Air Council has been conveyed to Sir John Hunter for the eminent services rendered by him from December, 1917, to the present date, in dealing with the very heavy programme of works necessitated by the rapid expansion of the Royal Air Force.

FLYING BETWEEN LONDON AND PARIS.

The Air Ministry announces that:—

For the purpose of taking part in the Peace Celebrations during the forthcoming week, in Paris and London, arrangements have been made with the French Government for the opening of Civil Communication by air between London and Paris, from July 13th-20th inclusive.

British machines visiting Paris will land at Le Bourget only, and French machines visiting London at Hounslow only, except in emergency.

All machines will cross the French coast between Calais and Boulogne, and the English coast between Folkestone and Dungeness.

All machines taking advantage of these facilities must be provided with, and carry, certificates of airworthiness, issued by their respective Governments.

Passports will be carried by all civilian personnel.

A full list of passengers showing their destinations will be carried by the pilot in charge of the machine.

No goods or merchandise may be carried.

It is to be clearly understood that during the week this temporary arrangement is in force, no machine will, in any circumstances, fly over Paris.

TELLING THEM ALL ABOUT IT.

According to the "Observer," an American aviation mission, which has spent the last six weeks in studying aerial affairs in France, Italy, and England, sailed from Southampton on July 12th on the return journey to America.

It is said that the mission was sent to Europe by the United States Government to gather information on the whole subject of aviation development. In conversation with members of the party, a representative of the "Observer" was given the impression that in matters connected with flight America is considerably behind European developments, and the mission was sent over to collect particulars which may help the progress of the new industry and guide the Government in legislating for it.

The curious thing about the whole affair is the fact that comparatively few people in the Aircraft Industry knew anything about the visit of this "Mission," and one is left with the impression that either the members of the Mission went about their work in a very perfunctory way and did not trouble to go to all available sources for knowledge and information, or else that they were very carefully and skilfully "shepherded" during their visit. Perhaps it is well that our trans-Atlantic relations should not know all about our latest aircraft developments, but, on the other hand, perhaps it would be better that they should know. In the first case they might copy us too successfully, and in the second case they might be scared off trying to compete. It would be interesting to know what actually happened in this case.

It is further stated that the party included Mr. Crowell, Assistant Secretary for War; Mr. Keys, the vice-president of the Curtiss Aeroplane and Motor Company; Mr. Howard Coffin, of the Hudson Motor Car Company; and Lieut.-Colonel James Blair, of the General Staff of the American Army. Arriving in Europe on June 1st, they paid visits to France and Italy, and then came to England, where they spent a busy fortnight in examining our various aerial enterprises and in consultation with officials of the Air Ministry.

The "Observer" says that one of the most important parts of their work was to ascertain details of the laws of the air which are now being framed. "We haven't any legislation about the air yet," said one of the delegates. "Our regulations for the licensing of pilots are more of a joke than anything else. We have everything to learn in these matters, and that is why our party was sent over."

One would hazard a guess that the American regulations cannot be more of a joke than is the administration of the British regulations, and the Mission can scarcely have learned much in this country on this point except what to avoid.

The misguided delegate is said to have continued:—"But we have quite a few other things to learn as well as the way to make laws for the air. Europe is ahead of America in the commercial development of aviation, and we have had to find out what you are doing over here and get ideas. We have a few regular mail services running, but America has been more inclined to look at the sporting side of aviation than at its business aspects, and I do not think the possibilities of air transport have been properly grasped yet.

"In time, of course, we shall get a trans-continental route organised but the project has not got far beyond the stage of talk as yet. Our visit to Europe is bound to have a big effect, however, for we have been seeing what is done over here, and we are going back to tell our people all about it."

One would give a great deal to hear them tell their people all about it. One recalls the story of the little girl who came in from a walk and told her mother that she had seen a sack of coals fall off a cart onto the coalman's head. "And was he hurt?" asked her mother. "No!" said the little girl, "he just sat on the road and told God all about it."

Perhaps the American Mission's report may be something like that when they come to understand our particular method of heaping coals of fire.—C. G. C.

THE PUBLIC AND "JOY FLYING."

An article was recently published in the "Daily Mail" by Captain William Pollock, saying that civilian flying was "a wash-out."

The following letter in reply appeared in the "Daily Mail" of July 15th:—

To the Editor of the "Daily Mail."

Sir,—Capt. William Pollock's statements regarding the lack of interest in seaside flying are so opposed to my experience here that I feel that I must reply to them

On May 17th I began civilian flying at Porthcawl, a small seaside resort in South Wales. Up to date I have taken up more than 700 passengers, and, with one or two exceptions, the "wind up" has been conspicuous by its absence.

The same people come over and over again to be taken up, each time increasing their time in the air, until now I can almost say with certainty that twenty or thirty people will come for a joy-ride some time during the week, and will bring friends with them.

What has surprised me most is the number of women who bring their children to go for a flight. Last week an old lady of 68 arrived at the aerodrome with four children. She went up four times, accompanied by a child on each occasion.

To establish a connection of this sort two things are very necessary. One is to give absolute confidence to your passengers and prospective passengers, and the other is *do not "stunt."*

In common with other pilots flying at seaside resorts, I charge a guinea for five minutes. When I am coming down at the end of the time I invariably turn to my passengers and ask, "Would you care for another five minutes?" The answer is nearly always in the affirmative.

As for the machines being rarely in the air, if my engine would stand the work and I could stand the strain of the responsibility, I could keep going twelve hours a day. As it is, I am flying about five hours a day, and there is nearly always a queue waiting when I stop.

E. D. C. HERNE, Capt., R.A.F.

B.T.H. Magnetos

all-British in design and workmanship, were used **on the first Airship to cross the Atlantic, the R. 34,** on the aeroplanes which secured the British altitude record, and the first and second prize-winners of the Victory Aerial Derby at Hendon.

The above performances add to the record of B.T.H. Magnetos, and support the high opinion in which they were held by pilots during the war for reliability in service.

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B T-H

The WORLD of AERONAUTICS

NEWS OF THE WEEK FROM ALL QUARTERS

The Aerial Chaperone.

According to the U.S.A. War Department News Bureau :— "Major T. Ord Lees, A.F.C., who, during the war, was in charge of the development of parachutes for the British Air Force, has arrived in Washington with several assistants for the purpose of demonstrating the latest British parachutes to the American Government. With Major Lees is Lieut. R. A. Caldwell, D.F.C., who jumps from airplanes to demonstrate the adaptability of the parachute. The interesting feature of the party is the presence of Miss Sylvia Boyden, a young lady of 20, who also jumps from an airplane. According to Major Lees, the jumping of this young lady has a wonderful effect on the public in that when they see a lady land safely they have more confidence in parachutes than when a man descends. Miss Boyden is accompanied by Mrs. A. M. Thomas as chaperone."

One would like to know whether the chaperone leaps from the machine with another parachute or descends with her ward by means of a Guardian Angel fitted with a dickey seat.

From Officer to Airman.

"Wing Adjutant" has been writing in the "Daily News" about the temporary officers in the post-bellum R.A.F. He says :— "In four years' time the Aircraft Industry will have settled down, aerial post, goods, and passenger services will have started, and posts will be available for men with special knowledge. The temporary R.A.F. officer, having received a thorough technical training at the expense of the country, and after four years' practical flying and work on aeroplanes, will in all probability find that there is a long waiting list of firms anxious to obtain skilled airmen, aero engineers, and air administrative men, all of whom will be included in the temporary R.A.F."

One suggests that the officer who has completed his term of four years would not be greatly interested in a firm that wanted merely "a skilled airman" or an "air administrative man"—a rating of which one has not heard. The article is sub-headed "Government openings at end of their four years' service," but no mention is made of Government appointments. Had it not been signed one might have thought these discrepancies indicated official origin.

A Miss as Good as Many Miles.

The following news has been issued by the Director of Air Service, U.S.A. :—

"Lieut. Clyde V. Finter, Pilot, with Lieut. Robert H. Stell, Radial Officer, in a Curtiss H, and Lieut. Bernard J. Tooher, Pilot, with Lieut. Robert H. Best, Radial Officer, in a Curtiss H, directed 12-inch gun-fire on target 26,000 yards at sea from Fort Hancock, N.J.

"The flight began at 1.40 p.m. and lasted 1 hr. and 50 mins. Altitude, 4,000 feet. Observation very good. Thirteen shots were fired, the first shot two miles from target; later shots bracketed the target at 140 miles. If the target had been the size of a battleship it would have been completely destroyed."

But to have ensured it being hit it would have been necessary to make the target of the size of a very large battleship indeed—one of about 125 miles in length, in fact.

The English-Speaking Races.

The following appeared in the official Air Service News Letter published at Washington :—

"Mr. J. C. Shields, news editor of the 'Houston Chronicle,' was a passenger in a flight Saturday, piloted by Lieut. C. F. Bell. Mr. Shields was permitted to handle the controls and given the usual acrobatic feats.

"Describing the acrobatics, Mr. Shields said the spiral was utterly distracting. Immelan, bowl of goulash. The loop as kaleidoscopic somersault. The zoom as two gulps and the cutting gun as a reprieve."

And yet people still refer to Americans as being among the English-speaking races.

There Have Been Others.

According to the "Daily Express," "M Jean Galmot has just made a 3,700-mile trip round France in an aerial limousine, carrying six passengers. The pilot was M. Constantin. This is the first aerial circular tour ever made. The machine descended at many of the historic show places of France."

The news that the flight has been completed is interesting, but one cannot agree that it is the first aerial circular tour ever made. One heard rumours of a tour round Britain in the distant days before the war

The R.34 and Prohibition.

One of the daily newspapers stated that the R.34 hissed loudly while waiting to start, but that as soon as the rum ration was taken on board the hissing ceased and she started on her long return voyage.

Mr. Pussyfoot should have a talk with the R.34.

The Boudoir Flying Helmet.

The "Daily Express" is to blame for the following :—

"Although boudoir toilettes could hardly be adapted in the catalogue of flying fashions, some ideas in flying outfits are borrowed from the boudoir. Among these is the flying cap with the side lapels over the ears.

"Boudoir caps of this shape are being made, and very fascinating little bonnets they appear to be. The models I notice in the West End shops are not trimmed with ribbon as other boudoir caps are generally, but retain the plain outline of the leather flying headgear."

The first paragraph is incomprehensible. One has hardly ever noticed any ideas in flying outfits borrowed from the boudoir unless the writer is thinking of the ladies' silk stockings that certain aviators have worn as mufflers. It is certainly news that the "flying cap," usually called a "helmet," but referred to in the next paragraph as a bonnet, originated in the boudoir. The designer is to be congratulated upon his/her clever idea of placing the lapels over the ears at the sides of the cap-bonnet-helmet.

Barbarous.

An American journal remarks :—

"It is strange to note how the war has affected persons in regard to the wearing of special uniforms or insignia. . . .

"Firms and public service corporations here and there are encouraging the use of insignia and service stripes. Motormen and conductors on cars and trains, who never bothered with service marks, are now to be seen with bright gold stripes. Employees of large manufacturing companies and public service corporations are in many instances being supplied with distinctive buttons, which include some form of marking to indicate the length of service. Such insignia, so it is reported, serves to encourage long service in a company."

One trusts that ex-R.A.F. airmen employed by civil aviation companies in Britain will not be encouraged to adopt this barbarous practice.

One shudders at the prospect of seeing tweed suits decked with bright gold stripes and distinctive buttons, or bowler hats with badges. An even more ghastly thought is that if the custom became general it is almost certain that the terrifying effects produced would give the fashion department of the Bolo some new ideas for R.A.F. uniforms.

Instinct.

At the Victory conference of the North-East Coast Institution of Engineers and Shipbuilders at Newcastle on July 10th, Brig.-General R. M. Groves, C.B., D.S.O., A.F.C., said that "the unbreakable machine was hardly necessary, because pilots were developing an instinct which prevented them breaking machines in the air."

One realises the truth of the Brig.-General's statement. Often one's instinct has prevented one from indulging in the sport of breaking machines in the air.

Scroungers.

The Royal Air Force Detachment at Thetford published on July 1st the first number of their fortnightly paper, the "Scrounger." A contributor to its pages suggests a "scrounging" competition. He writes :—

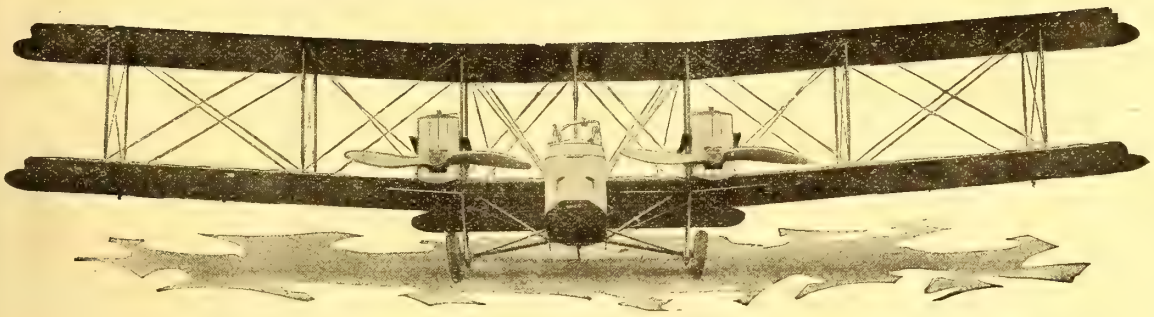
"N.C.Os. would of course be barred from entering the competition, as they would possess an unfair advantage on account of their greater experience. The cook-house staff would also be barred, as they always spend their day 'off' planning how best to 'scrounge' when they are 'on' the following day.

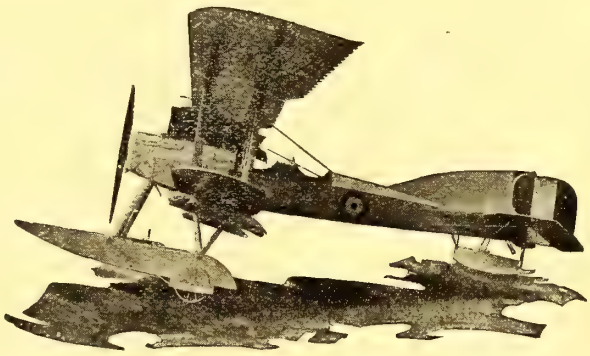
"Another suggestion whereby 'scrounging' might be established on a properly recognised basis would be the appointment weekly of an Orderly Scrounger. Decency forbids me suggesting names of likely candidates."

A Matter of Head Resistance.

A reader wishes to know whether the "Kangaroos" which have been described as hurtling through the air at Hendon could not reduce their head-resistance by hiding their heads in their pouches. The answer is in the negative. Judging by appearances the aerial "Kangaroo's" neck is too stiff to permit of it putting its head into its pocket. The passengers, however, put their hands into their own pockets.

A UNIQUE EXPERIENCE





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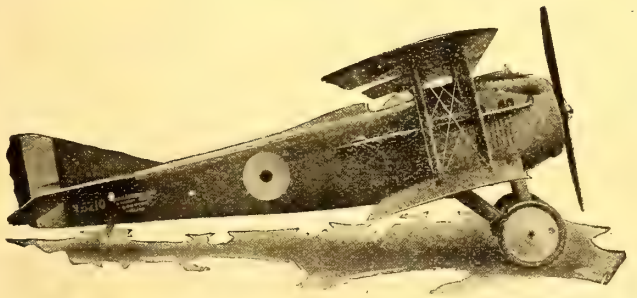

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The WORLD of AERONAUTICS (continued)

A Sporting Offer.

The father of the late Major J. B. McCudden, V.C., D.S.O., M.C., M.M., has in his possession a bulldog named Bruiser, which was the property of his son while serving in the R.F.C. The dog is rather too much of a responsibility for Mr. McCudden's household, and he would therefore be glad to give him to an R.A.F. squadron—preferably to one in which the late Major McCudden served—if the squadron would care to have him as a mascot and in memory of his former master.

Any correspondence on the subject may be addressed to Mr. W. H. McCudden, care of this office.

The New Method.

From the "Morning Post" of July 14th:—Dirigible required for Peace Day by Mr. Charles Gulliver. Price for hire should be sent to him at the Palladium, London, W. The machine on Peace Day is to fly over West London (the Palladium) distributing bags of sweets on parachutes to children in the parks, also in the districts of his suburban theatres, viz., Kilburn, Willesden, Islington, Ilford, Lewisham, Poplar, Camberwell, Putney, Hammersmith, Shoreditch, Croylon, Clapham.

A Balloon Cloth Mystery.

The "Daily News" of July 10th stated that Mr. Brock, of Summerseat, Ashton-on-Mersey, on the previous evening had admitted buying 12 million yards of balloon cloth on behalf of a client. He appeared to be uncertain of quite how much he gave for it, but said that £1,000,000 was as near as one could say at present. It is also stated that the sale was carried out by the Disposal Board of the Ministry of Munitions, that negotiations were opened in April and completed in London on July 9th.

The "Daily Mail" of the same date stated that the report that the cloth had been purchased was premature, but that competition was very keen.

Since July 10th no other announcement appears to have been made.

A Pure Fabric-ation.

The following spasm has reached this office from an unknown source:—

Ladies call for bits of rag
A thousand rimes a day
To make up frocks, or p'raps a flag
To celebrate "The Day."
For Women's wants, *They* care no jot,
They sell to Martin the bally lot,
Which seems a lot of Tommy Rot,
Opposed to all fair play.

It was announced that the Figure of Victory which formed part of the Decorations for the Paris Peace Celebration were to be fitted with wings from actual aeroplanes. An irresponsible artist has endeavoured to illustrate his entirely incorrect impression of the effect produced.

A Prosecution.

The "Daily Express" of July 14th stated that summonses arising out of an alleged serious breach of the Defence of the Realm Act have been issued against the secretary and five employees of Messrs. W. S. Laycock, Limited, Sheffield.

The ground on which the Director of Public Prosecutions has advised action to be taken is that certain spare parts for aeroplanes were used after they had been examined and rejected by Government inspectors.

Investigations into the matter by officers of the Criminal Investigation Department have been proceeding for weeks, and on July 12th the summonses were served.

The prosecution will be opened before the Sheffield justices on Thursday, July 17th, and may be followed by interesting developments.

Past Progress and Future Developments.

Some important and interesting statements and views were propounded at the resumed Victory Conference of the North-East Coast Institution of Engineers and Shipbuilders at Newcastle on July 10th.

Lord Weir, in a paper on the development of aircraft design and construction during the war, mentioned that in August, 1914, the Royal Naval Air Service possessed 93 machines and the Royal Flying Corps 179. In October, 1918, just before the Armistice, the Royal Air Force possessed over 22,000 effective machines.

During the first twelve months of the war the average monthly delivery of aeroplanes for British or foreign sources was 50; during the last year of war it was 2,700, and at the Armistice there were facilities in this country for 3,500 per month

Lord Weir expressed the view that it was now possible to design a machine that would not break in the air, except under certain conditions, against which the pilot could be warned.

Immediate possibilities were in front of flying boats for inter-island and coastal traffic, as in the West Indies and New Zealand. The Government and large transport companies, he thought, might collaborate in their early efforts.

Sir Dugald Clerk said that the Germans standardised in aircraft engines early in the war, and it was one of the worst things they did.

Brigadier-General Groves, of the Royal Air Force, said that he agreed that there was a great future for the flying boat, the chances of which overland in a forced landing were greater than those of an aeroplane over the sea. In one case in Yorkshire a flying boat was towed by horses to some water and actually got off again.

Eight rivers of over 4,000 miles' length passed through the world's markets for flying boats. The Air Department would shortly send one of the largest and latest types for a progressive trial by short stages thorugh Egypt, the Nile, the Great Lakes, the Zambesi, and the Congo, to the Cape. If it were still going then it would return.

The Trans-Atlantic Flight.

Mr. F. P. Raynham, the pilot of the Martinsyde machine, has been ready to make the Atlantic flight for some time past, but so far has been prevented by bad weather. On July 13th an attempt was made to start, the weather being favourable, but a tyre burst as the machine was being brought out of its shed.

Nerve.

The following letter from a British pilot explains itself. When one considers the wholesale mess which is being made by the Air Ministry of civil aviation in this country one begins to understand, though one may not commend, the attitude of the writer:—

"I note from your issue of this week that Germany appears to be taking up aeroplane transit on a much larger scale than England at the present time, and as it is next to impossible to obtain a position in an English aviation firm unless one happens to be an ex-field officer, I am considering the advisability of offering my services to a suitable firm in Germany.

"I am fairly well acquainted with the language, and, judging from the general attitude of the German people during the period after the Armistice and up to the day of my repatriation, I am of the opinion that they would be only too pleased to foster anything in the way of friendly relations to this country.

"I am quite aware that my attitude would appear to the majority of English people as absolutely deplorable and unpatriotic, but one has to look after oneself, and I am becoming more and more convinced that the young men who have given the best part of five years in the service of the country cannot expect to receive much consideration from the Government and employers in England."

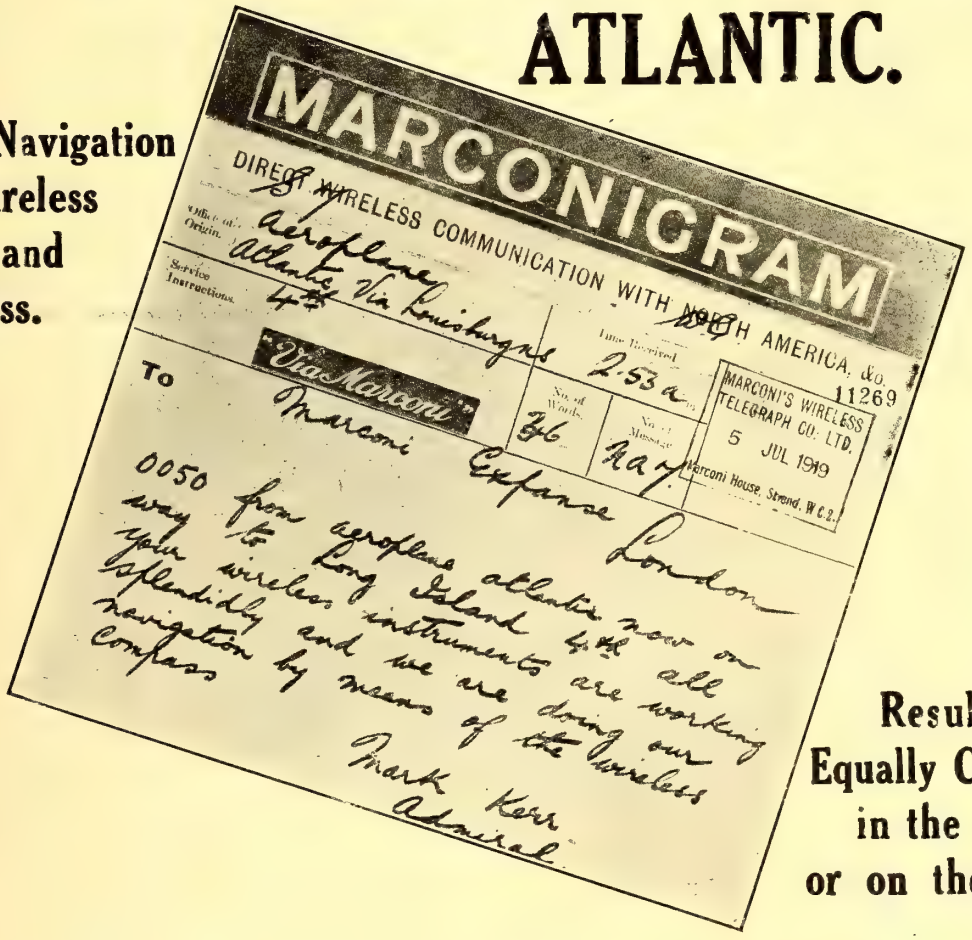
A Revised Proverb.

Apropos the many deferred attempts to leave Newfoundland, and the effects on the machines of those who do start, a correspondent suggests that there is at any rate some satisfaction in knowing that the longer the starts are deferred the longer the machines remain in flying condition.

In other words:—"Start deferred maketh the dope stick."

MID-AIR MESSAGE FROM WESTERN ATLANTIC.

Aerial Navigation by Wireless in Fog and Darkness.



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The WORLD of AERONAUTICS (continued)

To 49 Squadron.

Will any officers and men who were serving with 49 Squadron, R.A.F., in May, 1918, please communicate to the Editor of this paper any facts within their knowledge concerning the loss of Lieut. George Cuttle, M.C., of "C" Flight? He was brought down on the morning of May 8th just east of Bray while returning from bombing Peronne, and it is believed that Lieut. Leckie was his passenger at the time.

Ex-R.A.F. Officers' Luncheon Club.

The following letter has been received:—

Sir,—As your readers will doubtless have seen from paragraphs appearing from time to time in the daily Press, the Ex-R.A.F. Officers' City Luncheon Club has now been operating for some weeks, and, owing to rapid growth and need for larger room accommodation, recently transferred from Messrs. Pim's Restaurant in Threadneedle Street, where the Club members were very well looked after indeed, to larger premises at Messrs. Spiers and Ponds Restaurant, top floor, Mansion House Underground Railway Station.

I am constantly meeting ex-Royal Air Force Officers in the City, however, who still seem unaware of the existence of the above Club, and even go so far as to opine that there are many more similarly ignorant of such an institution.

It is for this cause I crave the hospitality of your valuable paper, feeling sure that there must be many old Royal Air Force Officers, readers of your paper, who would like to join our Luncheon Club.

We are at present 70 strong, and have our own Lunching Room, with separate tables and Smoke Room adjoining. Prospective members are always welcome, and the Club extends honorary membership to all serving officers of the Royal Air Force, and the latter appear to find it very convenient when attending the City on business from time to time.

Our Club is in no way in competition with the Royal Air Force Club, to which, in fact, most of our members also belong; but has been instituted to provide a Luncheon meeting place in the City of London for those old Air Force Officers who desire to keep up old associations and "Mess atmosphere," but are unable to spare the time to run up to the West End for lunch.

O. Modin, late Major, R.A.F., Chairman.

Air Impotency.

An editorial article, entitled "Aircraft Impotency," in the American "Aircraft Journal," is of interest. The author writes:

"Cutting down the Army and Navy appropriations for aviation to $15,000,000 for each Service by the House Military and Naval Affairs Committees means, unless the Senate replaces some of the desired amounts, making the United States impotent in the air, crushing the airplane industry, and scrapping all experimental development begun during the war.

"The argument that these sums are enough to 'keep the Services going' until a reorganisation of the Army and Navy takes place is so fallacious that it should controvert itself. The Army needs $31,000,000 for airplanes and engines alone. Without this equipment there is nothing to 'keep going,' because all combat machines in service now would be obsolete against a first-class Air Power. Just to have the officers and men is worse than a waste of Government money.

"If money were appropriated now for the purchase of equipment which will take about a year to build, then when the Air Services are consolidated, reorganised or left as they are, this country would at least have some protective aircraft.

"The whole situation is clearly an effort to force on the country a united Air Service. Whatever arguments may be made for and against a single independent Air Force, they should be free from appropriation coercion and rest solely on their own merits.

"America's 'splendid isolation,' viewed in the light of recent aeronautic achievements, soon will be only a memory. A country that is less than a day distant from Europe and Asia cannot well rely upon the Atlantic and Pacific oceans for protection in time of stress. No longer can the Congress of the United States ignore the fact that if we are to maintain our independence and position as a first-class nation we must have aircraft inferior to no other Government. If the predominating idea on Capitol Hill is to reduce this country to the level of China, or Korea, no fault can be found with the policy now being pursued—but the plan of spending one billion dollars, too late to be of use, rather than one hundred millions, when advantage may be taken of the vast expenditures for aviation already made, will appeal to few persons outside of the House of Representatives."

Demobbed Officers and the R.A.F. Reserve.

Sir,—As a Lieut-Observer with almost three years' service with the R.F.C. in France, I have been transferred to the unemployed list of the R.A.F. Can you please enlighten me as to what this will really mean in the future.

Does it mean that when the R.A.F. Territorial Force or the R.A.F. Reserve is formed that I shall be automatically transferred to one or other of those branches or will it be necessary to make application for it?

Within the next few days I am sailing to take up a civilian position in South America and as you may easily imagine it would be a source of the greatest satisfaction to me (and doubtless to hundreds of other ex-R.A.F. men) to feel that the old country had some direct claim on us in the event of any further wars or national emergencies.

I have just studied General Trenchard's outline of the future R.A.F. in The Aeroplane of a week or two ago, but his remarks seem only to apply to those still with the R.A.F. and not to those who have been demobilised and placed on the "Unemployed List."

Surbiton, 19/6/19. (Signed) Lieut.-Observer.

[Perhaps the Information Department of the Air Ministry can oblige with an announcement on this point.—Ed.]

A Dangerous Practice.

The following letter has been received:—

Sir,—I am writing to you, as I consider that a note in your paper *re* the following might, in the future, save several really bad accidents.

On Saturday afternoon last a red-nosed Handley Page continually "got off" from the Cricklewood Aerodrome and laboured into the air over Golders Green.

This machine flew over the closely-packed streets and houses at a height of certainly not more than 200 feet—steering into the wind, which was approximately from the north.

It was perfectly natural for the machine to be low and to climb slowly, as it was obviously well loaded; but it was only natural to expect that in such cases the pilot would have kept to the edge of the "populated area" and thus within landing distance of the aerodrome or adjacent fields.

Having been flying for five years, I know to my cost the unhappy knack that even the best engines have of stopping at the most awkward times, and if this had happened on the occasions I speak of above the result would have been appalling.

No pilot could have had the least chance of landing successfully, or in any direction except that in which he was heading, and in all probability a machine of such calibre would have obliterated four or five of the closely-built houses that this locality is made up of.

While in no way blaming the H.P. Co.—who have an aerodrome and surroundings of ample size—I cannot help considering that the pilot was not paying sufficient attention to eventualities.

An accident of this nature is going to do immense damage to flying, and also to the companies who propose to licence aerodromes which are in proximity to dwelling-houses. Town Councils will not give their consent to this, however much it is urged that "previous accidents of this nature were only caused by other firms' carelessness"!

From my own point of view I have a house which seems to be directly in the "line of attack" of these machines, and I have at present no desire to see it, my wife and family, and my neighbours, gently cleared away by an H.P. which has had momentary trouble with its petrol supply or some other "trivial" detail.—"Major."

Coming Events.

July.

Friday, July 18th.—43rd Squadron dinner.

Saturday, July 19th.—Martinsyde Recreation Club Sports at Woodbridge Road, Guildford.

Saturday, July 19th.—Victory Meeting at Hendon. Speed Contest for Victory Trophy.

Saturday, July 26th.—July Meeting at Hendon.

Saturday, July 26th.—The Airship Officers' Club Dinner at the Connaught Rooms.

August.

Friday, August 1st.—The Amsterdam Aircraft Exhibition opens.

Saturday, August 2nd, Sunday, August 3rd and Monday, August 4th.—Tenth London Aviation Meeting at Hendon.

Tuesday, August 5th.—Handley Page Social and Athletic Club's Sports. Starting at 12 midday at Cricklewood Lane.

Thursday, August 21st.—R.A.F. Annual Athletic Meeting at Stamford Bridge.

Sunday, August 24th to Sunday, August 31st.—The "Avenir's" Tour de France Aérien.

Dates to be Announced Later.

Hendon—Birmingham—Manchester Air Race.

Hendon—Paris—Hendon Air Race.

Hendon—Brighton—Hendon Air Race.

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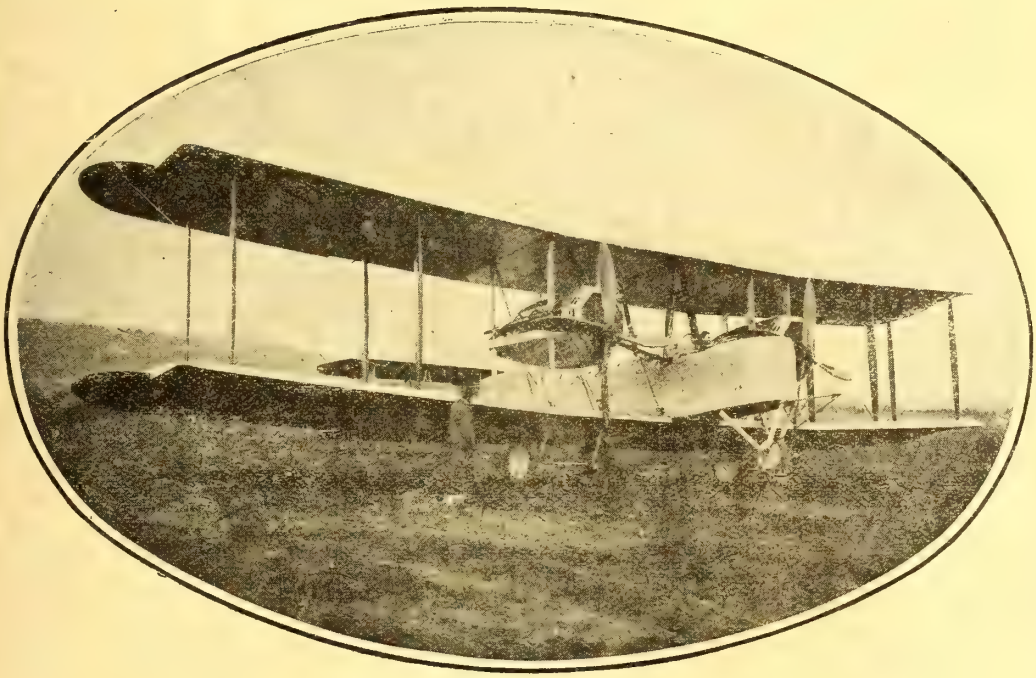

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THE RETURN FLIGHT OF R. 34.

H.M.A. R.34 left Mineola at 11.55 p.m. on July 9th (3.55 a.m., July 10th, Greenwich mean time) for England. The start was somewhat hurried owing to the approach of bad weather, and the ship left Mineola some hours earlier than was originally intended. The airship carried forty pounds of mails.

Some alterations were made in her crew. Lieut.-Commander Lansdowne was replaced by Lieut.-Col. Hemsley, U.S. Army, Aviation Department, and Sergts. Turner and Anders replaced Wireless Operator Edwards and the stowaway Ballantyne.

The original intention was that R.34 should land at East Fortune, but owing to bad weather the Air Ministry decided on July 12th that she would land at Pulham, Norfolk, where she eventually did land at 7.57 a.m. (6.57 a.m. G.M.T.) on July 13th. Her time was 75 hrs. 3 min., according to the ship's chronometer.

The ship was met by a motley crowd dressed in all the possible varieties of Air Service uniforms—and they are many. There were men in R.N.A.S. and R.F.C. and R.A.F. uniform, others in civilian clothes, and some partly in uniform and partly in mufti.

Hereafter follows the Air Ministry Communiqué recording the return voyage of H.M.A. R.34 from Mineola, L.I., U.S.A., to Pulham, Norfolk, England. The report is given verbatim, and any eccentricities in style or statement may be set down to the fact that it emanates from the Air Ministry after transcription from General Maitland's original :—

THE AIR MINISTRY COMMUNIQUE.

The Air Ministry state that the airship was first sighted on the north side of Pulham at 5.56 G.M.T., her position being about 15 miles away and her course almost due east. Turning south towards the Airship Station she circled over Pulham about 6.22, flying at 800 feet, landing safely at 6.56 G.M.T., exactly an hour after she was first sighted

OFFICIAL LOG.

GENERAL MAITLAND'S STORY

The Air Ministry issued the following official log of the voyage an hour after the ship landed :—

It is a dark night and a gusty wind is blowing from the S.W., strength about 30 m.p.h. We steer straight for New York and stop as promised to fly over the city before heading out into the Atlantic. It was an extremely good "get-away" considering the gusty wind and difficult conditions generally. We find we have 4,600 gallons of petrol for the return journey.

New York at midnight looks wonderful from above. Miles and miles of tiny bright twinkly lights—a veritable fairyland. The searchlights at first make a very unsuccessful search for us, but finally get us fair and square. We are over Fifth Avenue. The "Times" Square and Broadway presents a remarkable sight. We distinctly see thousands of upturned faces in spite of the early hour, 1 a.m. of the morning, and the whole scene is lit by the gigantic electrical signs which seem to concentrate about this point—one in particular, the Overland Tower, illustrates the enormous importance of aerial advertisement. From 2,000 feet above we see its wheel revolving and the mist rising in a cloud behind it, presumably an illustration of its speed.

The air over New York feels very disturbed, partly owing to the approaching cyclone from the Great Lakes, of which we have already had warning, and partly also to the heat rising upwards from the city itself. The airship, however, rides out very steadily under the circumstances.

July 10th, Thursday, 1.10 a.m.—We head for home with 3,000 miles of sea between us and our Scottish base. The wind is now well behind and our speed makes good; it is estimated at 65 knots or nearly 74 miles per hour. Our weather at time of starting is decidedly favourable for a flight from America to England. There is a depression west of Newfoundland and then a large one centred to the north of Iceland; also an anticyclone over the East Atlantic and Great Britain. The inference from the above is that a strong south-west or west wind will prevail over the greater part of the Atlantic. We have got away on the outskirts of the depression which is centred west of Newfoundland, and are getting the full benefit of the 35-knot S.W. wind on its southerly side. At this speed we are travelling considerably faster than the depression which is probably moving eastward at about 35 m.p.h., and it may well be that we shall run right out of it by the time we reach mid-Atlantic. We then expect (it may be only a pious hope) to get into touch with the still bigger depression centred to the north of Iceland and benefit by the south-west wind which we ought to find on its southerly side.

2.17 a.m.—We are crossing the American coast with four out of our five engines running, the fifth engine resting. Some hot coffee from the Thermos flask presented us by our kind American friends is very nice and warming.

9.15 a.m.—We have already covered 430 miles from New York and are going strong. Our mails are now sorted, and this takes some time. We find we have quite a large collection of parcels and letters of all descriptions, including some for H.M. the King, the Foreign Office, Admiralty, Postmaster-General, and a large number of copies of the "Public Ledger" for the editor of the "Times." This journey we hope will prove the fastest newspaper delivery between New York and London yet accomplished, and will be the forerunner of regular interchange of mails between East and West—the Old World and the New.

10.45 a.m. G.M.T.—We are now making good 72 knots or 83 m.p.h. on four engines. The forward engine stopped. If all goes well Major

R.34 AT HOME.—The trans-Atlantic Airship Landing at Pulham. It may be noticed that her fabric looks as bulged and battered as that of the six-year-old "Hansa" Zeppelin, which was illustrated in this paper a year or more ago.

Scott will go straight for London, and we will see how long it takes us to cross the Atlantic from Broadway, New York, to Piccadilly Circus, London—from the heart of one capital to the heart of the other.

10.45 a.m.—Cooke asleep under the dining room table. (Note.—This may take our thoughts back to the days of our ancestors, but the cause of this slip and the position selected are from quite a different reason.)

12 noon.—Lunch. Cold Bologna sausage and pickles and stewed pine-apple, and a ration of rum. This latter was much appreciated, as the weather had turned much colder and lunch centred entirely. The conversation turned on the subject of obtaining secondary meteorological information in the Atlantic. Scott, Greenland, Luck, and Harris all agree that one good method of getting information at small cost would be to equip all cable repair ships with a meteorological observer and a suitable outfit of kites and instruments. These cable repair ships work in all parts of the world and are often at sea for days at a time.

Moreover, the cable routes are ready in every case on the shortest and most direct route between the countries they link up.

1.5 p.m.—We have averaged 56.3 knots per hour ever since leaving Broadway. Weather fine, visibility 15-20 miles. Wind 40 knots S.S.W., sea very rough. It is difficult from above to measure the height of waves, but it is easy to see that in a very heavy sea like this one surface ships would be having an extremely bad time. Up here we are as steady as a rock, and unless one looks out of the windows we would hardly realise we were travelling at all.

Lieut.-Col. Hemsley, U.S. Army, Aviation Dept., is steering and is taking opposite watch with Pritchard, while Lusk has relieved Greenland in the fore car, Corporal Burgess being on the elevators. We are in very good wireless communication with Sable Island, and many messages wishing us success are received from America and Canada. We send our grateful thanks to the U.S. Naval and Military Authorities for their very efficient and kind assistance in looking after the airship at Mineola during four days of difficult and unpleasant weather conditions.

4.50 p.m.—Position 42.15 N., 54 05 W., course 140 degrees steered, 110 degrees made good, 86 degrees true, 48 knots. We have covered 900 miles from New York in 16 hours, and are 1,850 miles from South Coast of Ireland, exactly one-third of the distance between the two countries.

Our petrol consumption works out at about 1 gallon an hour. Weather clear, sea deep blue; very good visibility, 35-40 miles according to the dip, and distance horizon tables at this height (1,500 feet) should be 45 miles. Cooke determined his position by observation on the sun and sea horizon. It is interesting to note that there were only two occasions when he was able to do this on the outward journey owing to clouds and fog.

6.15 p.m.—A five-masted schooner under full sail on starboard beam about five miles away was an interesting contrast between the old and the new—the sailing ship and the airship. We are now over the main east-bound summer route of steamers from New York to Queenstown. The ss. "Adriatic," due New York on 13th, should be somewhere near us, and we are on the look-out for her on the wireless. Getting much colder.

8 p.m.—Position 42.40 N., 50.30 W., making good 55 knots. Harris give most interesting explanation of the clouds formationed to the N. and S. of us, and compares the clouds as we see them with the illustrations in a different cloud text-book we have with us. It is now time for supper. Soft boiled eggs and cocoa, and we all discussed at great length our impressions of American men and American women. I wish our newly-made American friends could have heard the delightful things that were said about them. Pritchard goes to sleep under the dining-room table while the second watch comes in for their supper. This position under the dining-room table seems to be the most-sought-after point of vantage in the ship.

July 11th, Friday, 3.20 a.m.—Position 45.03 N., 42.57 W., estimated by observations on stars and sea horizon. Visibility good.

4.20 a.m.—The foremost of the two engines in aft car breaks down on connecting-rod fractures owing to bolts spearing, with the result that the crank-case gets badly notched and the engine is consequently quite beyond repair. Course making good 115 degrees or 87 degrees true. At 26 knots with forward and two wing engines. Weather clear, sea moderate.

6.40 a.m.—Altered course to N, 30 degrees E.; come down to 600 feet to get under clouds which are now appearing and threaten to block out all view of the sea completely. We now find by accurate measurements that below the clouds is a northerly wind, and above them at 3,000 feet the wind is from S.W. The reason for this is an interesting one. We are over the Gulf Stream on a north-easterly course. The air over this Gulf Stream is warmer than the air over the sea immediately to the north of it. This warm air rises and its place is naturally taken by the cold air from the north, resulting in a 12-knot convertional wind from north extending from the surface of the sea up to a height of about 2,000 feet. Having made this discovery we accordingly keep at 3,000 feet, when we have a steady wind from S.W.

8 a.m.—Cloud formations in so far as they indicate weather are like an open book profusely illustrated with a plot that changes all the time. On our port beam away to the N.W. we see the depression centred over Newfoundland written plainly in the sky in fantastic and streaky cirrus ventosus, a certain and sure indication of what is going on over there some hundreds of miles away.

9.15 a.m.—Clocks have now been put forward one hour.

10.30 a.m.—Scott and Harris are agreed that the wind is stronger in our favour the higher we go up, but in spite of that Scott decides to keep on á 3,000 ft. level to avoid necessity of losing gas from expansion which to-day is precious. To-morrow he can afford to go much higher, and the airship will be so much lighter on account of having burned another 24 hours' petrol.

12 noon.—Weather report from Air Ministry tells us of an anticylone off S.W. of Ireland, and so we change course more to the north with a view to getting round into the westerly wind which we know must be blowing on the northerly side of it.

12.30 p.m.—Lunch. Mealtimes are always most welcome and give the more responsible members of the crew a much-needed interval. Our new gramophone is a vitally better instrument than the one we endured on the outward voyage, and as I was descending the ladder down into the fore car after lunch I just caught a glimpse of Luck and Harris doing quite a nice one-step together.

1.30 p.m.—Air Ministry sent a message to say that they had made provision to land us in Ireland if necessary, and that destroyers with steam up were available at Berehaven if required. We replied: "Propose to land at East Fortune. One engine completely broken down."

3.30 p.m.—Still at 3,000 feet in and out of the clouds at intervals. We have not seen the sea since 8.30 a.m. this morning; 1,600 revs., three engines, our speed 32 knots. Another weather report from London to say that the depression north of Iceland has moved easterly, and that as a result the wind is from south-west over North of Ireland and whole of Scotland. This strengthens Scott in his decision to give up going to London and going East Fortune instead. It is sad not to take in London on our return route, but with one engine lost and weather in South of England not very favourable the decision is a wise one.

4.30 p.m.—Scott brings ship down to try and see water and get an indication of our speed, but at 900 feet it is still very thick, so he abandons the attempt. In coming down from 3,800 ft. to 900 ft. we pass through no less than five distinct and separate cloud stratus. In these thick clouds (we have been in them now since 3.30 a.m. this morning) we have no means of telling our speed, as they extend right down to the water. We assume from general weather observations that the wind is with us, the worst condition we think fair to assume being no wind at all. There certainly ought not to be a head wind against us. There is no alternative but to keep pegging away through the clouds until other weather conditions appear.

4.45 p.m.—We appear above the clouds for a few blissful moments and see a beautiful cloud panorama. Range upon range of alternate white and slate coloured mountains with wide, deep valleys, and an occasional glimpse of bright blue sky immediately above. The glare is almost blinding, and we can only look at the sun for a moment or two at a time.

5 p.m.—We are back again in the clouds with no visibility. Picked up H.M.S. "Cumberland" on our Marconi Spark set. She gave her position, and when plotted on the chart Cooke thinks her to be almost due north of us, and from the strength of her signal she should be within 30 miles. Durrant tried to get her with our directional wireless, but without success.

7.5 p.m.—Passing through wet rain clouds. It has been raining very heavily since 5 o'clock. Scott goes up to 5,000 feet to get out of it, but with no success, and reduces height to 3,000 feet again. Very cold and dark. All windows and doors are shut.

7.35 p.m.—We ask H.M.S. "Cumberland" for a weather report. She replies giving her position and reporting wind at N.N.W., 18 m.p.h., overcast, passing showers, and clouds above 1,000 feet.

8.0 p.m.—Supper, and a very good one too. We are well equipped with little luxuries on this return voyage, having learnt a thing or two on the outward journey about what is necessary and what isn't.

8.30 p.m.—Still pouring with rain. Height 4,000 feet. The wind whistles round the forward car. Very dark and no visibility. Scott reduces height to 3,000 feet and an extraordinary sight suddenly presents itself beneath us. Thousands and thousands of little round clouds like tiny white puff balls packed closely together, with a blue sea just visible in between them, forming a layer of cloud between us and the sea. This cloud formation is called "ball cumulus."

8.45 p.m.—Dropped a calcium flare which floated away, burning brightly, straight astern, enabling Cooke to get our direction and a good idea of the speed at which we were travelling.

8.50 p.m.—Again thick clouds and heavy rain. Clifden Wireless Station sounds very loud and on the wireless, which showed we are getting nearer home, and Durrant has just succeeded in getting East Fortune 1,100 miles away. He could just faintly hear them say the words "Saturday evening."

9.15 p.m.—S.s. "Dominion" speaks us and gives her position and barometric readings. She reports us as being quite near her, though of course she cannot see us or even hear our engines owing to rain clouds.

12 midnight.—Still pouring with rain. Dropped flare; drift estimated as 10 degrees to southward. As we lay in our hammocks we listened to the rain beating pitilessly down on the outer cover of our trusty ship of the air, and our feelings, despite the weather, are those of complete confidence and security.

July 12th, Saturday, 12.45 a.m.—Weather clearing. Sea visible at 2,500 feet.

3.0 a.m.—Magnificent sunrise. The sun appeared above the clouds in a blaze of clouds, much impressing those of the crew who happened to be on duty at the time.

6.0 a.m.—Position 52.20 N., 22.35 W., 760 miles from East Fortune. Running on three engines, aft engine having broken valves. Storings changed. Air speed 32 knots. It is interesting to note that Cooke has not been able to get a single observation for plotting his position for the last 24 hours, and it is quite fair to assume that yesterday's weather with S.W. wind is quite an average day in mid-Atlantic. Clouds beneath

THE CREW OF R.34.—Major Scott, the Commanding Officer, is the central figure. The variety of R.A.F. and R.N.A.S. Uniforms is noteworthy.

us look just like a gigantic, soft, springy, fleecy white feather bed, and they fill one with a strange, irresistible feeling of wishing to jump down into them, probably a similar sort of feeling which some people feel when they are climbing a steep mountain face.

8.0 a.m.—H.M.S. "Tiger" gives her positon and reports wind N.W.-N., 15-20 m.p.h.; sky overcast with low stratus, visibility five miles. Breakfast this morning is quite a festive meal, as we reckoned it should be our last breakfast on board, and we are not quite so economical with our issues as usual. Message received from Mr. G. Constantinesco, the brilliant Rumanian inventor of Sonic transmission, welcoming us back to England.

10.55 a.m.—Height 5,000 feet. We are now over big gap in the clouds about 26 miles across, and will soon be in the clouds again. Clear blue sky and sea. No signs of a ship Making good 35 knots, which should enable us to make East Fortune at daybreak to-morrow.

11.25 a.m.—Durrant succeeds in getting a wireless out on Clifden with directional finding apparatus. Weather has turned very cold.

12 noon.—Lunch. We are all rather anxious to get to our journey's end. Perhaps it is the strain that is beginning to tell, and it is now rather disappointing to find that a N.E. wind is preventing us from making more than 28 knots. We shall be breakfasting in the air again to-morrow after all.

12.30 p.m.—The clouds have all cleared away, but only temporarily I feel certain. Height 5,000 feet, perfectly clear blue sky and deep blue sea. Visibility is at its maximum, and at this height, according to our text-books, we can see 81 miles. This means that we can see 162 miles from right forward to right aft, and the area we can see over works out at 19,200 square miles, and not a ship to be seen. My ambition to see a steamer at close quarters in this giganuc Atlantic will, I am afraid, never be realised.

3.50 p.m.—Clouds rolling up again. Some very fine examples of cumulus major are to be seen. One particularly interesting cloud formation on our port beam takes the eye. It is a huge vertical column of cloud joining a lower stratus of cloud to a higher stratus, and is about 500 feet high. It is carried by an upturned vertical current.

5.30 p.m.—Great excitement Two trawlers are sighted on our starboard beam. They look very tiny. We try and speak the near one with an Aldis lamp, but as she has no wireless we cannot get reply. We are now down to 3,000 feet, and the difference in temperature between this height and 5,000 feet is most marked, 8 degs. F. Making slightly better headway at this height, 32 knots. Wind N.N.W., 25 degs. drift, Cooke considers that an accuracy of more than 20 miles in estimating a position in mid-Atlantic cannot be guaranteed in an airship even in clear weather. Directional wireless, however, should, when perfected, make this much more accurate.

6.50 p.m.—We ran into a sudden squall from N.W. Low black clouds and a rough, confused sea all in the space of a few minutes. Ship very steady; 1,600 revs on four engines.

6.57 p.m.—Passed out of squall. Got Clifden on directional wireless. 96 degs. M.G., 76 true. We are not very far from the coast of Ireland.

7.15 p.m.—Another squall, but not a big one.

7.25 p.m.—Land in sight on our starboard bow. Great enthusiasm on board. First spotted by Lieut.-Col. Hemsley, U.S. Army Aviation Dept., seven to ten miles away. Scott alters course to make the land. Cooke gets the large chart of the west coast of Ireland, and there is keen competition to see who will fix on the exact spot when we cross the coast. Two little islands lay right ahead of us. With our glasses we see the wireless mast of Clifden. These two islands are almost certainly the same two little islands that appeared out of the fog to the delighted gaze of Alcock and Brown at the conclusion of their historical flight. A strange and happy coincidence

8.0 p.m.—At 8 o'clock precisely we crossed the coast-line a little to the north of Clifden, County Mayo, and our time from crossing the American coast at Long Island to crossing the Irish coast is exactly 61 hours 33 minutes.

8.15 p.m.—We head right in over the mountains, which at this spot are 2,900 feet high. What a wild and rugged coast-line! A magnificent cloud panorama now appears. Huge white cumulus clouds of weird and fantastic shapes surround us on all sides, and over the top peep out the tops of the mountains, while through the gaps we see lakes, harbours, islands, and green fields—quite the prettiest picture we have seen on the entire voyage. It seems as if the elements have reserved their best cloud shapes to welcome us as we cross over British soil.

9.10 p.m.—Two-seater aeroplane from neighbourhood of Castlebar flying past us and under us waving a welcome. We are now well away from the mountains over the flat country inland, heading right across to Belfast and finally East Fortune. Height 2,000 feet, making good 38 knots. Bright full moon.

Crew of R.34 on return journey:—Officers: Major G. H. Scott, A.F.C., captain; G. S. Greenland, first officer; Sec. Lt. H. F. Luck, second officer; and Lieut. J. D. Shotter, engineer officer (ship's officer); also Brig.-Gen. E. P. Maitland, C.M.G., D.S.O., representing the Air Ministry; Major J. E. M. Pritchard, O.B.E., Admiralty; Lieut.-Col. W. H. Hemsley, U.S. Army Aviation Dept.; Major G. G. H. Cooke, D.S.C., navigating officer; Lieut Guy Harris, meteorological officer; 2/Lt. R. D. Durrant, wireless officer; W. B. Mayes, coxswain; H. J. Robinson, flt. serjeant., coxswain; H. M. Watson, serjeant; R. T. Burgess, corporal; F Smith, corporal; J. Forteath, leading aircraftsman; F Borowdie, A.M., 1st Grade (last five riggers)

Engineers M. E. Gent, Flt.Sgt.; E. Ripley, Flt.Sgt.; F. A. Scull, Flt.-Sgt.; J. Shirlwell, Sgt.; B. Evenden, Sgt.; P. Cross, Cpl.; G. Gray, Cpl.; G. Graham, 1st A.M., F. Mort, 1st A.M.; J. Hortheast, 1st A.M.; R Parker, 1st A.M.; E. E. Turner, Flt.-Sgt.; W. Angers, Flt.Sgt.; H Powell, Wireless Cpl.

As things have turned out (though one could have foreseen this) it would have been wiser if we had kept a more northerly course after getting away from helpful influence of the Newfoundland depression. We would then have been helped by this N.N.W. wind instead of being hindered by it, and might have saved some time. Undoubtedly the captains of the big aerial liners of the future will become wiry and cunning masters of the art of selecting the right way and the right height, and often by making wide detours will by means of their air knowledge alone save many hours on long sea and land passages.

11.20 p.m.—Message from Air Ministry to say we are to land at Pulham. We ask if we may land at East Fortune, as that is our original objective and the weather is reported good for landing. The reply is to land at Pulham, so we assume there is some special reason and we alter our course accordingly.

Sunday, July 13th, 7 a.m.—Scott increases height to 5,000 feet, and course is steered over Isle of Man and Liverpool 2.45 a.m., Derby 3.55 a.m., and Nottingham 4.15 a.m., direct to Pulham.

5.0 a.m.—A wireless message is received from His Majesty the King: "I congratulate you all on your safe return home after completion of your memorable and indeed unique trans-Atlantic voyage."—(signed) G. R. Wireless messages of congratulations were also received from Major-Gen. Seely, Under Secretary of State for Air; Major-Gen. Sir H. M. Trenchard, Chief of Air Staff; Major-Gen. Sir F. H. Sykes, Controller-General of Civil Aviation, and Sir A. Robinson, Secretary of the Air Council.

6.20 a.m.—Over Pulham Airship Station, and 6.57 landed. Total time of return journey from Long Island to Pulham, Norfolk, 75 hours 3 minutes, or 3 days 3 hours 3 minutes

The mail safely brought by the R.34 from America was in a crash on Sunday, July 13th, whilst being conveyed to London in a motor-car. The car contained among others, Lieut.-Commander Ramsey, of the U.S.N.A.S. It collided with a horse and trap at the village of Capel St. Mary, near Ipswich, killing the horse, and injuring all the travellers except Lt.-Com. Ramsey.

General Maitland, Major Scott, and Lieut. Shotter arrived in London during the morning of July 14th, and were met at Liverpool Street Station by representatives of the Air Ministry.

Mrs. Winston Churchill was present with Lady Drogheda. The War Minister was represented by Colonel Scott, General Sykes by General Swinton, and General Trenchard by Colonel Chamier. Among others on the platform were General Masterman (chief representative of the Airship Service), Commander Perrin (secretary of the Royal Aero Club), Commander Ramsey (of the U.S.A. Navy), and a number of R.A.F. officers who were connected with the arrangements for the flight.

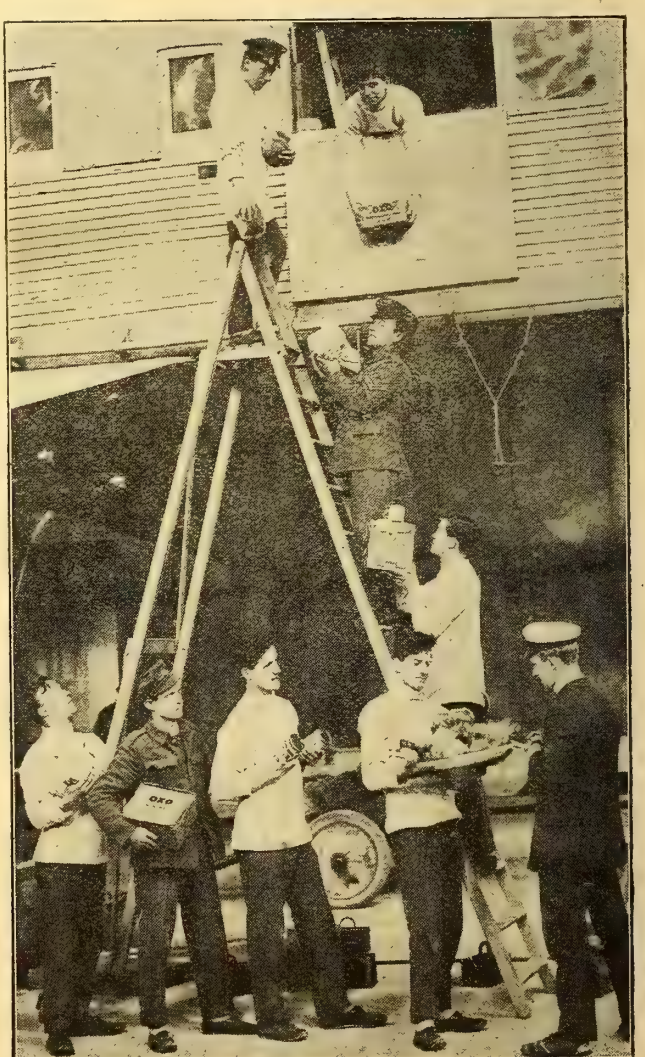
Afterwards General Maitland and Major Scott were entertained at luncheon at the House of Commons by General Seely.

SLEEPY AMERICA.

According to the New York correspondent of the "Daily Telegraph," "there is a summer rush of patriots in the correspondence columns of the American newspapers, protesting against what is called by most of them the 'supineness of the naval authorities in allowing other countries to eclipse the United States in regard to aviation.'

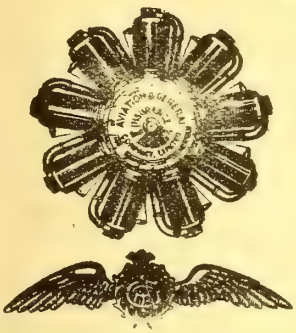
"After allowing for the flying-boat's success in reaching Europe *via* the Azores and Portugal, it is declared that we here are lagging behind England very seriously, and, though the aeroplane is an American invention, we permit you to ride over us roughshod.

"The British proposals to establish lines of commerce and passenger-carrying dirigibles are studied here, and the 'New York Times,' which is not a sensational paper, comments to-day: 'John Bull is hard-headed and business-like. He is set on being master of the air. What is Uncle Sam going to do about it?'"



VICTUALLING R.34.—The scene and the variety of comestibles somehow remind one of Chu-Chin-Chow, and the Steward's song of "Sardines stewed in honey, Also fricasseed sturgeon roe,"—or words to that effect

Aviation & General



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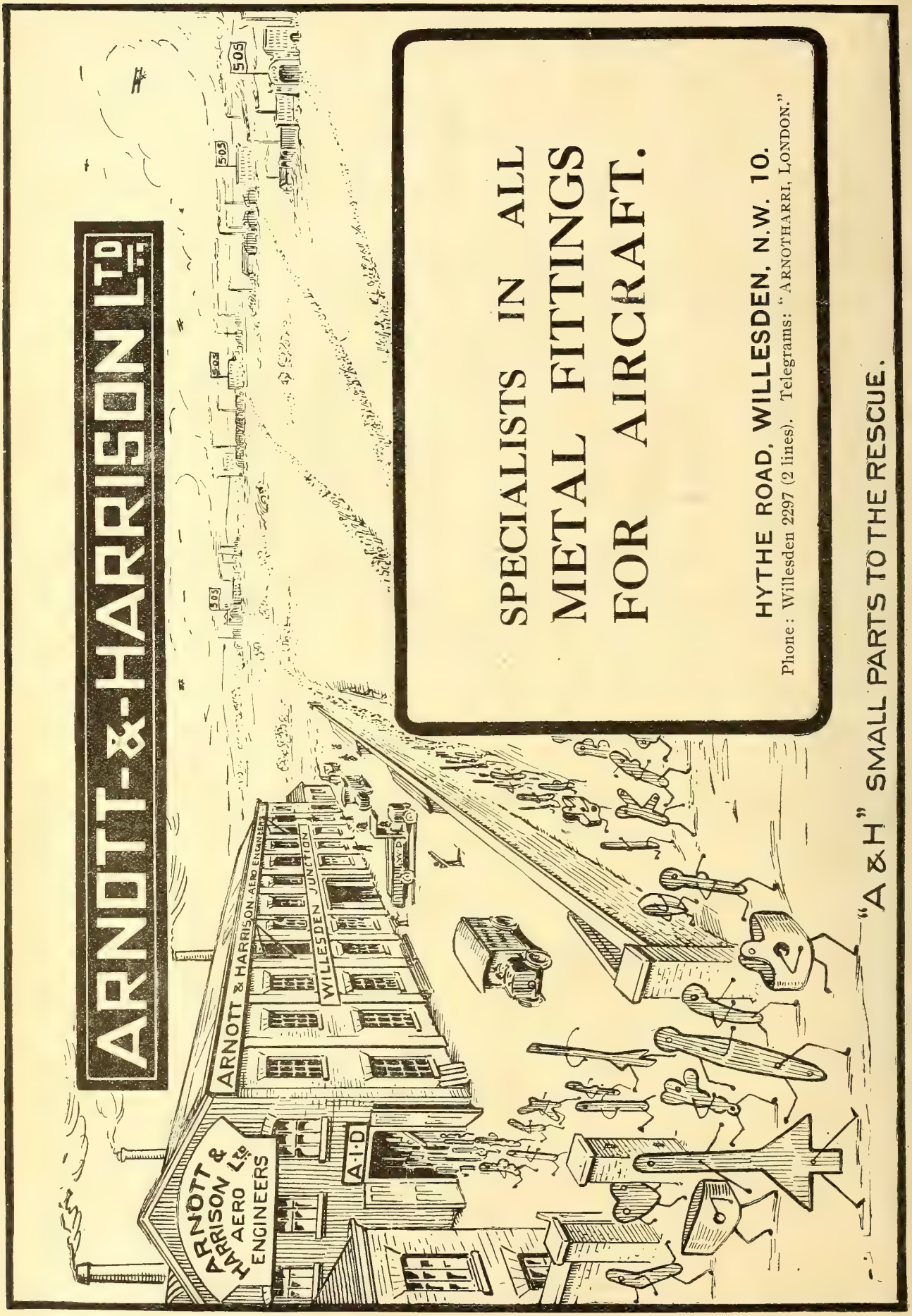

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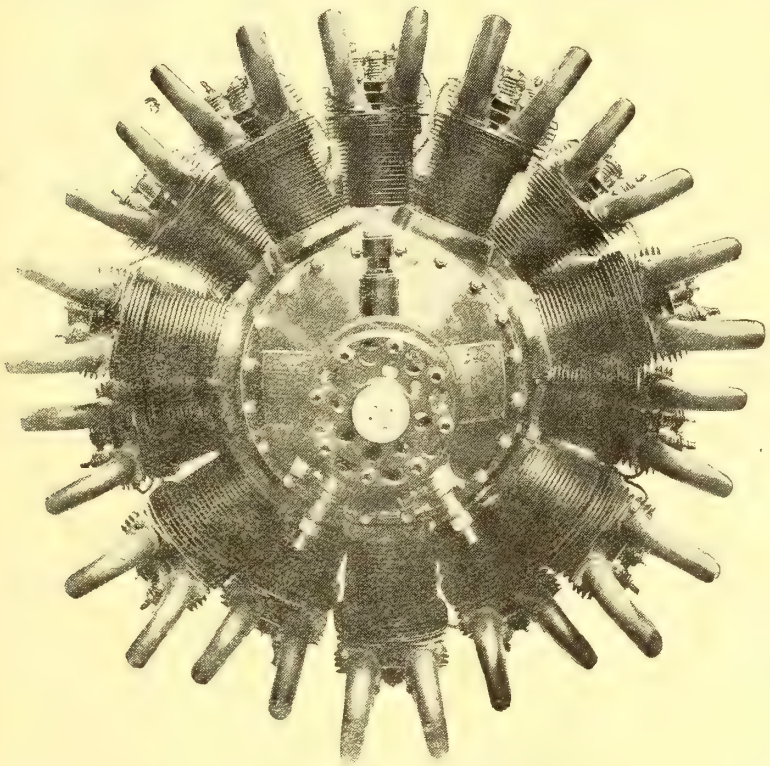

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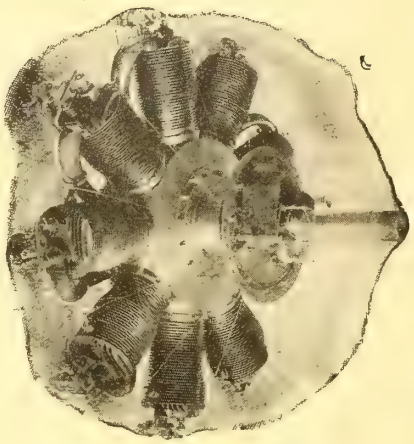

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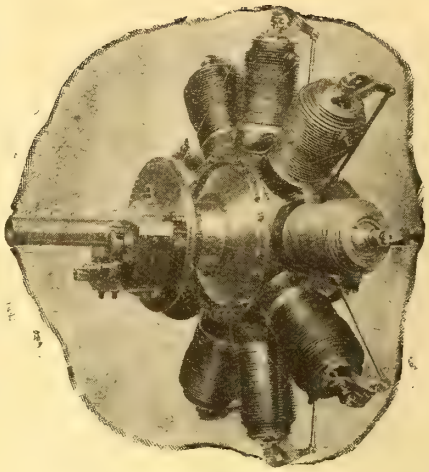

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THE WEEKLY COMMENTARY.

A contributor, "Strasbourg," whose articles on the "Influence of Official Control on Aeroplane Design" attracted considerable attention early in this year, contributes to this number a rather depressing article concerning the probable effect of continued official control upon the future prospects of aeronautical engineers in this country.

It seems fairly clear either that "Strasbourg" has suffered somewhat at the hands of more than one Government, or that he possesses the Irish characteristic of being always "agin the Government."

At the same time his advice to the younger generation of aeronautical engineers to fill in the interval between the present time and that time to come when they can be reabsorbed into the aeronautical industry by widening their experience of general engineering is very sound.

The more recent machines designed and built by the British and Aeroplane Company, Ltd., of Bristol, are the subject of this week's instalment of "Modern British Aeroplanes."

Mr. C. W. Tinson replies briefly to Mr. J. D. North's criticism of the articles on "Longitudinal Stability" (p. 248).

THE AERONAUTICAL ENGINEER AND THE FUTURE.

By "STRASBOURG."

Aeronautical engineering is the most recent of the branches of the engineering profession.

Six years ago the aeronautical engineers of Britain might almost have been counted on the fingers—if one confined oneself to those whose training gave them a right to be called engineers, and whose achievements gave them a place in the world of aeronautics.

Wild and woolly inventors there were, of course—numberless as the sands of the seashore—and many of them would have described themselves as being both aeronautical and engineers (of sorts), presumably basing their claims to the substantive part of the title on the ground that an engineer was merely an ingenious person.

But the real aeronautical engineers of those early days were all enthusiasts, working for the love of the craft and for no visible material reward. Many of them are still with us, and many of them by the unlikeliest of chances have reaped a reasonable and richly deserved reward for the labours and struggles of those early and very lean years. Some of them have not yet received any other reward than that of seeing some of their dreams realised, and some have passed beyond the hope of earthly reward.

But there are now in this country some thousands of people, all more or less rightly to be considered as engineers, who either through service with one or other of varied forms which His Majesty's Aerial Forces have assumed, or by virtue of a connection with the war-expanded Aircraft Industry, can claim also the prefix "aeronautical."

The war-time activities of the Air Force, and with them those of the Aeroplane Industry, have ceased—for a time at least.

The Commercial Aviation Industry of the future is not, as yet. Its destinies lie largely in the hands of a Government Department—a department closely allied with that Bolo House which is, and largely deserves to be, a by-word for all that is inconsequent and impedant—though in places pedantic—in a system of government notorious for its incapacity efficiently to perform any function.

This department is without funds—£500,000 per annum is practically nothing wherewith to lay the foundations of Civil Aerial Transport in the British Empire—and apparently without power, since apparently the least word of the most incompetent jackass in office of the Military Branch of the Air Services suffices to immobilise it.

In Britain it has ever been thus. The public supply of gas, of electricity for power and lighting, the installation of electrical tramways, and the development of road motor transport have all in their turn been subject at their birth to hampering restrictions imposed by a Government Department improvised to that end, ostensibly for the protection of a public too stupid to take care of itself, and in practice to retard in every possible way those developments of applied science which pass beyond the comprehension of the average member of Parliament.

Thus it occurs that the British public services—gas, water, electricity, telephones, telegrams, and the like—are to some very considerable extent the laughing-stock of the engineering world, and are only saved from utter futility by that genius for attaining, by hook or by crook, some sort of useful result under the most unpromising conditions which is now and ever has been the distinguishing feature of the British professional classes, and upon which alone, despite all the efforts of politicians, lawyers, and the trading class generally (politicians and lawyers being merely traders in credulity), the prosperity and power of the British Empire depends.

As it has been in the past so is it likely to be in the future. It is unthinkable—we being by our works proclaimed a nation of fools—that we should depart from our foolishness in this one matter alone, and it must be

accepted that the progress of commercial aviation in this country will be retarded by official action and regulation based upon every possible plea as to the safety of the public, the rights of property, the interests of local authorities, *et hoc genus omne,* and that its future will depend entirely upon the efforts that are made by those who may properly be classed as aeronautical engineers to overcome the ill effect of these artificial handicaps to the growth of what is destined to become one of the main channels of the civilisation of the future.

The conditions under which British engineers have had to do their work, particularly in those branches which have been more directly subjected to Government interference, have had their indirect advantages. The engineer who can successfully contend with the British Board of Trade, Local Government Board, or the like, and, in spite of their efforts, successfully operate a gas, electricity, tramway, or railway undertaking in this country, can generally rise to eminence and affluence if he betake himself to some region where enterprise is less subject to official obstruction.

This condition will almost certainly recur in the case of Aeronautical Engineering, but it is by no means desirable for the future of the British Industry that any very large proportion of the younger and more enterprising of our aeronautical engineers should be forced out of the country in a search for a bare subsistence.

At the moment the professional prospects of the large number of young men who, during the past four or five years, have been trained either in the Services or out of it to the practice of engineering as it applies to aeronautics are by no means bright.

The commercial side of the Aircraft Industry has no room for them. If they really have the makings of true engineers in them, the Royal Air Force is totally incapable of using them, and, anyhow, does not like that particular brand of human being.

The man who really succeeds as an engineer is usually deeply interested in his profession, and such an interest is often just as incompatible with the cultivation of those social graces and that careful regard for ceremonial which it is understood is now to be cultivated by the Royal Air Force, as it was with that general lack of any order which has characterised that Force in the past.

Therefore one is forced to conclude that there is not at this time and in this country any opening within the Aircraft Industry for a large number of men who have a fairly extensive training which would fit them for such work.

The Commercial Aircraft Industry of the future will need these men, or others to take their place, but it cannot at present support them.

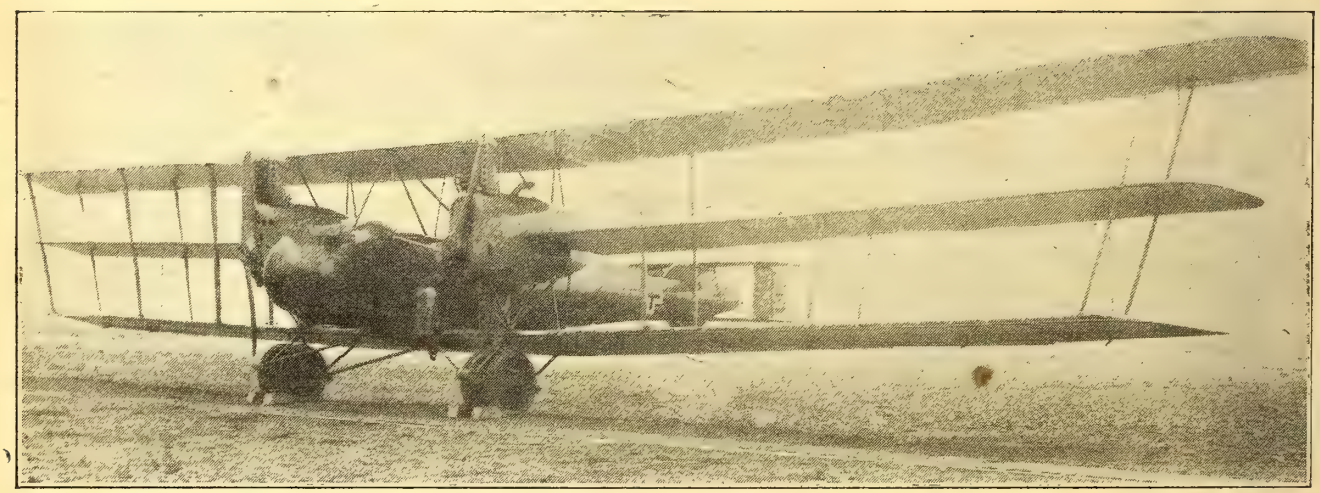
There appears to be but one hope.

Aeronautical Engineering is but one specialised branch of engineering generally, and no man is fitted for a responsible position in any branch of engineering whose practical knowledge is entirely confined to that special branch.

Most of the younger aeronautical engineers are purely war-time forced products of an intensive training system which has confined itself to within very narrow limits.

The general engineering industry of the world is just at the moment slack, but there are unlimited arrears of work to be made up within the next few years, and there will be room therein for every man with any engineering ability who is not afraid of work.

Therefore one would unhesitatingly advise all those of the class referred to above, who wish to play a part in the future of British Aeronautical Engineering, but who cannot find places for themselves in that profession at the moment, to seek for themselves work in any branch of mechanical engineering, particularly in the realm of structural and general transport work, and to look upon such work, not as a temporary break in their aeronautical careers, but as a part of that wider training which is really the true distinction between an engineer and an educated tradesman



TWO MODERN GERMAN MACHINES.—Top: An L.V.G. twin-engined Triplane. Below: An Aviatik with two 230 h.p. Berz engines. The general "cleaning up" of the lines of these machines as compared with the early Gothas and Friedrichshafens is notable.

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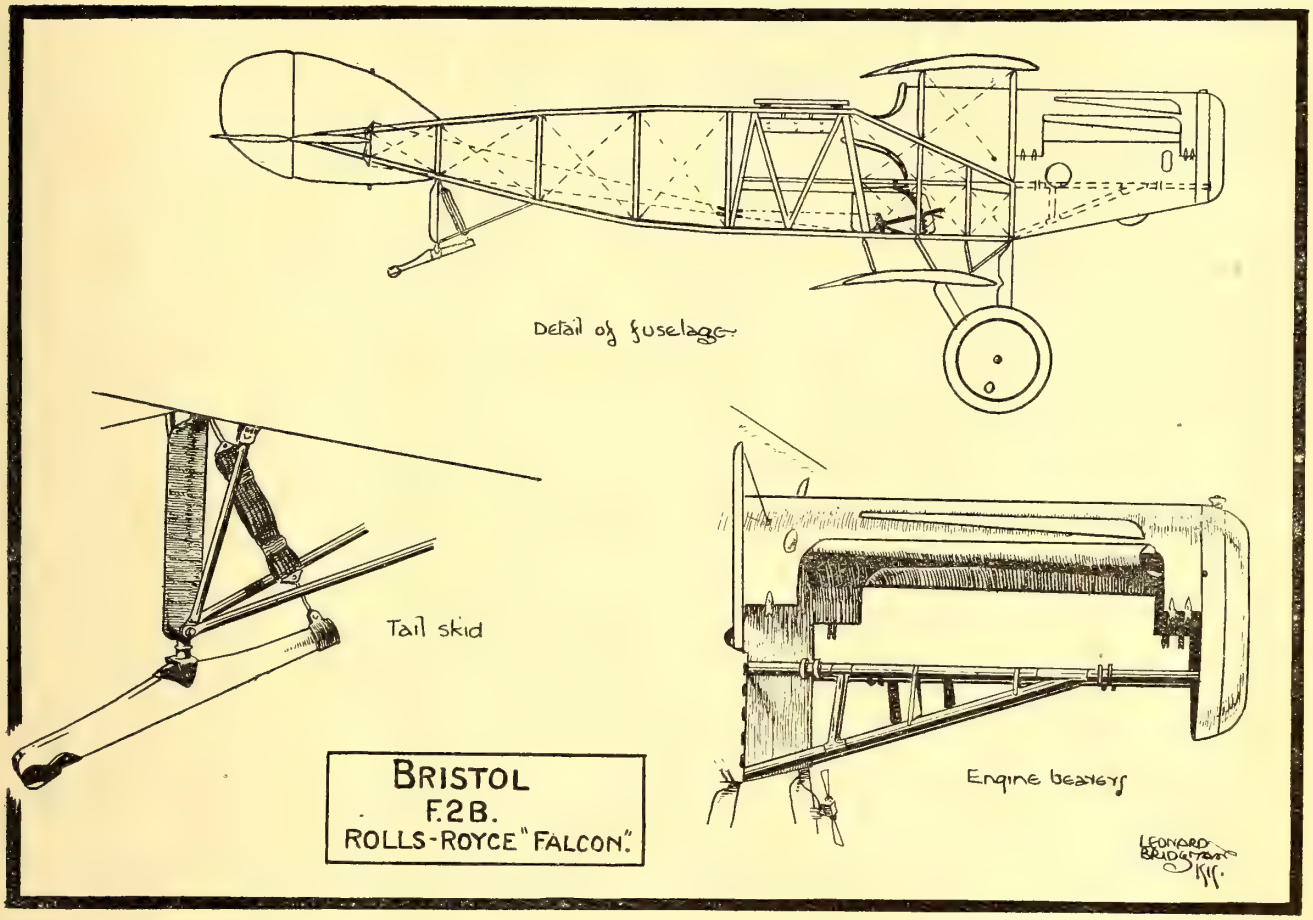
MODERN BRITISH AEROPLANES.

VIII.—The British and Colonial Aeroplane Co., Ltd.



Founded in 1910 by the enterprise of the late Sir George White, the names of the British and Colonial Aeroplane Co., Ltd., and of their products, the "Bristol" aeroplanes, are indissolubly connected with the development of the British Aeroplane Industry.

Many of the finest of the early British pilots learnt to fly upon Bristol aeroplanes, and the firm has always been noted for the excellence of their workmanship.

At the beginning of the war the Bristol "Bullet" was one of the most serviceable of the small high-speed single-seaters in the Allied Air Services, and the succeeding machines of that mark have signally upheld the firm's reputation

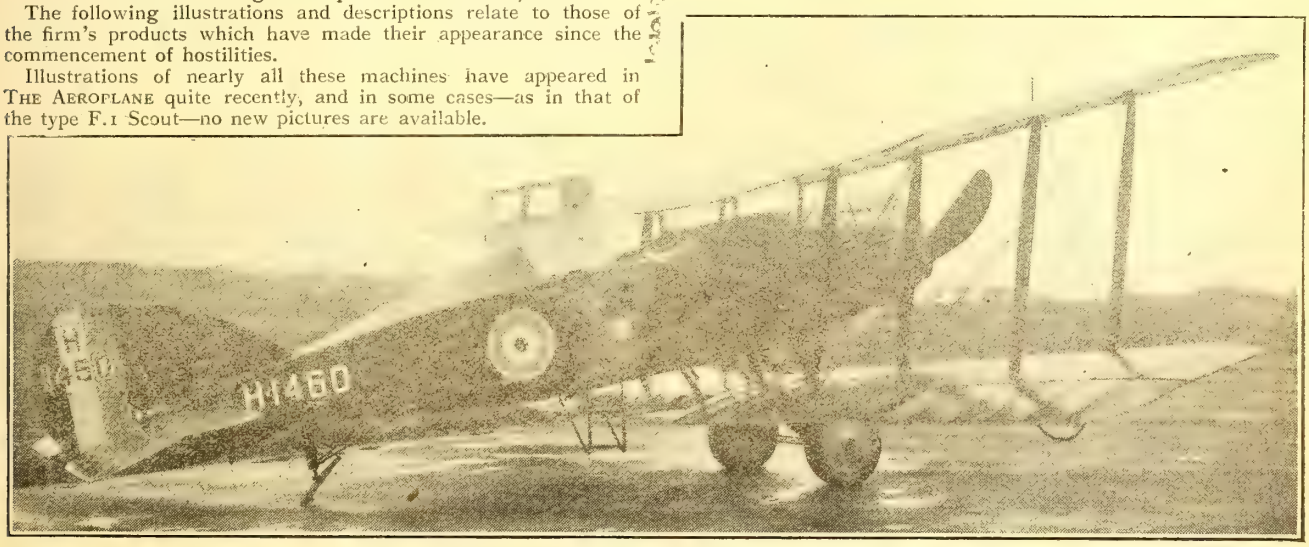
During the whole period of hostilities the design work of the firm has been in the charge of Capt. F. S. Barnwell, R.A.F.

The following illustrations and descriptions relate to those of the firm's products which have made their appearance since the commencement of hostilities.

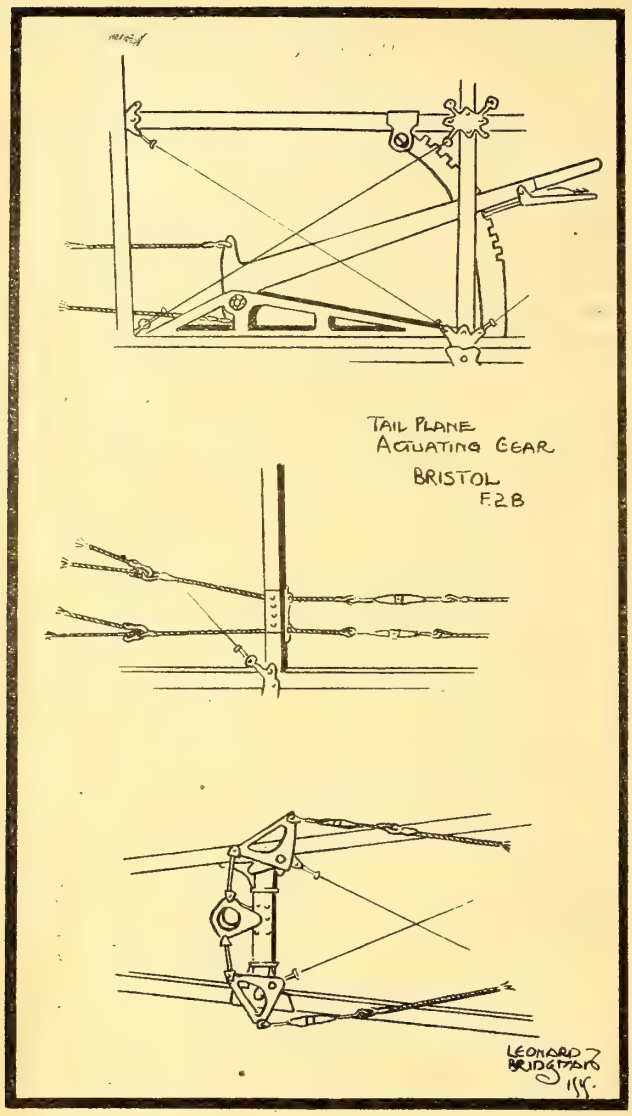
Illustrations of nearly all these machines have appeared in THE AEROPLANE quite recently, and in some cases—as in that of the type F.1 Scout—no new pictures are available.

THE BRISTOL F.2B. BIPLANE.

The Bristol F.2B. biplane, more commonly known as the Bristol "Fighter," was designed as a fighter and reconnaissance two-seater biplane. The fuselage is square section and tapers to a horizontal knife edge aft. A Rolls-Royce "Falcon" engine is carried in the nose of the machine on steel tube engine bearers, with the radiator in front. Metal cowling covers the front of the fuselage as far back as the front top and bottom centre section struts, and the top of the fuselage back to the pilot's seat. The fuselage is slung midway between the planes, there being both top and bottom centre-sections.



A Modified Bristol Fighter fitted with enclosed Passenger Cabin.



The angle of incidence of the tail plane can be altered from the pilot's seat to offset varying weights carried. Partial dual control is fitted, the control column being duplicated in the observer's cockpit, but for the rudder control instead of the rudder bar two hand-grips are fitted to the rudder control wires which pass through the observer's cockpit.

The armament consists of one fixed Vickers gun inside the cowling, firing through the airscrew, and a Scarff mounting round the observer's cockpit which is capable of carrying either the single or twin Lewis guns. The 200-h.p. Sunbeam "Arab" and the 200-h.p. Hispano-Suiza engines have been fitted and used on active service in substitution for the 250-h.p. Rolls-Royce "Falcon."

SPECIFICATION.

Type of machine—Two-seater Biplane.
Name or type No. of machine—F.2b.
Purpose for which intended—Fighting and Reconnaissance.
Span—39 ft. 3 in.
Gap—5 ft. 5 in.
Overall length—25 ft. 9 in.
Maximum height—10 ft. 1 in.
Chord—5 ft. 6 in.
Total surface of wings—405 sq. ft.
Total area of tail—22.2 sq. ft.
Area of elevators—23.2 sq. ft.
Area of rudder—7.2 sq. ft.
Area of fin—10.7 sq. ft.
Engine type and h.p.—Rolls-Royce Falcon III, 260 h.p.

Airscrew	9 ft. 8 in. diam.; 9 ft. 4 in. pitch; 1,220 r.p.m.
Weight of machine empty	1,750 lbs.
Load per sq. ft.	6.92 lbs.
Weight per h.p.	10.6 lbs.
Petrol tank capacity	45 gallons.
Oil tank capacity	4 gallons.
PERFORMANCE—	
Speed low down	125 m.p.h.
Speed at 5,000 feet	122 m.p.h.
Speed at 10,000 feet	113 m.p.h.
Landing speed	48 m.p.h.
Climb—	
To 5,000 feet	5 minutes.
To 10,000 feet	11.5 minutes.
To 15,000 feet	21.5 minutes.
Disposable load apart from fuel	630 lbs.
Total weight of machine loaded	2,800 lbs.

THE BRISTOL MONOPLANE.

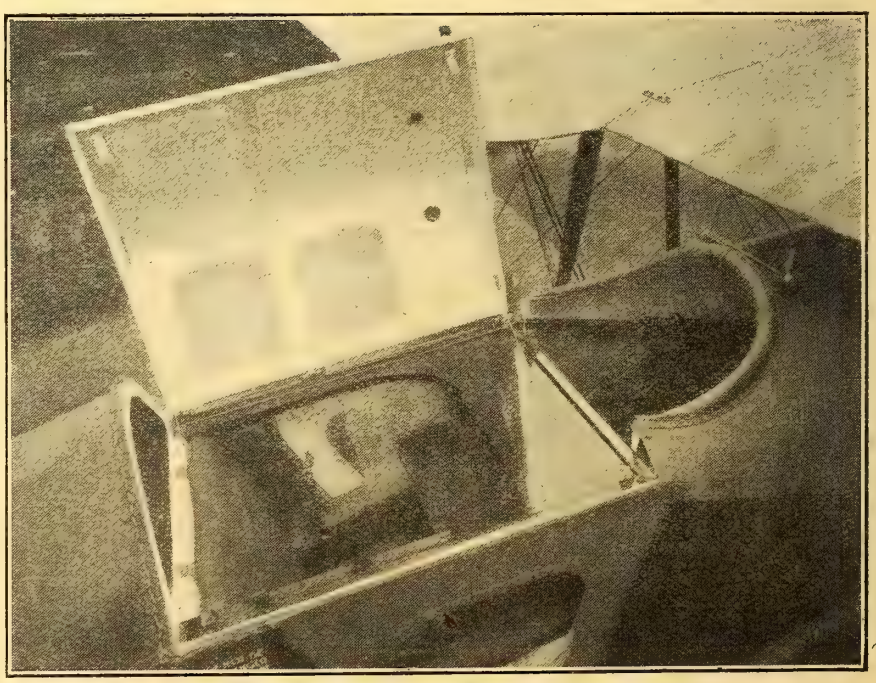
Contrary to the usual run of single-seater fighting machines, the majority of which pertain to the biplane breed, the British and Colonial Aeroplane Co., designed a monoplane which possessed a very good all-round performance, and which was used on active service in the Eastern theatre of war with great success.

The fuselage is of circular section, the shape of the cowling being preserved down to the tail plane by fairing composed of formers and laths covered with fabric. A 110-h.p. Le Rhône forms the power unit and a large circular spinner is fixed to the propeller.

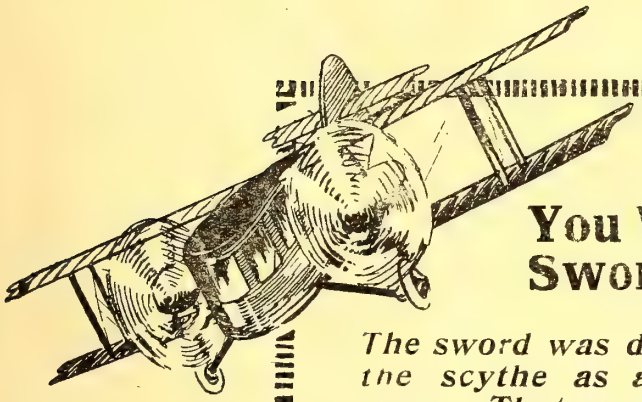
The armament consists of one fixed Vickers gun firing through the airscrew.

SPECIFICATION.

Type of machine	Single-seater Monoplane.
Name or type No. of machine	Bristol Monoplane.
Purpose for which intended	Fighting.
Span	30 ft. 9 in.
Overall length	20 ft. 4 in.
Maximum height	8 ft.
Chord	5 ft. 11 in.
Total surface of wings	145 sq. ft.
Total area of tail	20 sq. ft.
Area of elevators	15 sq. ft.
Area of rudder	4.5 sq. ft.
Area of fin	5 sq. ft.
Engine type and h.p.	110-h.p. Le Rhône.
Airscrew	8 ft. 6 in. diam.; 8 ft. 11 in. pitch; 1,350 r.p.m.
Weight of machine empty	850 lbs.
Load per sq. ft.	8.9 lbs.
Weight per h.p.	10.8 lbs.
Petrol tank capacity	20 gallons.
Oil tank capacity	5 gallons.
PERFORMANCE—	
Speed low down	130 m.p.h.



The Cabin of the "Limousine" Bristol Fighter.



You Wouldn't use a Sword as a Scythe.

The sword was designed for war—the scythe as an implement of peace. That expresses, metaphorically, the unsuitability of a battle-plane as a commercial unit. A commercial aeroplane must be designed as such—right through—to be successful. The Nieuport civilian machines differ from war machines as liners differ from battleships.

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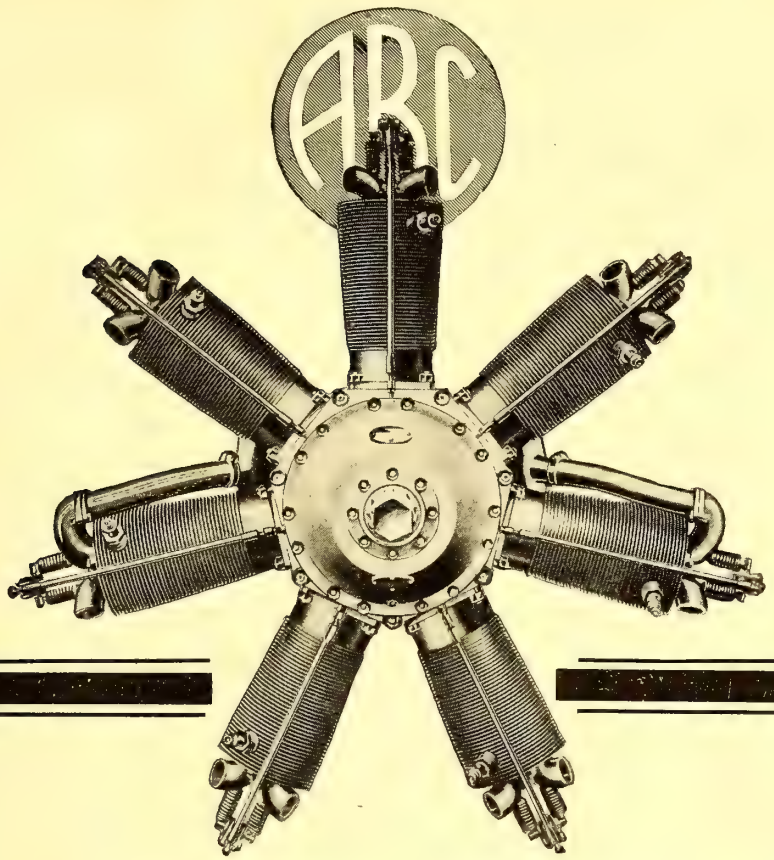

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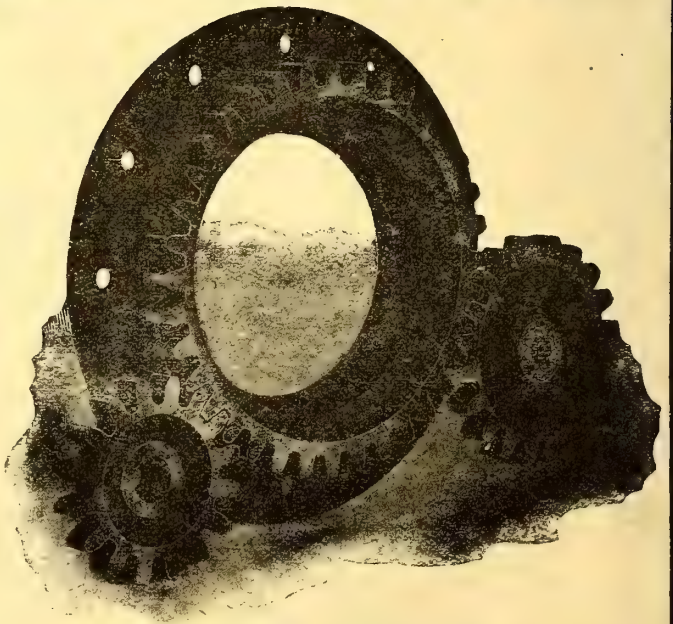

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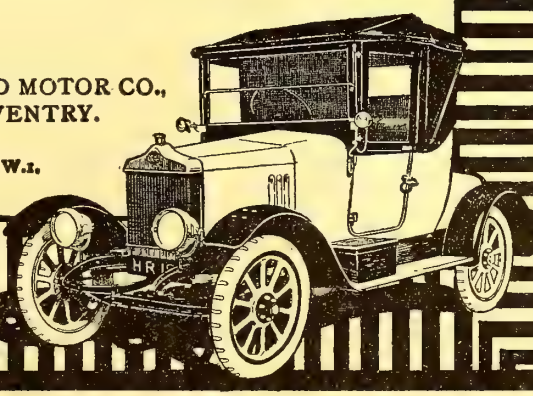

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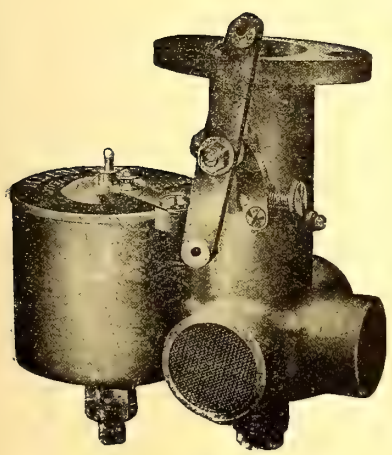

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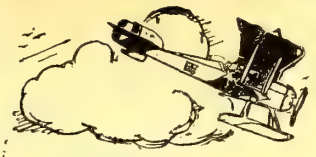

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Screwing Die Heads—
Voucher, Co., Auto Tool Works, Walsall. "Voucher Walsall." Walsall 0196.

Screw-driving Machines—
Russell Bros. (Redditch), Ltd., Littleworth, Redditch. "Inventors, Redditch." Redditch 74.

Seaplane Manufacturers—
Blackburn Aeroplane & Motor Co., Ltd., Olympia, Leeds. "Propellors, Leeds." Roundhay 345 (3 lines).
Phœnix Dynamo Manufacturing Co., Ltd., Thornbury, Bradford. "Dynamo, Bradford." Bradford 3700 (7 lines).
Short Bros., Rochester. "Seaplanes, Rochester." Chatham 627.
Supermarine Aviation Works, Ltd., Southampton. "Supermarin, Southampton." Woolston 37.

Searchlights & Landing Lights
Brown Bros., Ltd., Great Eastern St., E.C.1.
Imperial Light, Ltd., 123, Victoria Street, London, S.W.1. "Edibrac, Phone, London" 3540 Victoria (3 lines).
The Rotax Motor Accessories Co., Ltd., Victoria Road, Willesden Junction, N.W.10 "Rodynalite, Phone, London." Willesden 2480

Shock Absorbers—
Luke Turner & Co., Deacon Street, Leicester Leicester 967.
Tubbs, Lewis & Co., Ltd., 29 & 30, Noble Street, E.C.2. "Elastics, London." City 22.

Sheet Metal Pressings—
Accles & Pollock, Ltd, Oldbury, Birmingham. "Accles, Oldbury." Oldbury 111 (4 lines)
Blackburn Aeroplane & Motor Co., Ltd., Olympia, Leeds. "Propellors, Leeds." Roundhay 345 (3 lines)
British Metal (Kingston), Ltd., Kingston-on-Thames.
Rubery Owen & Co., Darlaston, South Staffs.

Sheet Metal Work—
The Acetylene Corporation of Great Britain, Ltd., 49, Victoria Street, S.W.1. "Flamma, Vic, London." Vic 4830
British Metal (Kingston), Ltd., Kingston-on-Thames. [Staffs.
Rubery Owen & Co., Darlaston, South
The Selsdon Aero & Engineering Co., Ltd., 1, Albemarle Street, Piccadilly, W.1. "Selaero, Phone, London." Regent 1181
Imperial Light, Ltd., 123, Victoria Street, London, S.W.1. "Edibrac, Phone, London." Victoria 3540 (3 lines).

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Accumulators—

The Chloride Electrical Storage Co., Ltd., Clifton Junction, near Manchester. "Chloridic, Pendlebury" Central Manchester, 1058 Pendleton, 11.

Acetylene Welding Plant—

Acetylene Corporation of Great Britain, Ltd, The, 49, Victoria Street, Westminster, S.W.1 "Flamma, Vic, London" Vic 4830

Imperial Light, Ltd, 123, Victoria Street, London, S.W.1. "Edibrac, 'Phone London" 3540 Victoria (3 lines)

Aeroplane Manufacturers—

Aircraft Manufacturing Co., Ltd., Hendon. "Airmanship, Hyde, London" Kingsbury 220

Armstrong, Sir W., Whitworth & Co., Ltd., Newcastle-on-Tyne "Armstrong Aviation, Newcastle-on-Tyne" Gosforth 500

Blackburn Aeroplane & Motor Co, Ltd, Olympia, Leeds "Propellors, Leeds" Roundhay 345 (3 lines)

Boulton & Paul, Ltd, Rose Lane, Norwich, "Aviation, Norwich" Norwich 851

British Aerial Transport Co, Ltd. Head Office: 38, Conduit Street, London, W 1 "Batigram Reg London" Mayfair 637, 638

Works: Hythe Road, Willesden, London, N W.10. "Aerbrirans, Phone, London" Willesden, 2272, 2273

British & Colonial Aeroplane Co, Ltd (The Bristol Co), Filton, Bristol "Aviation, Bristol" Bristol 3600

Central Aircraft Co, High Road, Kilburn, N W 6 "Aviduction, Phone, London" Hampstead 4403 and 4424

Dawson, John, & Co, Ltd, Newcastle-on-Tyne "Dependable, Newcastle-on-Tyne" Central 2604 (2 lines).

Eastbourne Aviation Co., Ltd., Eastbourne "Aircraft, Eastbourne." Eastbourne 1176

Gosport Aircraft Co, Gosport "Flight Gosport" Gosport 217

Grahame-White Company, Ltd, London Aerodrome, Hendon "Volplane, Hyde, London" Kingsbury 1-6 London Office, 12, Regent Street, S W 1 Regent 2684

Handley Page, Ltd, 110, Cricklewood Lane, N.W 2 "Hydroplud, Crickle, London" Hampstead 7321

Hooper & Co, Ltd, 54, St James St, Piccadilly, London, S W "Sociable, St James, London." Regent 612

Mann, Egerton & Co, Ltd, Norwich "Motors, Norwich" Norwich 482 (4 lines)

Martinsyde, Ltd, Brooklands, Byfleet, "Martinsyde, Weybridge" Woking 231, Byfleet 171

"Nieuport" & General Aircraft Co, Cricklewood, London, N W 2. "Nieuscout, Crickle, London" Willesden 2455

Phœnix Dynamo Manufacturing Co, Ltd, Thornbury, Bradford "Dynamo, Bradford." Bradford 3700 (4 lines)

The Regent Carriage Co., Ltd, 126 132, New King's Road, Fulham, S W 6 "Carbodis, London" Putney 2240-2241

Roe, A. V., & Co., Ltd., Manchester. "Triplane, Manchester" City 8530-8531, Manchester.

Saunders, S. E., Ltd., East Cowes, I.O.W. "Consuta, East Cowes" Cowes 193

Short Bros, Rochester, Eastchurch and Whitehall House, S.W. "Tested, Phone, London." Regent 378

The Siddeley Deasy Motor Car Co., Ltd., Coventry Coventry 954 "Deasy, Coventry."

Sopwith Aviation Co., Ltd, Kingston-on-Thames "Sopwith, Kingston" Kingston 1988 (8 lines).

The Supermarine Aviation Works, Ltd., Southampton. "Supermarin" Woolston 37 (2 lines).

Vickers, Ltd, Imperial Court, Basil Street, Knightsbridge, S.W.3. "Vickerfyta, Knights, London." Kensington 6810

Waring & Gillow, Ltd., Hammersmith. "Warisen, Ox, London." Museum 5000.

Westland Aircraft, Yeovil "Aircraft, Yeovil" Yeovil 129.

White, J. Samuel, & Co., Ltd, East Cowes. "White, East Cowes" Cowes 3.

Airships—

Airships, Ltd., High Street, Merton. Wimbledon 1314

The North British Rubber Co, Ltd, Castle Mills, Edinburgh "Weba, Edinburgh." Edinburgh 3880 Central. (5 lines.)

Short Bros, Rochester, Eastchurch, and Whitehall House, S W. "Tested, 'Phone, London" Regent 378

C G Spencer and Sons, Ltd (See under "Balloons")

Aluminium Castings (Sand and Die)

Coan, R. W, 210, Goswell Road, London, E C 1 "Krankases, Isling, London" City 3846

Balloons—

The North British Rubber Co., Ltd., Castle Mills, Edinburgh "Weba, Edinburgh" Edinburgh 3880 Central (5 lines)

C. G. Spencer and Sons, Ltd, 56a, Highbury Grove, N 5 "Aeronaut, London." Dalston 1603

Bent Timber Parts—

Hopton & Sons, George Street, Euston Square, London, N W 1 "Hoptons, Eusquare, London" Museum 456 Also at Market Harborough, Leicestershire "Hoptons, Market Harborough" Market Harborough 15

Bearings (Etonia Cast Phosphor Bronze)

Brown Bros, Ltd, Gt Eastern St, E C 1

Yorkshire Engineering Supplies, Ltd., Wortley, Leeds "Yes, Leeds" Central 3927.

Blowpipes (Oxy-Acetylene)—

Acetylene Corporation of Great Britain, Ltd, The, 49, Victoria Street, Westminster, S W 1 "Flamma, Vic, London" Vic 4830

Imperial Light, Ltd, 123, Victoria Street, London, S W.1 "Edibrac, 'Phone, London." Vic. 3540 (3 lines)

Bolts—

Mitchell Wedgewood & Co, Campbell Works, Stoke Newington, London, N 16 Dalston 1500 (2 lines).

Books (Aero Engines)—

Dykes' Auto Encyclopedia, Gillam, 149, Strand, W.C 2

Buildings—

Boulton & Paul Ltd, Rose Lane, Norwich "Aviation, Norwich" Norwich 851

Rubery Owen & Co, Darlaston, South Staffs

Cable Coverings and Cable Controls—

The Bowden Brake Co., Ltd, Tyseley, Birmingham "Bowden, Acock's Green" Acock's Green 103 & 104

Bowden Wire, Ltd, Willesden Junction, "Bowirelim, Harles, London" Willesden 2400 (3 lines).

Herbert Terry & Sons, Ltd., Redditch "Springs, Redditch" Redditch 61.

Carburettors—

Hobson, H M, Ltd, 29, Vauxhall Bridge Road, S W.1 Victoria 4070

Casein—

Nieuwhof, Surie & Co, Ltd., 5, Lloyds Avenue, London, E.C 3 "Suricodon, Fen, London" Avenue 34 and 35

Clothing—

Burberry's, Ltd, Haymarket, S W.1 Regent 2165

Dunhill's Ltd., Euston Road, N W 1 "Dunsend, London." North 3405-6.

The North British Rubber Co., Ltd., Castle Mills, Edinburgh "Weba, Edinburgh" Edinburgh 3880 Central (5 lines.)

Component Parts—

Accles & Pollock, Ltd, Oldbury, Birmingham "Accles, Oldbury." Oldbury 111 (4 lines).

Brown Bros., Ltd., Gt. Eastern St, E.C.1.

Central Aircraft Co., High Road, Kilburn, N.W.6 "Aviduction, 'Phone, London" Hampstead 4403 & 4404.

Thompson Bros (Bilston), Ltd, Bradley, Bilston, England "Thompson Bros, Bilston." Bilston 10

Cords, Tapes, and Threads—

MacLennan, J, & Co, 30, Newgate Street, E.C 1 And at Glasgow City 3115.

Dopes—

Titanine, Ltd, 175, Piccadilly, W 1 "Tetrafree, Piccy, London" Gerrard 2312

British Cellulose Co, 8, Waterloo Place, S W 1 "Cellutate, London" Regent 4016

The British Emaillite Co, Ltd, 30, Regent Street, S.W.1. "Ridleypren, Piccy, London" Gerrard 280

Cellon, Ltd., 22, Cork Street, London, W 1 "Ajawb, Reg, London" Gerrard 440

Robt Ingham Clark & Co., Ltd., West Ham Abbey, E.15 "Oleotine, Strat, London" East 925.

Engines and Parts—

Allen, W H, & Co., Ltd, Bedford "Pump, Bedford" Bedford No 1

Arrol-Johnston, Ltd., Dumfries "Mocar, Dumfries" Dumfries 281-282

Beardmore Aero Eng, Ltd, 112, Great Portland Street, W.1 "Beardmore, London" Gerrard 238

The Cosmos Engineering Co, Ltd, Fishponds, Bristol.

Dudbridge Iron Works, Ltd (Salmson), 57, Victoria Street, London, S W 1 "Aeroflight, Vic, London" Vic 4216

Gordon Watney & Co, Ltd, Weybridge "Mercédès, Weybridge" Weybridge 550 (7 lines).

Green Engine Co, Ltd, Twickenham Richmond 1403

Gwynnes, Ltd, Hammersmith, W "Gwynne, Hammersmith" Hammersmith 1110

Napier & Son, D, Ltd, 14, New Burlington Street, London, W., and at Acton, W "Nitrifier, London" Gerrard 5920.

Rolls-Royce, Ltd, 14 and 15, Conduit Street, W 1 "Rolhead, London" Gerrard 1054-56

The Siddeley-Deasy Motor Car Co, Ltd, Coventry. Coventry 954 "Deasy, Coventry"

Sunbeam Motor Car Co, Ltd, Wolverhampton "Moorfield, Wolverhampton" Wolverhampton 985

The Gnôme & Le Rhône Engine Co, Ltd, 27, Buckingham Gate, S W 1. "Elevenfold, London" Walthamstow 511 (2 lines)

Walton Motors, Ltd, Walton-on-Thames "Motors, Walton-on-Thames" Walton-on-Thames 220

Electrical Accessories—

Belling & Co, Montague Road, Upper Edmonton, N 18. "Belling, Edmonton" Tottenham 1984

Brown Bros., Ltd, Gt. Eastern St, E C 1

Johnson & Phillips, Ltd, Charlton, London, S.E 7. "Juno, London" Central 2207, London Wall 1504

The Rotax Motor Accessories Co, Ltd, Victoria Road, Willesden Junction, N W 10 "Rodynalite, 'Phone, London" Willesden 2480

Electric Cables—

E Kalker and Co, Coventry. "Kalker, Coventry" Coventry 448

Johnson & Phillips, Ltd., Charlton, London S E 7. "Juno, London" Central 2207, London Wall 1504

Electric Lighting and Power—

Johnson & Phillips, Ltd., Charlton, London, S.E.7 "Juno, London." Central 2207, London Wall 1504

Mann, Egerton & Co., Ltd., 117, Cleveland Street, London, W "Installing, Eusroad" Museum 70 (4 lines)

Electro Platers and Metal Polishers' Engineers—

W Canning & Co., 133-137, Great Hampton Street, Birmingham "Materials, Birmingham" Birmingham 3622 Central (3 lines)

Fireproof Petrol Tanks—

The Aircraft Improvements Co, Mornington Works, Arlington Road, Camden Town, N W 1

Flare Lights—

Imperial Light, Ltd, 123, Victoria Street, London, S W.1. "Edibrac, 'Phone, London" Victoria 3540 (3 lines)

Flexible Shafts—

Herbert Terry & Sons, Ltd, Redditch "Springs, Redditch" Redditch 61

Fluxes—

Imperial Light, Ltd, 123, Victoria Street, London, S W 1 "Edibrac, 'Phone, London." Victoria 3540 (3 lines).

The Auto Controller Co. (Fluxite), Vienna Road, Bermondsey, Eng.

Flying Boat Builders—

Gosport Aircraft Co, Gosport. "Flight, Gosport." Gosport 217.

Galvanising—

Boulton & Paul, Ltd, Rose Lane, Norwich "Aviation, Norwich." Norwich 851.

Gauges—

J A Prestwich & Co, Northumberland Park, Tottenham, N.17.

Voucher, Co, Auto Tool Works, Walsall "Voucher Walsall" Walsall 0196

Gears—

Moss Gear Co, Ltd, Thomas Street, Aston, Birmingham "Mosgear, Birmingham" East 407.

Glue -

Cannon, B, & Co, Ltd, Lincoln. London Office, 110, Cannon Street, E C 4 "Bececolin, Cannon, London" City 1206

Improved Liquid Glues Co, Ltd, Gt Hermitage Street, E (Croid) "Exeroiden, 'Phone, London" Avenue 4611-2

Morine Co, 8, Arthur Street, E C Bank 5873

Goggles—

Triplex Safety Glass Co, Ltd, 1, Albemarle Street, Piccadilly, W 1 "Shatterlys, Piccy, London" Regent 1340

Heating and Ventilating—

Chas P Kinnell and Co, Ltd, 65 & 65a, Southwark Street, London, S E 1. "Kinnell, London" Hop 372 (2 lines).

The Thames Bank (Blackfriars) Iron Co, Ltd, Upper Ground Street, London, S E 1 "Hot Water, Friars, London." Hop 763.

Instruments—

British Wright Co, Ltd., 33, Chancery Lane, W C 2. Holborn 1308.

Instruments (Scientific, Altimeters, etc.)—

Short & Mason, Ltd, Macdonald Road, Walthamstow, E 17. "Aneroid, Phone, London" Walthamstow 180.

Insurance—

Aviation Insurance Association, 1, Royal Exchange Avenue, E C 3 London Wall 6044.

Bray, Gibb & Co, Ltd, 166, Piccadilly, W 1

S Sackville & Sons, Duchy Chambers, 4, Clarence Street, Manchester

Harold Townend, Ltd, 13-14, Abchurch Lane, King William Street, E.C 4. "Carinsur, London" Central 156 (2 lines).

Percy Wingfield, 22, Newgate Street, E C 1 City 4672

Leather Cloth—

New Pegamoid, Ltd., 134, Queen Victoria Street, London "Pegamoid, Cent, London" City 9704 (2 lines).

Lubricating Oil Refiners and Merchants—

W B Dick & Co, Ltd, 90, Fenchurch Street, E C, Telegrams, Dicotto Fen, London Avenue 7854 (2 lines.)

Magneto Driving Pieces—

Herbert Terry & Sons, Ltd, Redditch "Springs, Redditch" Redditch 61.

Magnetos—

The British Lighting & Ignition Co, Ltd, 204, Tottenham Court Road, W 1. "Vicksmag, Phone, London" Museum 430.

The British Thomson-Houston Co., Ltd, Lower Ford Street, Coventry. "Asteroidal, Coventry" Coventry 278

Metal Casement Manufacturers—

Henry Hope & Sons, Ltd, 55, Lionel Street, Birmingham "Conservatory, Birmingham." Central 999 (2 lines).

Metal Manufacturers—

Clifford, Chas, & Sons, Ltd, Birmingham. "Clifford, Birmingham" Central 42-45. Avenue 1432.

Metals in General—

Samuel Mercer & Co, 198, Upper Thames Street, E C 4 "Reconciled, Cannon, London" City 6342.

Metal Parts and Fittings—

Accles & Pollock, Ltd, Oldbury, Birmingham "Accles, Oldbury" Oldbury 111 (4 lines)

Arnott & Harrison, Ltd, Hythe Road, Willesden Junction Willesden 2207

Bayliss, Jones, & Bayliss, Ltd, Wolverhampton. (Bolts and Nuts) "Bayliss, Wolverhampton" Wolverhampton 1041.

Blackburn Aeroplane & Motor Co, Ltd, Olympia, Leeds "Propellors, Leeds" Roundhay 345 (3 lines)

British Metal (Kingston), Ltd., Kingston-on-Thames

Brown Bros, Ltd, Gt Eastern St, E C 1

Mann, Egerton & Co, Ltd, 177, Cleveland Street, London, W 1 "Installing, Eusroad, London" Museum 70

Rubery Owen & Co, Darlaston, South Staffs

Sankey, Joseph, & Sons, Ltd, Wellington, Shropshire "Sankey, Wellington, Salop" Wellington 6

The Pulvo Engineering Co, Ltd, 10 to 16, Dane Street, High Holborn, London, W C 1. "Pulvipult, Phone, London" Holborn 410

The Selsdon Aero & Engineering Co, Ltd, 1, Albemarle Street, Piccadilly, W 1 "Selaero, Phone, London" Regent 1181

The Rotax Motor Accessories Co, Ltd, Victoria Road, Willesden Junction, N W 10 "Rodynalite, Phone, London" Willesden 2480

Thompson Bros, Ltd., Bradley, Bilston. "Thompson Bros, Bilston" Bilston 10

Metric Bolts—

Cashmore Bros, Hildreth Street, Balham, S W Battersea 415

Rubery Owen & Co, Darlaston, South Staffs

Miscellaneous—

Anderson, D., & Son, Ltd (Roofs), Belfast. "Anderson, Belfast" Belfast 4033-4034-4035

British Metal (Kingston), Ltd, Kingston-on-Thames

Brown Bros, Ltd, Great Eastern Street, E C 1 "Imbrowned, Bethroad, London" London Wall 6300

Herbert Frood Co, Ltd, Chapel-en-le-Frith "Frodobrake, Birmingham" Central 703

MacLennan, J, & Co, 30, Newgate Street, E C 1, and at Glasgow Tapes, Cords, and Threads City 3115

Motor Cars—

Arrol Johnston, Ltd, Dumfries "Mocar, Dumfries" Dumfries 281-282.

Mann, Egerton & Co, Ltd, 379 381, Euston Road, London, N W.1. "Manegecar, Eusroad, London" Museum 70

Standard Motor Car Co., Coventry. "Flywheel, Coventry." Coventry 530 (4 lines).

Nameplates and Labels—

British Metal (Kingston), Ltd, Kingston-on-Thames

The Clegg Metal Engraving Co., Ltd., Worthing "Clegg, Worthing."

Observation Panels—

Triplex Safety Glass Co, Ltd., 1, Albemarle Street, Piccadilly, W.1. "Shatterlys, Piccy, London." Regent 1540

Oils—

C. C. Wakefield & Co., Ltd, Wakefield House, Cheapside, E C.2 "Cheery, Cent, London" Central 11305 & 13406

Parachutes—

E R Calthrop's Aerial Patents, Ltd, Eldon Street House, Eldon Street, London, E.C. "Savemalivo, Ave, London." London Wall 3266-3267.

The North British Rubber Co., Ltd., Castle Mills, Edinburgh "Weba, Edinburgh." Edinburgh 3880 Central. (5 lines.)

C G. Spencer & Sons, Ltd (See under "Balloons")

Piston Rings—

The Standard Piston Ring and Engineering Co, Ltd, Don Road, Sheffield. "Ocean, Sheffield" Sheffield 2149

Presswork—

Rubery Owen & Co., Darlaston, South Staffs

Terry, Herbert, & Sons, Ltd, Redditch "Springs, Redditch" Redditch 61

Propellers—

The Aircraft Improvements Co., Mornington Works, Arlington Road, Camden Town, N.W.1

Blackburn Aeroplane & Motor Co., Ltd., Olympia, Leeds "Propellors, Leeds" Roundhay 345 (3 lines).

Boulton & Paul, Ltd, Rose Lane, Norwich, "Aviation, Norwich" Norwich 851.

Ebora Propeller Co, 11 & 12, Surbiton Park Terrace, Kingston-on-Thames "Ebora, Kingston" Kingston 672.

Integral Propeller Co., Ltd., "Aviprop, Hyde, London" Hendon 9 Kingsbury 104

Lang Propeller, Ltd., Weybridge "Aerosticks, Weybridge" Weybridge 520-521.

Oddy, W. D., & Co., Leeds "Airscrews, Leeds." Leeds 20547-8

Westland Aircraft, Yeovil. "Aircraft, Yeovil" Yeovil 129.

Pyrometers—

The Foster Instrument Co., Letchworth, Herts. "Foster Instruments, Letchworth." Letchworth 20

Rawhide Hammers—

Ira Stephens, Whitelands Leather Works, Ashton-under-Lyne "Stephens, 709, Ashton." Ashton 709.

Rigging for Aircraft—

Cradock, Geo., & Co., Ltd., Wakefield, England "Cradock, Wakefield" Wakefield 466.

Rubber Tubing & Accessories—

Hancock, James Lyne, Ltd, 266, Goswell Road, London, E C 1 "Masticator, Isling, London" City 3611 & 3612

The North British Rubber Co, Ltd., Castle Mills, Edinburgh. "Weba, Edinburgh." Edinburgh 3880 Central. (5 lines.)

Safety Belts—

C. H. Holmes & Son, 38, Albert Street, Manchester "Semloh, Manchester" City 4432.

Screwing Die Heads—

Voucher, Co, Auto Tool Works, Walsall. "Voucher Walsall." Walsall 0196.

Screw-driving Machines—

Russell Bros. (Redditch), Ltd, Littleworth, Redditch "Inventors, Redditch" Redditch 74

Seaplane Manufacturers—

Blackburn Aeroplane & Motor Co, Ltd, Olympia, Leeds "Propellors, Leeds" Roundhay 345 (3 lines)

Phœnix Dynamo Manufacturing Co, Ltd, Thornbury, Bradford "Dynamo, Bradford" Bradford 3700 (7 lines).

Short Bros, Rochester "Seaplanes, Rochester." Chatham 627.

Supermarine Aviation Works, Ltd, Southampton "Supermarin, Southampton" Woolston 37.

Searchlights & Landing Lights

Brown Bros, Ltd, Great Eastern St, E.C 1

Imperial Light, Ltd, 123, Victoria Street, London, S W 1. "Edibrac, Phone, London" 3540 Victoria (3 lines).

The Rotax Motor Accessories Co., Ltd., Victoria Road, Willesden Junction, N W.10 "Rodynalite, Phone, London" Willesden 2480

Shock Absorbers—

Luke Turner & Co., Deacon Street, Leicester Leicester 967.

Tubbs, Lewis & Co., Ltd., 29 & 30, Noble Street, E C 2 "Elastics, London" City 22.

Sheet Metal Pressings—

Accles & Pollock, Ltd, Oldbury, Birmingham. "Accles, Oldbury." Oldbury 111 (4 lines)

Blackburn Aeroplane & Motor Co, Ltd., Olympia, Leeds. "Propellors, Leeds." Roundhay 345 (3 lines)

British Metal (Kingston), Ltd, Kingston-on-Thames.

Rubery Owen & Co, Darlaston, South Staffs.

Sheet Metal Work—

The Acetylene Corporation of Great Britain, Ltd, 49, Victoria Street, S W 1. "Flamma, Vic, London." Vic 4830

British Metal (Kingston), Ltd, Kingston-on-Thames.

Rubery Owen & Co, Darlaston, South Staffs.

The Selsdon Aero & Engineering Co., Ltd., 1, Albemarle Street, Piccadilly, W.1. "Selaero, Phone, London." Regent 1181

Imperial Light, Ltd., 123, Victoria Street, London, S W.1. "Edibrac, Phone, London" Victoria 3540 (3 lines).

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Solder Manufacturers—
Samuel Mercer & Co., 198, Upper Thames Street, E.C.4. "Reconciled, Cannon, London." City 6342.

Sparking Plugs—
Brown Bros., Ltd., Great Eastern St., E.C.1
Lodge Sparking Plug Co., Ltd., Rugby. "Igniter, Rugby." Rugby 235.
Ripault, Leo., & Co., Ltd. (Oleo Plugs), 64a, Poland Street, W.1. "Ripault, Reg, London." Gerrard 7758.
The Robinhood Engineering Works, Ltd., Newlands, Putney Vale, S.W.15. Makers of KLG Plugs. "Kaelgee, Phone, London." Putney 2132-3.

Springs—
Dart Spring Co., West Bromwich. "Dart, West Bromwich." West Bromwich 322.
Terry, Herbert, & Sons, Ltd., Redditch. "Springs, Redditch." Redditch 61 (3 lines).

Steel—
Allen, Edgar, & Co., Ltd., Sheffield. "Allen, Sheffield." Sheffield 4607.
Brown Bros., Ltd., Great Eastern St., E.C.1.
Firth, Thos., & Sons, Sheffield. "Firth, Sheffield." Sheffield 3230 to 3237.
Nicklin, Bernard, & Co., Birmingham. "Bernico, Birmingham." Smithwick, 224.
Spear & Jackson, Ltd., Ætna Works, Sheffield. "Spear, Sheffield." Central 4522-3-4.

Steel Tubes for Aeroplanes—
Accles & Pollock, Ltd., Oldbury, Birmingham. "Accles, Oldbury." Oldbury 111 (4 lines)

Tapes and Smallwares—
MacLennan, John, & Co., 30, Newgate Street, E.C.1. And at Glasgow. City 3115.
C. E. Matthews & Co., Ltd., Castle Works, Bermondsey Square, S.E.1. "Webbance, Berm, London." Hop 4058.

Timber—
Hopton & Sons, George Street, Euston Square, London, N.W.1. "Hoptons, Eusquare, London." Museum 496. Also at Market Harborough, Leicestershire. "Hoptons, Market Harborough." Market Harborough 13.

Time Recorders—
Gledhill Brook Time Recorders, Ltd., 26, Victoria Street, S.W.1. Victoria 1310.

Tools—
Richard Mather & Son, Shoreham Street Works, Sheffield Sheffield 4349

Turnbuckles—
Brown Bros., Ltd., Great Eastern St., E.C.1.
Rubery Owen & Co., Darlaston, South Staffs.

Tyres and Wheels—
The North British Rubber Co., Ltd., Castle Mills, Edinburgh. "Weba, Edinburgh." Central 3880 (5 lines).
The Palmer Tyre, Ltd., Shaftesbury Avenue. "Tyricord, Westcent." Gerrard 1214 (5 lines).

Undercarriages—
Thompson Bros. (Bilston), Ltd., Bradley, Bilston, England. "Thompson Bros., Bilston." Bilston 10.

Varnishes—
The British Emaillite Co., Ltd., 30, Regent Street, S.W.1. "Ridleypren, Piccy, London." Gerrard 280.
Thomas Parsons & Sons, 315 & 317, Oxford Street, London, W.1. "Varjap, Phone, London." Mayfair 6347 (3 lines).
Robt. Ingham, Clark & Co., Ltd., West Ham Abbey, E.15. "Oleotine, Strat, London." East 955.
Harland, W., & Son, Merton, London, S.W.19. "Harland, Wimbledon 45" Wimbledon 45 and 1395.
Naylor Bros., Ltd., Southall, Middlesex. "Naylor, Southall." Southall 30.

Washers—
Terry, Herbert, & Sons, Ltd, Redditch. "Springs, Redditch." Redditch 61.

Welding and Cutting Plant—
Acetylene Corporation of Great Britain, Ltd., The, 49, Victoria Street, Westminster, S.W.1. "Flamma, Vic, London" Vic 4830.
Imperial Light, Ltd, 123, Victoria Street, London, S.W.1 "Edibrac, Phone, London." Victoria 3540 (3 lines).

Welding Repairs—
Imperial Light, Ltd, 123, Victoria Street, London, S.W.1. "Edibrac," Phone, London." Victoria 3540 (3 lines).

Wind Shields—
Auster, Ltd., 133, Long Acre, W.C. "Winflector, London." Regent 5910.
The Rotax Motor Accessories Co., Ltd., Victoria Road, Willesden Junction, N.W.10. "Rodynalite, Phone, London" Willesden 2480.
Triplex Safety Glass Co., Ltd., 1, Albemarle Street, Piccadilly, W.1. "Shatterlys, Piccy, London." Regent 1340.

Wire Gauze—
Greening, N., & Sons, Ltd, 16, Finsbury Street, London, E.C.2. "Setscrew, Finsquare, London." London Wall 1082.

Wire and Cables—
Bruntons, Musselburgh, Scotland. "Wiremill, Musselburgh." Musselburgh 28.
Cradock, Geo., & Co., Ltd., Wakefield, England. "Cradock, Wakefield." Wakefield 466 (3 lines).

Wirework—
Terry, Herbert, & Sons, Ltd., Redditch. "Springs, Redditch." Redditch 61.

Woodworking Machinery—
Robinson, Thomas, & Son, Ltd., Rochdale, "Robinson, Rochdale." Rochdale 467.
Sagar, J., & Co., Ltd., Halifax "Sawtooth," Halifax." Halifax 136.
Wadkin & Co., Leicester. "Woodworker, Leicester." Leicester 3614.

MILLS CASTINGS

ALUMINIUM

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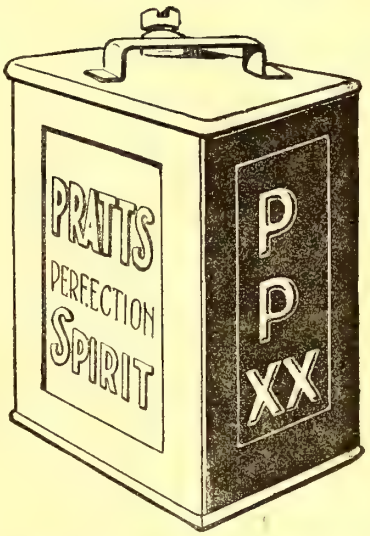

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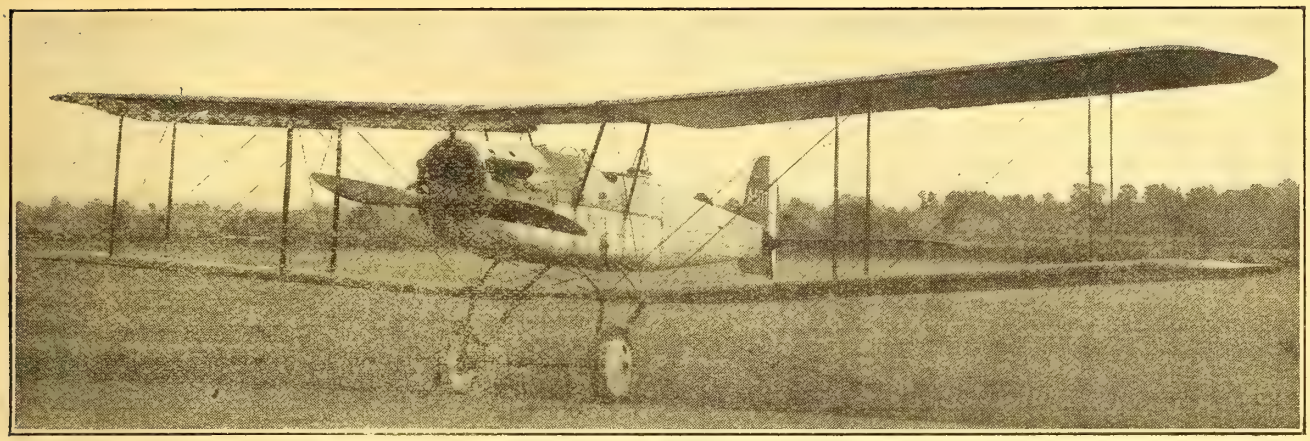


The Bristol M.R.1 All-metal Biplane (170 h.p. Hispano-Suiza engine).

Speed at 5,000 feet	127 m.p.h.
Speed at 10,000 feet	117 m.p.h.
Landing speed	49 m.p.h.
Climb—	
To 5,000 feet	3.5 minutes.
To 10,000 feet	9.0 minutes.
To 15,000 feet	19.0 minutes.
Disposable load apart from fuel	260 lbs.
Total weight of machine loaded	1,300 lbs.

THE BRISTOL ALL-METAL M.R.1. BIPLANE.

The Bristol all-metal biplane is more or less an all-metal Bristol "Fighter" with sundry modifications and was designed primarily for use in countries where extremes of heat and cold might have a detrimental effect on woodwork.

Metal has entirely replaced wood in the construction, and the fuselage being constructed of aluminium and steel can be easily dismantled for transport and storage purposes. The wings, which are unstaggered are of all-steel construction. The fuselage is slung between the planes, as in the Bristol "Fighter," but the lower centre section is completely cut away, leaving the two main spar tubes, to which are attached the two lower centre section struts.

SPECIFICATION.

Type of machine	Two-seater Biplane.
Name or type No. of machine	All-Metal M.R.I.
Purpose for which intended	Fighting and Reconnaissance.
Span	42 ft. 2 in.
Gap	5 ft. 11 in.
Overall length	27 ft.
Maximum height	10 ft. 3 in.
Chord	6 ft.
Total surface of wings	458 sq. ft.
Total area of tail	27.8 sq. ft.
Area of elevators	30 sq. ft.
Area of rudder	8.25 sq. ft.
Area of fin	7.8 sq. ft.
Engine type and h.p.	170-h.p. Wolseley "Viper,"
Airscrew	8 ft. 10 in. diam.; 5 ft. 7 in. pitch; 1,700 r.p.m.
Weight of machine empty	1,700 lbs.
Load per sq. ft.	6.13 lbs.
Weight per h.p.	16.5 lbs.
Petrol tank capacity	50 gallons.
Oil tank capacity	5 gallons.
PERFORMANCE—	
Speed low down	110 m.p.h.
Speed at 5,000 feet	106 m.p.h.
Speed at 10,000 feet	98 m.p.h.
Landing speed	47 m.p.h.
Climb—	
To 5,000 feet	8 minutes.
To 10,000 feet	20 minutes.
Disposable load apart from fuel	630 lbs.
Total weight of machine loaded	2,810 lbs.

THE BRISTOL TRIPLANE "BRAEMAR" MARK II.

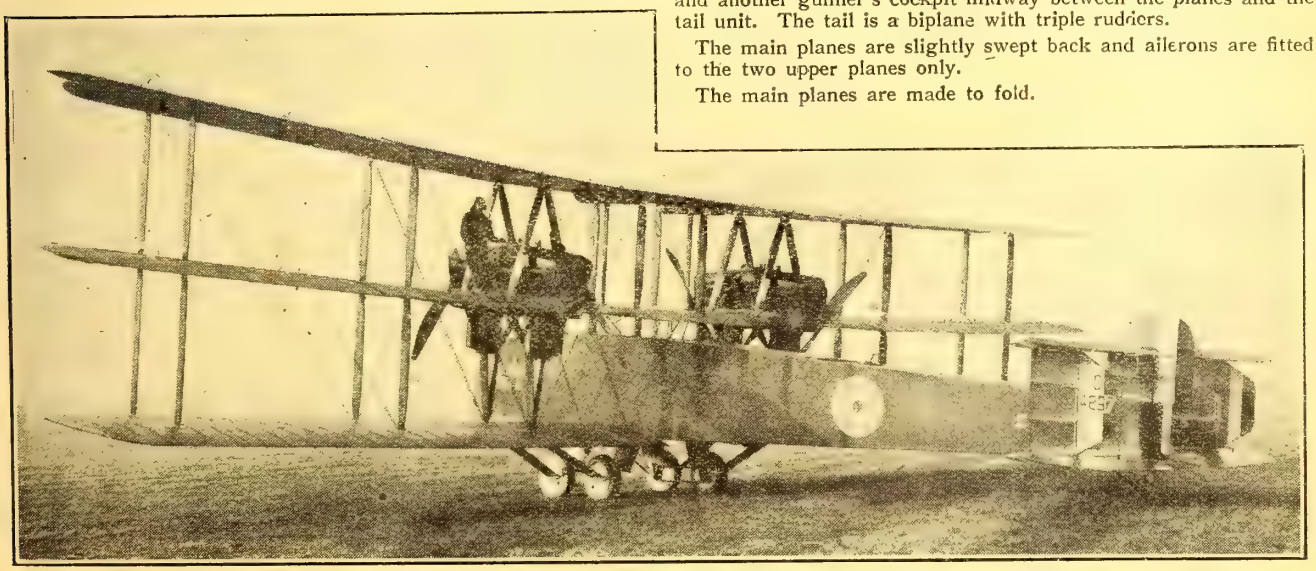
The Bristol "Braemar" was originally designed as a long-distance bomber, but owing to the Armistice coming when it did the machine was never used on active service. It is now being slightly modified to do duty as a passenger-carrier and commercial machine.

It is a four-engined triplane with a single fuselage and with the four engines fixed in pairs tandem-wise driving two tractors and two pushers on either side of the fuselage.

In its original form the fuselage had accommodation for one gunner in the nose, two pilots just in advance of the main planes and another gunner's cockpit midway between the planes and the tail unit. The tail is a biplane with triple rudders.

The main planes are slightly swept back and ailerons are fitted to the two upper planes only.

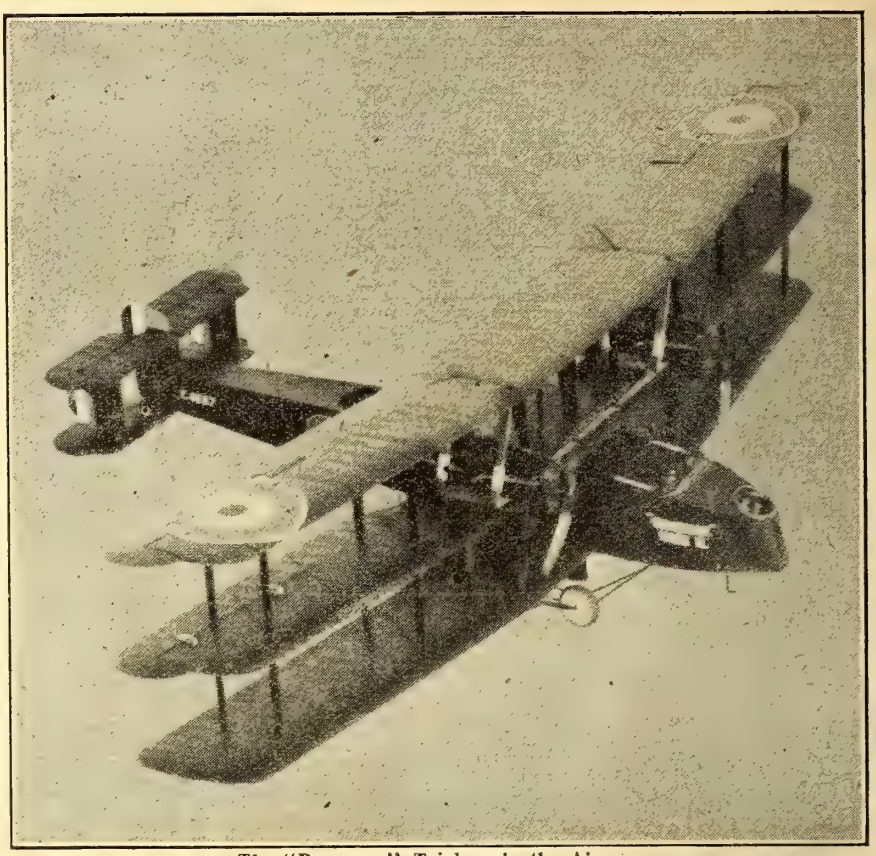
The main planes are made to fold.



Three-quarter Rear View of the Bristol "Braemar" Triplane (four 400 h.p. Liberty engines).

SPECIFICATION.

Type of machine—Four-engined Triplane.
Name or type No. of machine—"Braemar" Mark II.
Purpose for which intended—Bomber or Passenger-carrier.
Span—Top, 81 ft. 8 in.; centre, 81 ft. 8 in.; bottom, 78 ft. 3 in.
Gap—7 ft. 2½ in.
Overall length—51 ft. 6 in.
Maximum height—20 ft. 6 in.
Chord—8 ft. 6 in.
Total surface of wings—1,905 sq. ft.
Total area of tail—Top, 51.5 sq. ft.; bottom, 45 sq. ft.
Area of elevators—Top, 42.5 sq. ft.; bottom, 42.5 sq. ft.
Area of rudder—25 sq. ft.
Area of fin—28.2 sq. ft.
Engine type and h.p.—Four Liberty engines, 1,640 h.p. (total).
Airscrew—Front (two), 10 ft. 2 in. diam.; 6 ft. 11 in. pitch; rear (two), 9 ft. 2 in. diam.; 7 ft. 5 in. pitch; 1,750 r.p.m.
Weight of machine empty—10,650 lbs.
Load per sq. ft.—8.6 lbs.
Weight per h.p.—10 lbs.
Petrol tank capacity—450 gallons.
Oil tank capacity—40 gallons.
Performance—
Speed low down—125 m.p.h.
Speed at 5,000 feet—122 m.p.h.
Speed at 10,000 ft.—113 m.p.h.
Landing speed—55 m.p.h.
Climb—
To 5,000 ft.—6 minutes.
To 10,000 feet—13 minutes.
Disposable load apart from fuel—1,940 lbs.
Total weight of machine loaded—16,500 lbs.



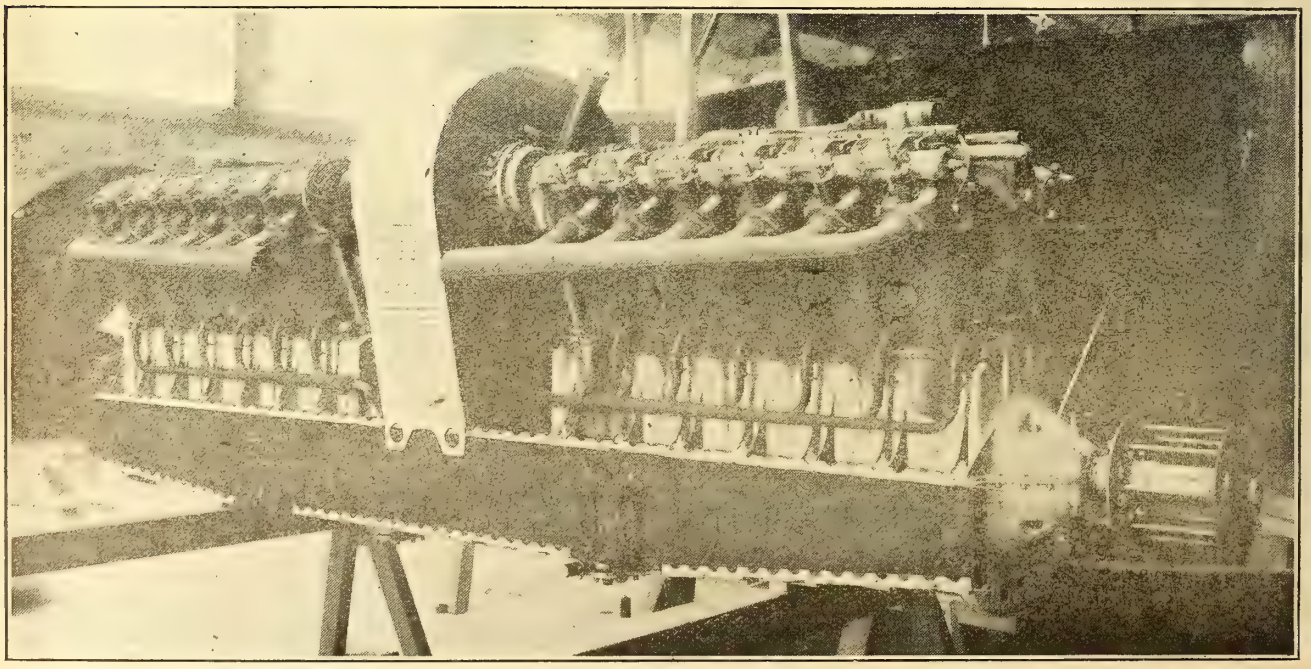
The "Braemar" Triplane in the Air.

THE BRISTOL SCOUT, TYPE F.1.

The Bristol scout, type F1, is a recent production of the Bristol firm and was about to be put in production when the Armistice was signed. The fuselage is very deep and carries in its nose a 200 Sunbeam "Arab." The main planes show the principal departure from standard Bristol practice in that the lower plane is of smaller chord than the upper one so as to improve the pilot's range of vision downwards. One set of three struts, in the form of an N, are fitted on either side of the fuselage and are inclined outwards from the base. Ailerons are fitted to the upper plane only The tail plane and undercarriage are of normal type. Armament consists of two fixed Vicker's guns fitted on top of the fuselage and firing through the propeller with the usual form of fire-control gear. The machine shows a speed of 128 m.p.h. at 10,000 feet, to which height it climbs in 8½ minutes.

SPECIFICATION.

Type of machine	Single-seater Biplane.
Name or type No. of machine	Scout F.1.
Purpose for which intended	Fighting and Reconnaissance.
Span	Top, 29 ft. 6 in.; bottom, 26 ft. 2 in.
Gap	5 ft. 1 in.
Overall length	20 ft. 10 in.
Maximum height	8 ft. 4 in.
Chord	Top, 5 ft. 7 in.; bottom, 4 ft. 11 in.
Total surface of wings	260 sq. ft.
Total area of tail	15 sq. ft.
Area of elevators	14.5 sq. ft.
Area of rudder	5 sq. ft.



One-engine Installation of the "Braemar" Triplane, showing the two Liberty Engines back to back.

D.H. 4 D.H. 9

Westland Seaplane

Westland Wagtail

Westland Weasel

These Illustrations give an idea of the range of our War production, which included machines of Westland design.

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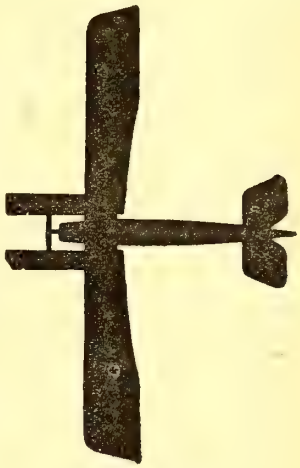
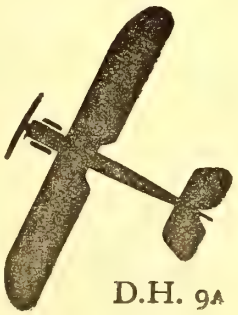
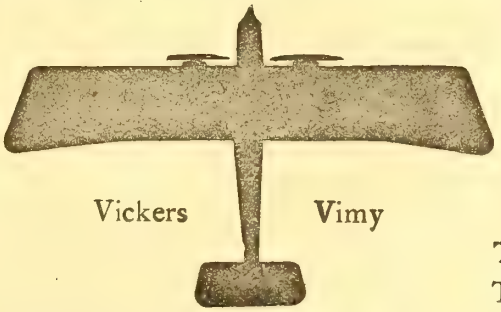


Short Seaplane
225 HP. Sunbeam

Sopwith 1½ Strutter



D.H. 9A



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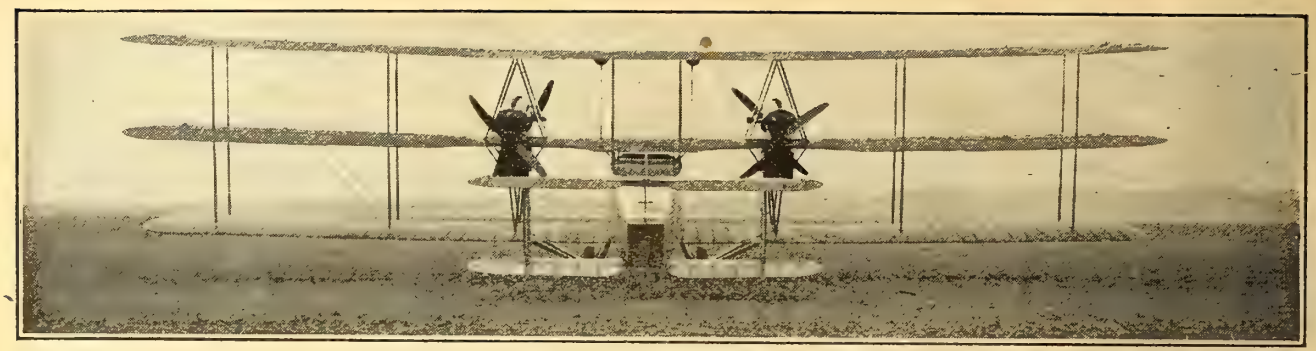


Rear View of the "Braemar" Triplane.

Area of fin—4.1 sq. ft.
Engine type and h.p.—200 h.p. Sunbeam "Arab."
Airscrew—9 ft. 2 ins. diam.: 9 ft. pitch; 1,155 r.p.m.
Weight of machine empty—1,300 lbs.
Load per sq. ft.—8.08 sq. ft.
Weight per h.p.—10 lbs.
Petrol tank capacity—32 gallons.
Oil tank capacity—5 gallons.

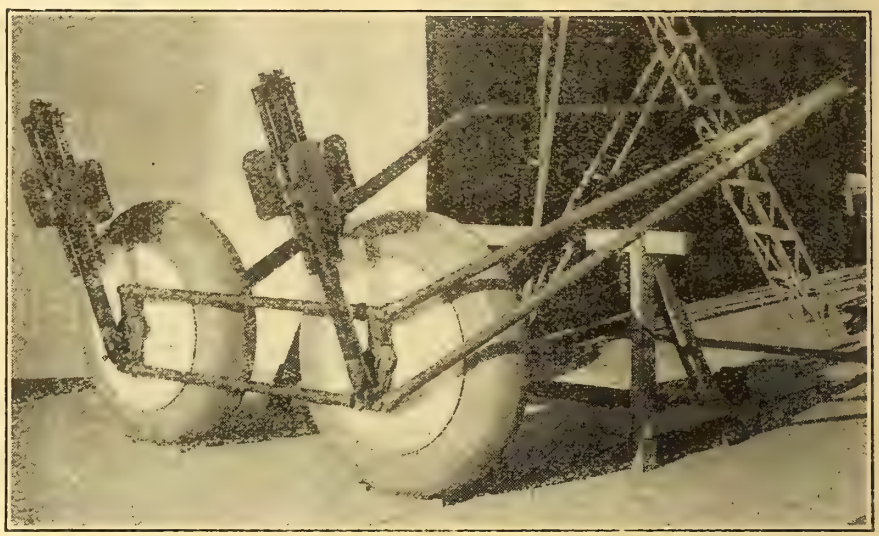
Performance—

Speed low down—138 m.p.h.
Speed at 5,000 feet—135 m.p.h.
Speed at 10,000 feet—128 m.p.h.
Landing speed—49 m.p.h.

Climb—

To 5,000 feet—3.7 minutes.
To 10,000 feet—8.5 minutes.
To 15,000 feet—16 minutes.

Disposable load apart from fuel—450 lbs.
Total weight of machine loaded 2,100 lbs.

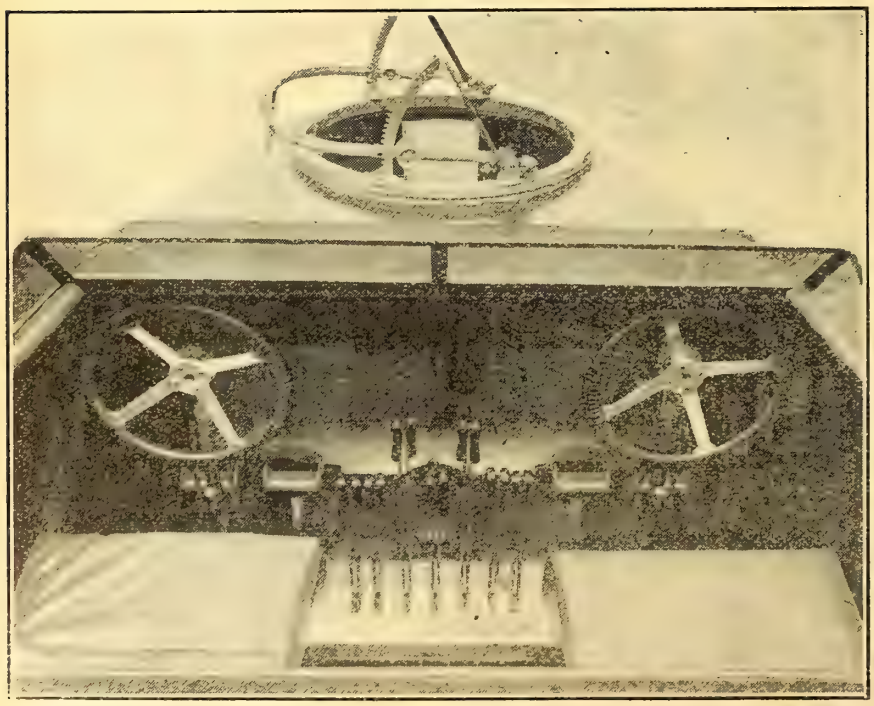


One Side of the Chassis of the "Braemar" in skeleton form.

A later edition of the machine has been fitted with a Cosmos "Mercury" engine of 315 h.p., and has given very fine performances therewith

THE BRISTOL "BADGER."

In addition to the machines described above, the Bristol firm have recently produced a small two-seater of high performance, known as the "Badger," of which no particulars are available beyond the fact that one has been fitted with the Cosmos "Jupiter" engine of 450 h.p.



The Twin Pilot Seats of the Bristol "Braemar" Triplane, showing the various controls for the throttles, switches, altitude regulator, magneto advance and retard, for the four engines.

A photograph of this machine in the air is given on page 248, from which it may be seen that the machine is a small single bay machine generally similar to the type F.1 single-seat Scout.

It is understood that this machine is of roughly 35 ft. span, and that the total weight loaded is a little under 3,000 lbs, and that it has reached a speed of about 140 m.p.h.

It is hoped to describe this machine in detail at an early date

THE STANDARDISATION OF CHAINS.

The demands made by the Allied Governments for driving chains for all purposes during the war made it necessary for the British Driving Chain Manufacturers to collaborate. The benefits accruing from the co-operation were so marked that a permanent Association has now been formed to standardise chains, and to keep down the cost of chain driving to face competition with other forms of transmission.—The members are:—The Alfred Appleby Chain Co., Ltd.; Brampton Bros., Ltd.; the Coventry Chain Co., Ltd.; and Hans Renold, Ltd.

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LONGITUDINAL STABILITY.

The following letter has been received :—

Sir,—In reply to Mr. J. D. North's criticism of my notes on Longitudinal Stability, I quite agree that in a dive at limiting speed a main-plane moment of importance is present, but do not follow his remark concerning equilibrium in this condition.

I think it is perfectly clear that in my treatment equilibrium is maintained at one speed only, a speed initially fixed by the designer, and the object of my investigation was specially to find a way of determining the combination of area and angle of the tail, such that at any other speed, and with the C.G. in any position within reason, there would be a couple present which would tend to restore the machine to the attitude corresponding to this speed of equilibrium.

I rather took it for granted that in a nose dive the case would be O.K. as far as couple was concerned, but I wished to emphasise the fact that a small tail set to a large angle would be subjected to a great increase of pressure, and the loading in a dive might easily be excessive, whilst in each case other than diving the tail might be quite satisfactory.

The opening paragraph in this section of the notes reads : " . . . for if the loading is too high under these conditions a lower value (of loading) will have to be substituted and new value obtained for area and angle."

I should greatly appreciate criticisms from other designers, and if there are points which they regard as misleading, would they please give chapter and verse, as up to the present I have found the method gives very good results.

(Signed) Clifford W. Tinson.

The New Bristol Two-seater " Badger " (450 h.p. Cosmos Jupiter Engine) about to land.

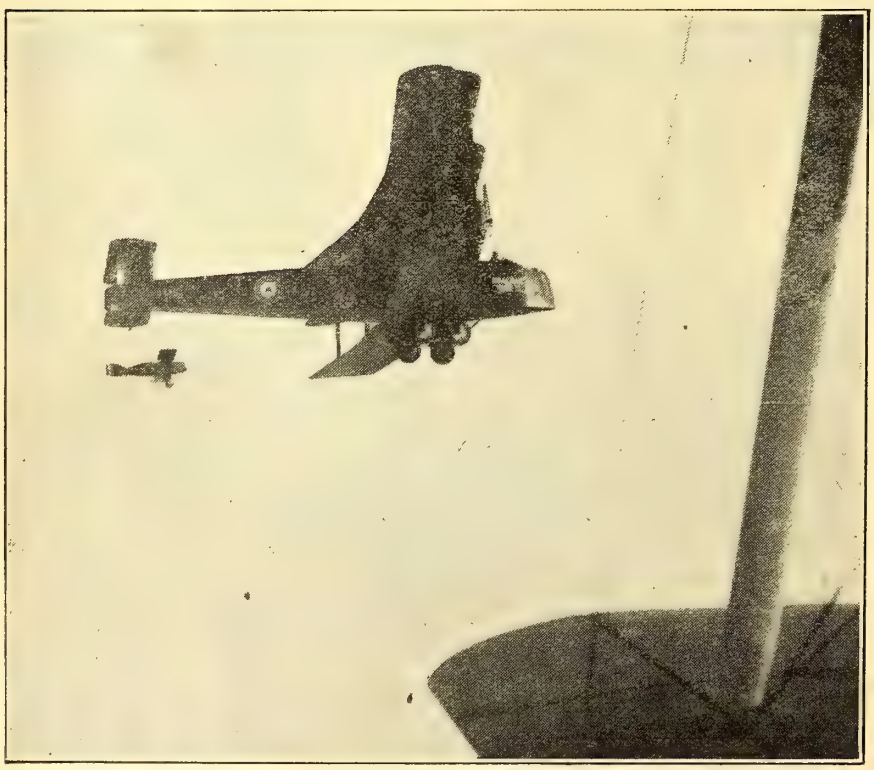
INDUSTRIAL RECONSTRUCTION AND THE POPULACE.

The Industrial Reconstruction Council, the chairman of which is Mr. Ernest Benn, is doing its best to inculcate a proper spirit into both employers and workpeople in these days, in accordance with the policy of the Rt. Hon. J. H. Whitley, M.P., the originator of the famous Whitley Trade Councils.

In support of this policy the Industrial Reconstruction Council is organising a series of meetings at Tower Hill, a locality which has hitherto been devoted either to executions or to agitations. These meetings take place every Monday at 1 o'clock, so as to catch the City workers during their lunch hour. Last Monday, for example, the speaker was Col. Alan Burgoyne, M.P., who has been considerably concerned with aviation.

It is also of interest to note that on the Executive Council of the I.R.C., the chairman is Lieut.-Col. C. L'Estrange Malone, M.P., late Wing Commander R.N.A.S., and among the members are Sir Charles Allom, of the Gosport Aircraft Company; Mr. Wilfred Hill, of the County Chemical Company, Birmingham, who has long been interested in Aircraft; Sir Alexander Roger, formerly of the Ministry of Munitions, who has also done good work for the Flying Services; and Mr. H. V. Roe, late Lieut. R.A.F. and formerly of A. V. Roe & Co., Ltd. So that there is considerable aircraft interest in the Council.

These meetings should be worth attending.



The Bristol " Braemar " and the " Limousine," taken from a Bristol Fighter.

AN AERONAUTICAL CORRESPONDENCE SCHOOL.

A correspondence school dealing entirely with Aeronautical subjects has been opened at Harrow by Capt. Herman Shaw, B.Sc., A.R.C.S., A.F.R.Ae.S., late R.A.F., since his demobilisation from the R.A.F.

In addition to active service work with seaplanes and other machines on patrols over the North Sea, Capt. Shaw was for some considerable time employed as an instructor and lecturer on the theory of Flight and similar subjects by the R.N.A.S.

Capt. Shaw has secured the services of two other ex-R.A.F. officers, Capt. A. H. Munday and Lieut. J. FitzGerald to assist in the operations of the school.

Inquiries relating to the various courses of instruction offered should be addressed to the Harrow College of Aeronautics, Pinner Road, Harrow.

AMERICAN AIRCRAFT IN EUROPE.

Mr. F. G. Diffin, president of the United Aircraft Engineering Corporation, 52, Vanderbilt Avenue, Now York, left New York on the " Baltic " on July 1st and should by now be in London. He is making this trip for the purpose of establishing a London branch and of taking up various matters pertaining to commercial aviation with London manufacturers. He will stop at the Savoy Hotel. This information may be of interest to the British Aircraft Industry.

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THE PATENTS INDEX.

The subjoined list of recent inventions has been specially compiled by THE AEROPLANE from the Current Official Patents Records :—

PATENTS APPLICATIONS.

Ambrose, J. G. Airships. No. 10703. April 30th.
Benard, H. L. M. J. Flash-lights for aerial navigation. No. 10871. May 2nd.
Benard, H. L. M. J. Signal lights for aerial navigation. No. 10981. May 1st.
Bevan, S. P. Parachute for attachment to aircraft. No. 10461. April 28th.
Bickford, F. W. Spirit levels for aerial machines, etc. No. 10623. April 29th.
Blackburn Aeroplane and Motor Co. Silencing-devices for internal combustion engines for aircraft, etc. No. 10704. April 30th.
Desbleds, L. B. Aerially-propelled watercraft. No. 10635. April 29th.
Donovan, J. Floats for flying-machines, etc. No. 11046. May 3rd.
Fawcett, A. Apparatus for maintaining a camera vertical in aircraft, and apparatus for registering angle at which a photograph is taken. No. 10956. May 2nd.
Grafham, A. J. Aerial Machines. No. 10631. April 29th.
Jarman, C. R. Means for braking aircraft. No. 10641. April 30th.
McIntyre, D. Level-indicators for aircraft. No. 10611. April 29th.
McKenzie, Holland, and Westinghouse Power Signal Co. Control of aerial traffic. No. 10627. April 29th.
McKenzie, Holland, and Westinghouse Power Signal Co. Signalling apparatus for aerial traffic. No. 10628. April 29th.
Payne, A. J. Parachutes. No. 10933. May 2nd.
Payne, A. J. Toy parachutes. No. 10934. May 2nd.
Pinton, C. A. Toy aeroplanes, etc. No. 10752. April 30th.
Sheppard, W. S. Airships. No. 11044. May 3rd.
Wells, T. R. Aerial navigation instruments. No. 11037. May 3rd.
Benard, H. L. M. J. Signal lights for aerial navigation. No. 11798. May 10th.
Bostock, S. H. Hulls of flying-boats, etc. No. 11134. May 5th.
Burdick, H. A. Air brake for aeroplanes. No. 11626. May 9th.
Cuningham, C. L. Making aviators' maps. No. 11810. May 10.
Fielding, H. Auto-mechanical parachute for aircraft. No. 11736. May 10th.
Hopkinson, J. Brewer-. Aircraft. No. 11129. May 5th.
McKillop, J. Clinometer for aircraft. No. 11331. May 6th.
Meredith, J. W. Undercarriages of aeroplanes. No. 11699 May 10th.
Paine, H. Scott-. Flying-boats, etc. No. 11333. May 6th.
Petch, M. T. Aircraft. No. 11354. May 7th
Reid, J. Producing signals, announcements, etc., from aircraft. No. 11367. May 7th.
Rossignol, L. Helium-filled airships. No. 11344. May 7th.
Soc. Anon. des Filatures et Tissages d'Angers. Shelter for aeroplanes. No. 11190. May 5th.
Soc. Marion et Cie. Device for indicating angle for correcting drift of aeroplane. No. 11609. May 9th.
Sopwith Aviation and Engineering Co. Internal Combustion engines. No. 11411. May 7th.
Spafford, E. F. J. Aircraft, etc., propellers. No. 11479. May 8th.
Taylor, G. I. Parachutes. No. 11816. May 10th.
Triscott, C. Aircraft. No. 11574. May 8th.
Willans, P. W. Optical systems for aircraft observation. No. 11700. May 10th.
Ximenes, E. Apparatus for maintaining buoyancy of aeroplanes alighting on water. No. 11645. May 9th.

COMPLETE SPECIFICATIONS ACCEPTED, PRINTS OF WHICH CAN BE OBTAINED ON AND AFTER MAY 22ND, 1919.

121,466. Dec. 12th, 1917. Soc. des Moteurs Salmson. Junction-piece for connecting together certain structural members of an aeroplane.
121,467. Dec. 13th, 1917. Soc. des Moteurs Salmson. Metal fitting for aeroplanes for fixing the ribs of the horizontal rudder on the shaft of said rudder.
125,570. Dec. 31st, 1918. Westbury, C. F. Tail skids for aeroplanes.
125,591. Aug. 28th, 1916. Martin, J. V. Aircraft running and alighting device.
125,606. Sept. 5th, 1916. Bentley, H. B., and Blackburn Aeroplane and Motor Co. Engine cut-out switches for aerial machines
125,613. Sept. 8th, 1916. Anderson, W. J., and Chapman, J. B. Airship shed doors which require ballast or balancing weight to prevent overturning.
125,614. Sept. 9th, 1916. Power, R.F. Device for restraining and releasing aeroplanes in starting.
125,617. Sept. 12th, 1916. Vickers Ltd., and McKechnie, J. Manufacture of fabrics for airships, balloons, and similar craft.
125,620. Sept. 15th, 1916. Royce, F. H., Day, B. I., and Rolls-Royce, Ltd. Structures for supporting outboard aircraft propellers.
125,636. Sept. 26th, 1916. Vickers Ltd., and McKechnie, J. Fabrics for the gas bags of aircraft.
125,640. Sept. 28th, 1916. Ricardo, H. R. Driving of air propellers and methods of mounting the same.
125,643. Sept. 30th, 1916. Gaunt, J. Controls for aircraft.
125,647. Oct. 5th, 1916. Coates, J. U. Fire-balloon for search-light practice and for other purposes.
125,648. Oct. 6th, 1916. Nestler, F. C., and Nestler, Ltd., F. C. Aeroplane hangars and like sheds.
125,654. Oct. 12th, 1916. Smith, W. T. Apparatus for measuring the speed of aircraft and for sighting gravity shots therefrom.
125,655. Oct. 12th, 1916. Smith, W. S. Aeroplanes and other aircraft.
125,658. Oct. 14th, 1916. Blackburn Aeroplane and Motor Co., Denison, G. H., and Wilson, S. Propellers for aerial machines
125,669. Oct. 19th, 1916. Smith, W. S. Aeroplanes and other aircraft.
125,670. Nov. 29th, 1916. Eugen, C. M. von, and Letchford, H. Construction of wings and the like for aerial machines.
125,695. March 20th, 1918. Lewis, F. J. Aeroplanes.
125,735. April 20th, 1918. Cordner, J. Propulsion of aircraft.
125,748. April 24th, 1918. Mooney, D. J. Construction of metal spars and longerons for aircraft.
125,774. April 27th, 1918. Ward, T. W. H. Construction of wings and like parts of aeroplanes.
125,784. May 1st, 1918. Jones, L. Aeroplanes.
125,827. June 22nd, 1918. Perks, E. W. Streamline fairing for aircraft.
125,864. Aug. 31st, 1918. Boulton and Paul, and North, J. D. Aeroplane flying machines.
125,875. Sept. 18th, 1918. Miller, H. W., and Bingley, F. Cowlings and similar casing or fairings used on aircraft.
125,893. Nov. 13th, 1918. Ritchie, T. M. Airships of the non-rigid and semi-rigid type.
123,085. Feb. 8th, 1918. Soc. des Ateliers d'Aviation, L. Breguet. Means for supporting and releasing tanks or reservoirs employed in connection with aircraft.

COMPLETE SPECIFICATIONS ACCEPTED, PRINTS OF WHICH CAN BE OBTAINED ON AND AFTER MAY 29TH, 1919.

126,029. Oct. 31st, 1916. Bruce, R. A. Devices for attaching seaplanes or lighter-than-air craft capable of alighting on the water to the float or boats whose bucyancy supports them in that medium.
126,031. Nov. 1st, 1916. Sopwith Aviation Co., and Sopwith, T. Means for operating the tail planes of aeroplanes and the like.
126,040. Nov. 9th, 1916. Roe, A. V. Strut socket for use on aircraft.
126,045. Nov. 14th, 1916. Ryan, A., and British Cellulose and Chemical Manufacturing Co. Spars, rods, tubes, poles, masts and the like.
126,063. March 20th, 1916. Soc. Lorraine des Anciens Etablissements de Dietrich et Cie de Lunéville. Carburetters for aviation motors.
126,065. Nov. 25th, 1916. Peters, J. A. Tail planes for aeroplanes.
126,066. Nov. 25th, 1916. Peters, J. A. Anchoring the struts in aeroplane framework
126,068. Nov. 27th, 1916. Brown, W. J., and Shaw, H. Hollow section aerial propeller.
126,072. Nov. 29th, 1916. Sloper, T. Aeroplane wheel bearings.
126,085. Dec 5th, 1916. Mayrow, J. J. Construction of aircraft wings and aerofoils.
126,087. Feb. 28th, 1916. Soc. Anon des Etablissements Hutchinson. Means for maintaining the staunchness of petrol tanks when pierced by bullets
126,105. April 4th, 1918. Morch, J. J. Propellers for aircraft.
126,153. May 9th, 1918. Jezzi, P. G. L. Screw propellers for aircraft.

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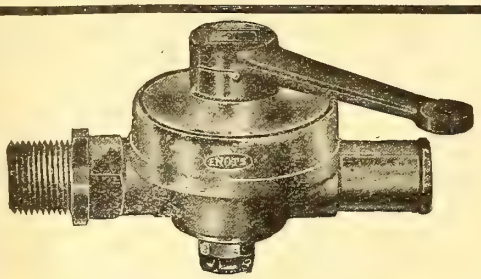

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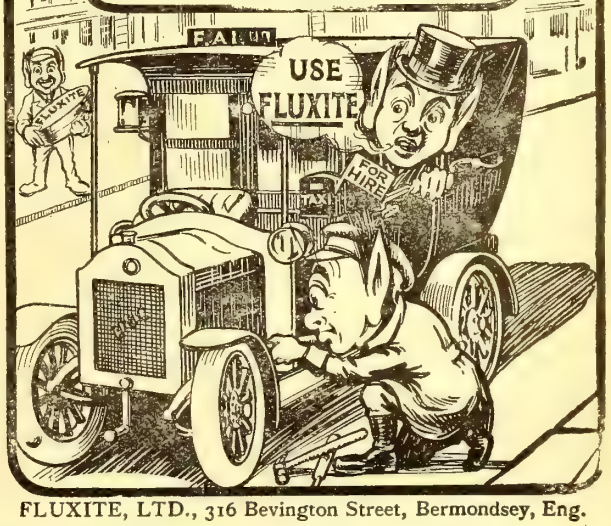

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EMPIRE PREFERENCE.

By "MEDWAY."

It may seem rather early to raise the subject of Imperial Preference as applied to aircraft, seeing that at present the Empire Overseas does not boast of an established Aircraft Industry, and at first sight the principle of preferential tariff within the Empire appears perfectly simple and eminently desirable.

We must, however, look forward to the time when there will be a large and world-wide demand for aeroplanes, both for commercial and private use, and consider how the adoption of Imperial Preference might affect the distribution of business among the manufacturing countries.

Much depends on the basis upon which Imperial Preference is established. Hitherto there has been a one-sided system, the Overseas Dominions giving preference on a somewhat modest scale to the Mother Country and to the other Dominions, while Great Britain has not reciprocated. In general the British preference was given by the Dominions in respect of any article 25 per cent. of the value of which was represented by British labour and material. Obviously this definition had the effect of classifying as British a lot of stuff merely assembled on British soil from components manufactured abroad. I believe, for instance, that Ford cars assembled at Manchester have been freely imported into South Africa on preferential terms as British products.

The pre-war scheme was really in the main a mutual arrangement between the Overseas Dominions, each of which realised that assembly was a step towards manufacture, and therefore wished to encourage it. Thus, for example, Canada, without necessarily possessing any genuine manufacturing concerns in the motor industry, could encourage American manufacturers to put up big assembling shops on Canadian soil, on the grounds that the products of these shops would be given preferential terms on export to Australia and elsewhere.

Needed by Aircraft Manufacturers.

This brings us very near to the point which needs special consideration. British aircraft manufacturers ought certainly to have some advantage in their home markets. Import duties are required on a scale calculated to restrict very much the activities of the foreign aircraft manufacturer in his capacity as an importer to Great Britain. We might find that a low reciprocal tariff would serve our purpose quite well in most cases, but that a very substantial tariff would be necessary to keep out the products of certain foreign countries.

Let us suppose that we put on a general duty of 30 per cent. with a preferential tariff amounting to the remittance of half this duty in respect of stuff imported from one part of the Empire to another. The business of the foreign manufacturer is to find a hole in our system so that he can evade the spirit but not the letter of it. Taking the figures suggested above, the American manufacturer importing into the British Empire would pay 30 per cent. The Canadian manufacturer importing into other parts of the Empire would pay only 15 per cent. The American would ask himself whether it would be worth his while to qualify as a Canadian.

Obviously much depends on the definition of "British goods" adopted in connection with our system. If we are to accept the old definition which classifies as British a lot of stuff which is three parts foreign, all the American has to do is to stick up an erecting factory half a mile over the border of Canada and deliver thence to all other parts of the Empire. The Canadian Government might well welcome it because it is better for a country to be an assembler than to have no industries at all. We in Great Britain have, however, got beyond that stage. Our object is to be a manufacturing and not merely an assembling country.

Little or No Advantage.

Our scheme should therefore be such that the assembler within the Empire gets little or no advantage over the foreigner when he wants to import into the British Isles. For certain temporary purposes the Board of Trade refuses to regard as British any manufactured goods of which less than 75 per cent. of the value is represented by British labour and material. We should not go far wrong if we adopted this limit in respect of the Aircraft Industry. We cannot make it 100 per cent. because anybody might find it necessary to import a certain amount of material unobtainable in his own country. At the same time 75 per cent. certainly involves manufacture as distinct from assembly. There is one more awkward point which ought really to be covered. To my mind no concern ought to have the full benefit of the system of Imperial Preference unless the greater part of its profits fall into the hands of British citizens. When a purely foreign concern sticks up a factory on British soil, the profits, if there are any, must necessarily go abroad. Therefore the industry is not as beneficial as it should be to the British community. The point is a very difficult one, because the point of view of Labour would be that it does not matter twopence where the profits go so long as British labour is employed on terms satisfactory to itself. Consequently one could not expect any support from labour interests for a proposal to withhold preferential terms from firms financed from abroad.

Unthinkable.

The President of the Board of Trade had to reply recently to a suggestion that, for preference purposes, it should be necessary that at least 50 per cent. of the value of goods should be represented by labour within the Empire. His answer was that a single percentage which would cover all classes of goods was unthinkable. It was necessary, in his opinion, to have a percentage applying to each particular class of goods affected, and such percentages would only be arrived at fairly after elaborate study.

This is really my excuse for raising the subject. We want the percentage applicable to aircraft to be something like 75 or 80 per cent., and it is clear that, if we are to get this, we shall have to prepare a statement to show that any lower percentage would not be fair or adequate in our case. The subject is an important one to the British manufacturing industry, and this must serve as my apology for boring my reader with a somewhat dry dissertation.

AVIATION IN SCOTLAND: FUTURE PROSPECTS.

By A Scottish Correspondent.

Though playing an important part as regards aviation during the past five years, Scotland has been somewhat slow to make any progress in the way of commercial or passenger flying. Firms from the South are, however, beginning to find their way to districts in Scotland, and with the addition of the older established companies which have been carrying out war contracts, business promises to be brisk in aviation circles in this country.

The firms which are seriously contemplating future travel are mainly concerning themselves with attempting to obtain the supreme control of any service which may be run from the South to places like Edinburgh, Glasgow, Dundee, Perth and Aberdeen, and several have even now prepared their plans for the efficient carrying of passengers and mails. As a matter of fact, a service would already have been in fairly good order but for the uncertainty which exists regarding the restrictions which the Air Ministry may impose.

Still, firms like Beardmore and Company, of Glasgow, and the British Caudron Company, at Alloa (on the upper reaches of the Forth Estuary), are making extensive preparations for the future, and one can rest assured that Scotland will not be very far behind England when commercial aviation is assured of success, and has come to stay. The Glasgow firm are, however, building airships, and seem more intent to carry out post-war duties with the lighter-than-air types of aircraft than other firms, and it is probable that only passenger carrying will be done by that firm's representatives.

At Alloa the British Caudron Company, an offspring of the famous French company are merely awaiting word as to the relaxing of the present restrictions before commencing work as the first commercial firm in Scotland. At the Alloa ground there are at present three two-seater Caudron biplanes with 100-h.p. Anzani engines. These are doing the necessary pleasure flying, but there are six machines of the same type on the stocks and rapidly nearing completion.

In the event of any sudden demand for commercial work the firm propose constructing a large twin-engined Caudron biplane, which will either carry heavy goods or fifteen or more passengers. The aerodrome is only slightly over an hour's run from Edinburgh, Glasgow, or Perth, so that it is conveniently placed for the conveyance of goods to any of these large cities. In conversation, the manager informed the writer that the company would probably, if business promised to be heavy, enter into negotiations for the taking over of one of the military aerodromes near the city of Edinburgh, such as Penston (in East Lothian) or Turnhouse (three or four miles from the Scottish capital).

Persons who are interested in commercial aviation in Edinburgh predict an extremely busy time for the city, and in all likelihood the capital would become the centre for the country. An indication of how important Edinburgh promises to become was given at a recent meeting of one of the sub-committee meetings of the Town Council in Edinburgh. Numerous applications were received by the Corporation, applying for rights for flying, both commercial and pleasure, in the city and district. As the Council was not sure of its position, the whole matter was held over until answer was received from the Air Ministry regarding several important questions.

The principal application came from Aircraft and Travel (Ltd.), intimating that the company had been registered with the object of promoting commercial aerial transport. Another communication discussed was from Lieuts. Henshall and Caney as to leasing ground at Portobello (Edinburgh's seaside suburb) for the purpose of giving residents and visitors pleasure flights. It is more than probable that both these requests will be granted, and there is every hope once large firms note how important a part Scotland will have in aviation fresh companies will be formed a ground taken over.

There are a number of suitable grounds in Scotland. Glasgow possesses four or five, Edinburgh six, and the country round Perth and Aberdeen, if machines went as far, is well adapted for successful flying.

There is still some hesitancy on the part of the Scottish people to come forward for pleasure flying, but, as a manager of an aviation firm (who understood the cautious Scot) suggested to the writer, this will probably vanish when a good system of insurance is in working order. The flying which is taking place just now is fairly brisk, and one waits for the time when aeroplanes will be patronised by almost everybody. This day is sure to come, and in the meantime the Scottish firms are working quietly and making steady preparations for post-war aviation.

THE NEW HOME OF MR. GLENN CURTISS.

The many friends of Mr. Glenn H. Curtiss throughout the British Empire will be glad to know that he is now established as the Curtiss Engineering Corporation at Garden City, Long Island, New York State, where he has set up well-equipped shops for the building of experimental aircraft, and laboratories for aeronautical research.

His works are actually about 20 miles from New York, in convenient proximity to the U.S. Naval Flying Station, on the South Shore of Long Island, and the Sportsman's Flying Waters in Long Island Sound, on the North Shore of the Island; also, he is not for from Hempstead Plains in the centre of Long Island, so that he is exceptionally well placed for all-round flying, both of land and water machines.

The new Curtiss buildings are of the most permanent type, and are designed specially for aeroplane development work rather than for pure production, Mr. Curtiss's idea being to produce better and better aeroplanes rather than to settle down to run a kind of aeronautical factory. Two wind-tunnels embodying the latest ideas have been installed at the new Curtiss works, and the whole place is equipped to make it a first-class research and experimental establishment.

It is eminently satisfactory to see one of the great pioneers of aviation thus continuing to do really valuable pioneer work instead of degenerating into a mere manager of a quantity production plant. The success of Mr. Curtiss's experimental plant is demonstrated by the performance of the Curtiss-built N.C. boats which crossed the Atlantic, and the further products of his works will be watched with very great interest.

The British Caudron Company's Factory and Aerodrome at Alloa. This photograph was taken by M. R. L. Desoutter from a Caudron C.3 Biplane (100 h.p. Anzani engine).

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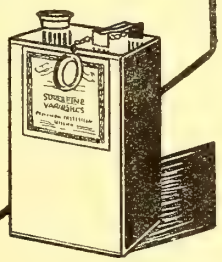

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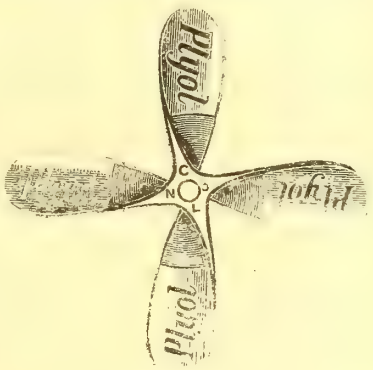

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AT THE TALIEDO AEROSHOW.

The third Milan Aeroshow at the Taliedo Flying Ground is deeply interesting, though chiefly so as a review of Italian war efforts.

The mounting of cabins on C.A. bombing aeroplanes and the evident utility of the Svas for carrying a passenger owing to their slow landing speed and rapid pull-up are perhaps the most promising signs of post-war enterprise, if one excepts the regular Milan-Venice dirigible trips, which are most attractive, being about three times as quick and only about four times as expensive as the same journey by railway. Lunch is included in the 300 lire fare.

The Show is housed in several lofty hangars of quite recent construction, and some smaller edifices of a less lasting nature.

A dirigible, a Prassone observation balloon, and some ordinary gasbags are there for the transport and amusement of visitors.

Interesting Even Without the Show.

The Caproni, Samd, O.M. and other companies' works, which occupy two sides of the flying ground, and the military aviation sheds and barracks which line the remainder of the boundaries of the field, make the place highly interesting, even without the Show. So that the L.A.N. was wise in choosing the site in preference to a more accessible one. The exhibition with bi-weekly attractions in the way of competitions and stunting shows, is likely, I learn, to remain open for the greater part of the summer.

No fewer than eighty flying machines are staged, exclusive of lighter than air vessels. These eighty may be divided into sections of historic and modern war and peace craft, and a section that contains enemy machines. The curious element is furnished by the Bergonzi "canneton," or young "canard," called the Ardea, a biplane with Anzani 45 h.p. engine elevators in front, and daring vertical and horizontal dihedrals to the planes. Worthy of mention, too, are the Gabardini tethered monoplane and his chief pilot's foot-controlled runabout (steered by the feet only), which are used to get pupils accustomed to the feel of things before going up and wasting an instructor's time.

All Metal or Half Metal Construction.

The era of all-metal or even of half-metal construction seems as far off as ever, to judge by the naked skeletons of wings and tails so generously exposed on most of the stands. Barring an all-metal tail plane for a C.A., which I did not see in the Show but at the works, nothing of the sort seems to have come into common use.

Of the very large number of Italian motors exhibited probably the Itala is least known to English readers, and certainly the Perfetti-Dolara is the least known to Italians! It is a very perplexing looking and seemingly well-made 300 9-cyl. air-cooled rotary with cylinders parallel to and revolving round the crankshaft, which is to say parallel to and revolving round the longitudinal axis of the aeroplane, and in a line with the direction of flight of the machine. The cylinder heads face the blast of the displaced air much as a revolving cowl of a tractor screw seems to do, and the big ends of the piston rods appear to transmit rotary motion to a flywheel at right angles to the motor axis, that is in the normal position of a flywheel in respect of the airscrew. I hope to send the inventors' detailed description shortly.

The Ansaldo and Macchi exhibits are admirably staged. The former machines are a kind of *leit-motif* constantly appearing all through the Show in varying forms and guises. One who went out to see, however, missed the Marchetti-Vickers biplane and also the Tebaldi-Zari, both out to speed up aerial progress, and the latter of which is much spoken of. After peace has settled whether it is armed or disarmed perhaps Ing. Macchi will not find it expedient to keep M.12 up his sleeve. It has a 450 Ansaldo engine 12 cyl. V, at 60 degrees, which gives 570 h.p. Numerically the Caproni and Ansaldo exhibits preponderate, which signifies these firms' importance in Italian aviation.

The sister to the Fiat Company's B.R. with a huge 700 h.p. 12-cylinder Fiat, destined to cross to America was on view and in the air. With 24 exhaust pipes, the engine when in tune is quite as horrifying as a roundabout organ. The tendency to ever increasing horse-power does not promise well for commercial aviation in this period of depleted treasuries and exorbitant demands. One doubts that even the most important problems of the useful conquest of the air have been fully realised, much less faced.—T. S. E.

A RETURN TO INDUSTRY.

The name of Major H. Waymouth Prance, M.I.A.E., A.F.R.Ae.S., A.I.E.E., will be familiar to the majority of pre-war readers as a partner in the well-known firm of Markham and Prance, Consulting Engineers (motor, marine, and aeronautical), of Dudley House, Southampton Street, Strand, and High Street, Southampton. Like many other businesses of this nature, this firm shut down upon the outbreak of war, the partners and staff betaking themselves to the business of assisting in defeating the Hun and his allies.

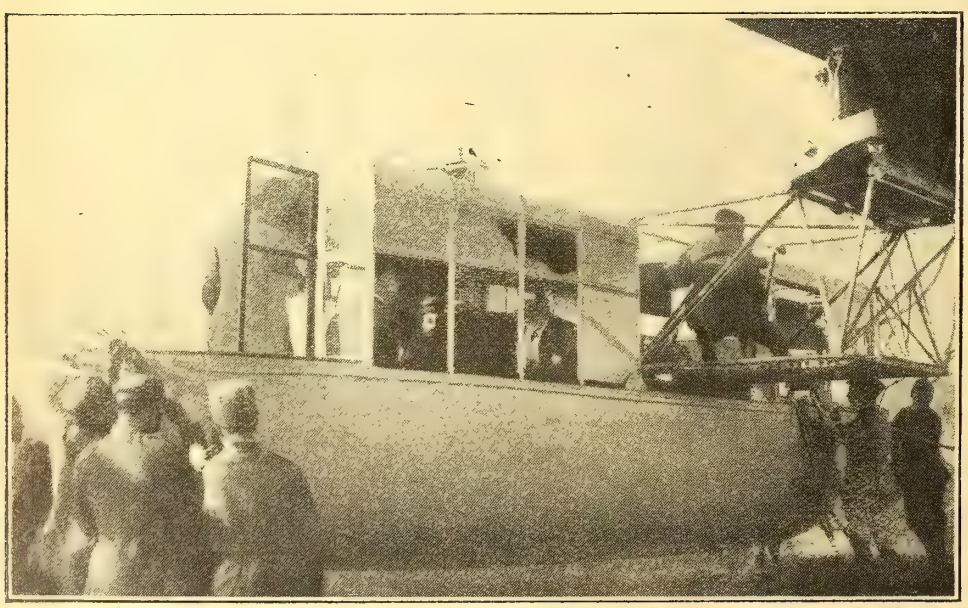
Major Prance's duties carried him to the Near East, where he took part in the Gallipoli campaign as second in command of the 2/3rd Battalion London Regiment (Royal Fusiliers). Subsequently, after a somewhat protracted retirement to hospital, Major Prance, being no longer fit for active service, returned to his old sphere—that of petrol engines and aeroplanes—and for the past three years he has been serving in the technical department of the R.F.C. and R.A.F.

Here his duties were of a varied nature. In the early days he supervised tests and prepared reports upon the experimental engines which were submitted to the department. He next took charge of the Technical Information Section, which was subsequently developed into the Technical Publication Section. This section was responsible for the compilation of engine, aeroplane, and seaplane handbooks, data charts and diagrams, for the supply of technical information to the Allies and Colonial Governments, the supply of technical information to engine and aeroplane contractors, and the preparation of reports on German engines and aeroplanes.

His activities in this direction having ceased, it is pleasing to welcome Major Prance back to civil life. His future plans are as yet unsettled, but with his very thorough knowledge of internal combustion engines and up-to-date aeronautical practice his services should be of great use in civil aviation.

Major Prance is one of the "old hands" in aeronautical circles, for his experience dates back many years before the war, and this early knowledge, combined with his war-time experience of aeronautics, should prove a very useful combination.

The Aeroplane will be very pleased to put any firm in touch with Major Prance should they wish to correspond with him.



The Cabin of a small Commercial Passenger Italian Airship which is at present educating the public at Taliedo.

FOR USERS OF STEEL.

Mr. E. St. Clair Duncan, of 217, Piccadilly, London, W.1, has sent a copy of the new catalogue just issued by Messrs. Dunford and Elliott (Sheffield), Ltd. This catalogue is well produced, in an interesting and attractive form. It contains complete and instructive details concerning their steels, and also a mass of general information which cannot fail to be of interest to all users of steel.

OLEO PLUGS.

Messrs. Leo Repault and Co., of 64A, Poland Street, W.1, have issued a temporary retail list of their famous "Oleo" plugs, which, in addition to illustrations and prices of various types of plug, contains a number of useful hints as to the selection and use thereof.

THE ENCOURAGEMENT OF ENTERPRISE.

The London and Provincial Aviation Co., of Stag Lane Aerodrome, Edgware, announce that theey are retiring from business This firm is fairly well known to most of those who take any real interest in aviation.

Mr. Warren, its founder, has been intimately connected with the development of British aviation for between nine and ten years, the firm has been building aeroplanes for the last 5½ years, and have trained 550 pilots for the Air Services since the outbreak of war, with only one fatal accident.

The firm has recently produced a two-seater machine, fitted with a 50-Gnôme engine. This machine is of a type eminently suitable for teaching and intended for that purpose, and for sober pleasure flying. By way of securing to themselves an income which would justify their keeping together the staff of trained mechanics which they now employ, the L. and P. Co. had proposed to take three of these machines, a staff of mechanics and a supply of spare engines to the North of Ireland during that holiday season which embraces July 12th, and to visit in turn a number of towns, which, up to the present, have had few opportunities of seeing aeroplanes in flight. Thus they hoped to turn an honest penny or two by giving passenger flights and charging for admission to the ground.

The Department of Civil Aviation have, however, effectively prevented any such enterprise. Their method of so doing has been simple.

Firstly, they refuse to grant a certificate of airworthiness to the machines—because, forsooth, they are fitted with 50 Gnôme engines; and, secondly, they cannot pass as aerodromes any of the fields proposed by the firm for this purpose until complete maps have been submitted and a representative of the Department has inspected and approved the particular fields in detail—a process not likely to take less than three weeks—by which time the opportunity afforded by the present season will be well past.

This example of official methods being merely normal, the company has been forced to the conclusion that in the present state of the law and of the Department of Civil Aeronautics they have no chance of obtaining any return for a continuance of their present expenditure, and they have decided to retire from business till such time as these two hindrances have been reformed.

With particular regard to the immediate cause of this decision, most people who are acquainted with the history of the L. and P. Co. would feel much safer on a 50 h.p. Gnôme-engined machine, designed under Mr. Warren's supervision, flown by one of the L. and P. pilots and cared for by the L. and P. staff of mechanics, than on any of heretofore products of the Technical Department, particularly if this latter were attended by a certified official-hand-book-crammed Ground Engineer—even if it were engined by a salvaged Rolls-Royce.

In the matter of passing flying grounds, the Department of Civil Aeronautics has now had some months in which to get into working order, and it has been officially laid down that one of its most important functions is that of arranging for adequate landing grounds for civil aviation.

That it has not yet an organisation such that there is no spot in the British Isles more than ten miles from the headquarters of an accredited inspector who could report definitely within 24 hours as to whether a given field in his district was or was not suitable for any given aeronautical purpose, simply shows that this particular department has the characteristics of all known British Government departments—and that organisation means to it nothing beyond the provision of adequate methods of shirking its proper duties.

In such matters as this one would feel inclined to back the commercial sense of an experienced firm to select landing grounds which were suitable for their purpose, and would neither wreck their machines nor their reputation.

CIVIL AERIAL TRANSPORT NOTES.

UNITED KINGDOM.

It is notified by the Air Ministry for information that the following addition has been made to the telegraphic address of the Civil Aviation Department, Air Ministry, India House, Kingsway, "Civiatory, Estrand."

BRIGHTON.

Four Avro machines, two 5-seater and two 3-seater, flew from Hounslow to the Ladies' Mile Aerodrome, near Patcham, Brighton, on July 11th, where passenger-flying was started on Saturday, July 12th, with Captain Kennard in charge. Flying will commence every day at 11 a.m. Intending passengers may book their seats at the Avro Joy-Ride Office, at the Aquarium, or at the aerodrome.

On Sunday over 100 passengers were taken up there, and at least 1,500 spectators came to the Aerodrome during the course of the day.

On Sunday morning Colonel Henderson flew the Avro Limousine from Hounslow to Brighton in 30 minutes with two passengers and returned to Hounslow in the evening with two other passengers. Later in the evening two machines that had been flying all day at Brighton returned to town with passengers Commencing next week-end a permanent week-end service will be run from London to Brighton, leaving Friday and Saturday and returning on Monday, the charge being £5 per head single and £7 10s. per head return.

CARDIFF.

Mr. Daniel Radcliffe, the Cardiff millionaire shipowner, flew from Cardiff to London in 1¼ hour for the shipowners' meeting on July 11th.

EASTBOURNE.

Six members of the travelling company of the "House of Peril" were transported on July 12th by a seaplane, making two trips from Eastbourne pier to Brighton pier, where they are performing this week.

GOSPORT

An F.5 Flying-boat was successfully put through its trials on June 30th by Lieut. D. V. Carnegie, A.F.C., R.A.F. There were seven passengers. This is the fourth machine delivered by the Gosport Aircraft Company during the last seven weeks.

COVENTRY.

On Thursday, July 10th, Sir Harry Brittain and Mr. H. Gordon Selfridge flew from Hendon to Coventry to address a Victory Loan meeting. They arrived at Coventry at 2.30 p.m., and before landing circled the town several times, dropping Victory Loan pamphlets, and a letter worth a £5 bond to anyone presenting it at the Victory Loan office.

LONDON.

HENDON.—The afternoon of Saturday, July 12th, was quite as exciting as usual, perhaps more so, as the Summer Meeting was postponed, and only two passenger-carrying carroty "Avros" disturbed the peaceful sight of the trains going by. It had rained quite unpleasantly in the morning, but cleared up quite nicely in the afternoon. It would have been possible to hold the meeting, as rain does not interfere with determined aviators, but the public would not have been very pleased to sit on the wet forms. It strikes one that perhaps after all these meetings are not held entirely for the amusement of the Grahame-White Aviation Co. Despite the fact that there were only about a dozen visitors, it was necessary to wait nearly half-an-hour to obtain tea.

A twenty-mile speed contest for the Victory Trophy (presented by Messrs. Percy Edwards and Co.), will be held at the London Aerodrome, Hendon, on Saturday afternoon next, at 4 p.m.

The course, of which five laps must be flown, is round the Aerodrome Pylons and a point about two miles out, i.e., Bittacy Hill—a distance of approximately four miles.

Some of the pilots who may take part in the contest are Mr. Duke, a new pilot at Hendon, on a 170-h.p. B.A.T. Bantam, Mr. Sykes on a 70-h.p. C.A. machine, Mr. Chamberlayne on an 80-h.p. Grahame-White "Bantam" Biplane, and Messrs. Carr, Robertson and Hicks on 110-h.p. Avro Biplanes.

Entries close at 12 noon on Thursday next, the 17th inst.

Special flying displays and Passenger Flights will be carried out at intervals during the afternoon, and also on Sunday afternoon.

It has now been decided to hold air race meetings at the London Aerodrome regularly every week-end, an air race being held every Saturday afternoon, and special displays every Sunday afternoon. Passenger Flights will take place daily throughout the week.

Additional enclosure accommodation has been provided, and admission to the Aerodrome is now from 9d., plus tax. Children half price.

HOUNSLOW.

On Tuesday the 8th inst. Colonel Henderson flew the Avro Limousine from Hounslow to Aintree and returned the same day. On Wednesday a machine went to Weston-super-Mare with passengers, and another left later in the day with passengers and returned the following day to South Moulton, where over 120 people were taken up for "joy-rides" at the South Moulton Agricultural Association Fair.

The "Evening Standard" has been delivered every day to Southsea by Avro biplane from Hounslow.

During Peace week Avro three-seaters are available for flying to Paris, the charges being £75 return for one or two passengers, and £60 single.

In connection with the flight to Aintree, Liverpool, it is interesting to note that if civilian concerns were carried on in the same way as Government concerns there would be little accomplished.

Colonel Henderson landed at a Midland Aerodrome for petrol and was asked by a ferry pilot what the weather was like in London, as the weather report from the Air Ministry was "Unfit for cross-country flying." Colonel Henderson reported that as he had just flown from London this could hardly be so. He returned from Liverpool the same evening and was again informed by the same ferry pilot that the weather report was still "unfit for cross-country flying." Colonel Henderson then completed the flight to Hounslow in one hour and a quarter, a distance of over 100 miles, and the weather could certainly not have been described as "Unfit for cross-country flying"

The necessity for the one journey was a pressing commercial engagement, and the necessity for the other was merely delivery of Government machines to Civilian Parks.

If ferry pilots were paid for each journey instead of by day, whether they fly or not, there might be a little better effort in these Government Departments.

CRICKLEWOOD.

A successful flight was made on July 11th by a standard two-engined Handley Page, built for the Chinese Government, with whom the company has a large contract. Besides the pilot, Captain G. J. R. Hill, M.C., and the engineer, there were sixteen passengers. The total weight of the machine in the air was 12,800 lbs. A height of 15,000 ft. was reached, and during the tests the pilot flew for a time with one engine.

SOUTHSEA.

Amongst the passengers taken up in an Avro at Southsea Common last week was Commander Grieve accompanied by his mother and sister.

Two passengers were taken to Northampton, and two to Bristol and back, the latter journeys taking $1\frac{1}{4}$ and $\frac{3}{4}$ hours.

Cardboard discs were dropped over Portsmouth during the week, entitling the finders of the lucky numbers to free Joy Loan Certificates.

AUSTRALIA.

Boulton and Paul, Limited, of Norwich, have constructed an aeroplane for Lieut. A. L. Long, Aus. F.C., which is to be used on a sheep ranch in Australia. The machine was built in six weeks, is fitted with a 90 h.p. R.A.F. engine, and has good speed, climb and lifting capacity. The seating accommodation is adjustable.

As some of the sheep ranches cover 500 square miles, supervision from the air seems to be the ideal way of looking after the various flocks. With a little experience a good estimate of the number of head in the various flocks could be made from the air, and then flocks of the size required for the market could be selected very easily and quickly.

BELGIUM.

It is announced that the Congress of the Federation Aeronautique Internationale will be held at Brussels on October 22nd, 23rd, and 24th.

For the occasion the Belgian Aero Club are preparing big fêtes,

ROUNDING A PYLON.—Mr. Turner on the Bat-Bantam (170 h.p. A.B.C. Engine).

at which it is hoped King Albert will assist, and during which they hope to play "Icarus," the opera of M. Deutsch de la Meurthe!

From July 19th to the 24th the Belgian Aero Club will hold an exhibition of Belgian aeronautical material, including Boche spoils of war. It is to be held in the big hangar at Evère, which is to Brussels as Hendon is to London.

It is now confirmed that fifteen hydravions will be used in transporting merchandise in the Belgian Congo.—F. T. N.

DENMARK.

The Danish Government has purchased a number of Avro and Bristol biplanes, which are now on their way to Copenhagen. Some British pilots are accompanying them to instruct the Danish pilots, who will be employed on the projected services between Denmark and the neighbouring countries. Owing to its peninsular formation, Denmark has been handicapped in fast trade with the rest of Scandinavia, with Britain, and with the rest of Europe, which is reached by the inconvenient route through Hamburg.

FRANCE.

Of course the most exciting thing that has happened in French civilian aviation during the last six years is the gift of £80,000 by M. Henri Deutsch de la Meurthe to the French Aero Club. Probably owing to the various fête days and peace celebrations is due the fact that the gift has passed almost unnoticed by the lay Press. This is not by any means the first amount of its kind given by M. Deutsch de la Meurthe, who permanently fulfils the position of president of the French Avro Club.

THE "GOLIATH" OVER THE "MARCHE DE LA VICTOIRE."

At intervals of every few months it is my pleasure to record new departures in the way of aerial advertising, especially with regard to "first issues" as the philatelist would have it, or "first usage" of a philologist. The following cutting from the Paris "Daily Mail" of Sunday, July 6th, speaks for itself. Mr. Dick

To "Aeroplane" Subscribers.

Since the Armistice, the subscription list of the AEROPLANE has steadily increased: an eminently satisfactory development which we are anxious to encourage.

Of the many books published on the war on the Western front, none conveys a more realistic impression of the work of a particular arm than FLYING COLOURS by Captain H. M. S. Saundby, A.F.C., R.A.F., M.C., published at **£2 2s.** net (Edition de luxe) and **15/-** net (Popular Edition).

Among the art books published in the last year or two, none can claim to be a more faithful reproduction of the artist's colour scheme and that indefinable thing, atmosphere.

FLYING COLOURS is a permanent memorial of the life of "the pilot in action," as Major-General C. B. Ashmore calls him. It was very costly to produce, and necessarily the price to the public had to be high.

Many would like to possess it who do not feel disposed to put down Two Guineas for the larger edition or Fifteen Shillings for the smaller.

How to meet their views? We make a special offer to any subscriber for one year to the AEROPLANE: namely to give him the right to purchase either edition at half price.

All he need do is to send us the accompanying order form with cheque for one year's subscription, plus **£1 1s.** or **7s. 6d.** according to the Edition he wishes to have.

In order to be fair to current yearly subscribers we extend the half-price concession to them also. If a subscriber has paid a quarterly or half-yearly subscription, then to secure the right to participate he should send the balance for the year.

Subscribers who have given their orders through the trade, and not direct to the AEROPLANE Office, must sign the form below or a copy thereof, and hand it with the balance on account of the book to their retailer for transmission to the AEROPLANE.

If the subscriber already has a copy of FLYING COLOURS, and would wish to take advantage of this offer, then he may secure McCudden's "Five Years in the R.F.C." **(7s. 6d.)**; Richthofen's "Red Air Fighter" **(3s. 6d.)**, and Gill's "The Aerial Arm" **(6s. 6d.)** at half price, *i.e.* **8s. 9d.** the three, plus the year's subscription to the AEROPLANE.

ORDER FORM.

To THE "AEROPLANE,"
61, Carey Street, W.C.2.

Please send me the "AEROPLANE" for one year post free **(30/- inland ; 35/- abroad)** and one copy of the { Edition de luxe / Popular Edition } of FLYING COLOURS at half price { **£1 1s. 0d.** / **7s. 6d.** } for which I enclose remittance value **£ s. d.**

Name.....

Address.....

Date.....

*** Current subscribers, who send for the books only through their newsagent, must sign this declaration:
I am a yearly subscriber to the "AEROPLANE" through.....Newsagent.

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Subscriber's Name.....

Farman's service of publicity has since intensified its efforts and sent a machine over Paris dropping gold and azure blue leaflets advertising such flights.

THE "GOLIATH" AT THE VICTORY FETES.

THE FARMAN firm takes a sensational initiative. They have decided to place the "Goliath" at the disposal of all those who would like to enjoy the unique spectacle of the Victory Fêtes and the march of the victorious troops passing beneath the Arc de Triomphe. The giant avion will, in conformity with the police regulations, fly at a great altitude but the sight witnessed from it will lose nothing of its grandeur.

The Price for this Extraordinary and Magnificent Aerial Trip is fixed at 1,000 frs. per person.

In the evening aerial trips will be organised to fly over the Versailles and Saint-Germain Château, where the most important episodes of the greatest events which the human race has ever known took place.

The PRICE of these trips from the Toussus-le-Noble aerodrome to Saint-Germain, Versailles, Paris and back on the Victory Fête Day is 500 frs. per person. Apply for tickets and additional information to the

AMERICAN EXPRESS, 11, Rue Scribe, PARIS.

Telephone: Gut. 36.04.

Every passenger if desired will be conveyed in an automobile from his residence to the Toussus-le-Noble aerodrome and back to Paris.

As only a very limited number of passengers can be accepted, persons desirous of taking advantage of this unique opportunity should apply for tickets at once.

It is possible to get eighteen passengers comfortably installed in a "Goliath" apart from pilot and mechanic, and as there are three "Goliaths" now off the stocks a very simple calculation will show that this enterprising firm stand to make nearly £2,000 if the smaller flights are included. Although all the "Victory," seats are not taken, quite a number are booked.

ANOTHER AERIAL EXPLOITATION COMPANY.

Although work in the majority of aviation factories is at a standstill, there is still plenty of war material to use, which accounts for the continued development in the way of new exploiting companies.

The latest which is about to be registered with a capital of £15,000, is entitled Société des Transports Aéronautiques du Sud-Ouest. They have at present one "Goliath," two F.40 aeroplanes and one F.40 seaplane. Having acquired an aerodrome and hangars at La Négresse, near Biarritz, they propose to work from here, running excursions to Bilbao, St. Sebastian, Santander, etc., in Spain, during the summer months—July to November—but to transfer their activities to Nice for the winter season, say, from December to April. They have some very good old-time (1911) pilots, and the moving spirit of the concern, Lieut. Gendner, was taken prisoner by the Boche the same time as Lieut. Villiers, the push-and-go member of La Société des Grands Express Aériens.

FRENCH EXHIBITORS AT AMSTERDAM EXHIBITION.

So far as is known, only Messrs. Bréguet and Farman intend to exhibit at this exhibition, but all is not yet certain owing to the opposition or dilatoriness of the French Government authorities, and another point that may operate against these firms exhibiting is the fact that there are no hangars in the vicinity of the Show, and owing to transport difficulties it is essential that machines be sent by air. Meantime Lieut. Roget hopes to fly to Amsterdam next week, stopping at Brussels and Utrecht on the way.

After many trials and tribulations Lieut. Romanet and his journalist passenger reached Madrid, whilst a good flight was put up in the reverse direction by Lieut. Coupet, who made the flight on a small dual control Farman, 80 h.p. Rhône.

Some people say that to change is to progress: to all such one commends the following announcement which gives the titular heads of various departments in the direction of civil aviation under the new co-ordination scheme recently adopted.

M. Fontan, engineer-director of Technical Services of the Naval Aeronautics, is named Director of Aeronautical Technical Services; Lieut.-Col. Séguin is appointed Director of Service of Aeronautical Construction; Lieut.-Col. Sacconnay, hitherto chief of Aeronautical Civil Service, is appointed Chief of the Service of Aeronautical Navigation.

Lieut.-Col. P. Leclerc, one-time Director of Civil Aeronautics, and now commanding the 1st Aviation Group at Dijon, has lost his wife.

Sergt.-Pilot Camille Frélat, Brig.-Aviator R. Warichet, and Lieut. Frederic Cochet Forthuny all met their death in aviation accidents this past week—the latter at Constantinople.—F. T. N.

GERMANY.

According to the "Weser Zeitung" of July 2nd, Dr. Armo Relizi, of Danzig, and Dr. Walter Geister, intend to start on an Arctic expedition by aeroplanes. The purpose of the expedition is to make topographical, oceanographical and meteorological surveys, and to test the value of aircraft in the Far North. The expedition will start from a vessel going as far north as possible, which will serve as the base for the operations which will be conducted north of the 58th degree of latitude.

The machines will be biplanes of two types, light scouts of great speed and heavy machines for the expedition proper. They will be fitted with floats with flat bottoms to enable them to land on water and/or ice.

ANOTHER AERIAL SERVICE.

The Prussian Minister of Commerce has sanctioned the foundation of an aerial transport company which will be established in Frankfort and have a capital of 15 million marks. Six routes are being planned for freight and letter traffic, all starting from Cologne to Frankfurt, Munich, Stuttgart, Basle, Hamburg and Breslau. It is proposed to open the service with about 200 machines. Eventually, a service for passengers will also be established.

A HEIGHT RECORD.

According to the "Vossische Zeitung" of June 29th, Oberleut. Diemer has beaten his own records by making a height of 9,620 m. in 89 minutes, on June 17th. Three sealed barographs showed 9,620, 9,760, and 9,480 m. height. The machine was one of the military standardised biplanes of the German Aviation Works, better known as the D.F.W., of Leipzig, with a 200-h.p. engine of the Bayerische Motoren-Werke of Munich.

ITALY.

As the result of the investigations of a Governmental Commission as to what is wrong with Civilian Aerial Transport, it is now decided to put the responsibility on that infant's up-bringing on one person's head. Briefly, an Under Secretary of the Ministry of Roads Transports, etc., is to be nominated to care for flying in this land. Mention of a grant of 80,000,000 lire has been made, with what truth one has no means of deciding. Certainly, the want of money has been the first cause of much of the infant's feebleness and failure to develop.

A really Italian magneto is about to shower sparks into our Teutonised magnetic field. Reference to the Monopoli patent shows how the inventor has advanced from standard practice by increasing the number of the polar extremities and gets fat sparks at the slowest speed.—T. S. H.

According to a Turin message of June 27th, Lieut. Brack-Papa, the Italian aviator, with two passengers, flew 159 miles in one hour. Thus, it is claimed, breaking the speed record set up by M. Sadie-Lecointe.

HOLLAND.

It seems likely that the first Aircraft Exhibition at Amsterdam, which is due to open on August 1st, 1919, will be of very considerable interest. Quite a number of British aircraft firms of the best class have taken space at the Exhibition, and though the Society of British Aircraft Constructors, as a Society, is not giving official support to the Exhibition, one gathers that, on the other hand, the Society is not in any way hostile to it.

The following firms have definitely booked space: The Aircraft Manufacturing Co., Ltd.; the British Aerial Transport Co., Ltd.; Vickers, Ltd.; Handley Page, Ltd.; the Gosport Aircraft Co.; the Blackburn Aeroplane and Motor Co.; Marconi's Wireless Telegraph Co., Ltd.; the Wireless Press, Ltd.; Boulton and Paul, Ltd.; the Westland Aircraft Co., Ltd.; R. S. Watling and Son; the Improved Liquid Glues, Ltd.; the Farringdon Propeller and Engineering Co., Ltd.; Geo. Williams and Co., Ltd.

Besides exhibiting machines at the Exhibition it is understood that all the aeroplane firms will also send machines and expert pilots to give exhibition flights. Though the Dutch Government is not officially concerned with the exhibition it is giving every possible support to it, and with the concurrence of the Government a very fine aerodrome has been laid out within easy reach of the most central portion of Amsterdam. Arrangements are also being made for the demonstration of flying-boats and aeroplanes in the immediate vicinity of the Exhibition.

It should be remembered that although Holland itself is a small country, and, therefore, the British Industry cannot expect to receive large orders for aeroplanes to be used in Holland, Dutch traders have enormous influence practically all over the world, and the Dutch East Indies alone offer a fine field for the use of aircraft both of the sea-going and the land-going species. Also, Holland being so easy of access to Scandinavian countries, the Exhibition offers opportunities of getting in touch with possible Scandinavian buyers.

Several French firms are also exhibiting, and, therefore, it is to be hoped that British manufacturers will be able to put up a good show both on the ground and in the air in competition with our esteemed Allies.

Inquiries concerning the Exhibition should be addressed to Mr. J. van der Steen, Trafalgar Buildings, Trafalgar Square, W.C.2. (Telephone: Regent 2648).

G R

BY DIRECTION OF THE DISPOSAL BOARD.

AIRCRAFT DISPOSAL DEPARTMENT.

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ENGINES.

Type.	H.P.	Type.	Cooling.	No. of Cyl.
Siddeley Deasy "Puma" - -	230	Vertical	Water	6
Sunbeam "Cossack" - -	320	Vertical	Water	12
Fiat A. 12 Bis - - -	300	Vertical	Water	6
Hispano Suiza (French) - -	200	Ve 90	Water	8
Hispano Suiza (Viper) - -	200	Vee	Water	8
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Marks I. II. III. IV. V. & VI. to -	300	Vee	Water	12
Mono - - - - -	100	Rotary	Air	9

SHOCK ABSORBER CORD.

5/8 Black shock absorber elastic cord - - -	New	- -	3,550 feet.
5/8 Black and red shock absorber elastic cord - -	,,	- -	550 feet.
5/8 White ,, ,, ,, - -	,,	- -	667 yards.
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½ Black and red ,, ,, ,, - -	,,	- -	668 feet.
⅜ Black and red ,, ,, ,, - -	,,	- -	500 feet.

HOSE.

Grey Hose—new 1in. i/d. - - - - - - - -	2,075 eet.
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Grey Hose—new ⅜in. i/d. 3 ply - - - - - - - -	250 feet.
Grey Hose—new 9/16 i/d. - - - - - - - -	459 feet.

RUBBER PADS.

F.E.2.B.	7126—26 - - - - - - - -	130
F.E.2.B.	3895—35 - - - - - - - -	318

PALMER WHEELS.

Palmer wheels, complete with tyres and tubes in various sizes.

AIRCRAFT GLUE.

Hide glue—best quality for Aircraft - - - - - - - -	85 cwts.

Tenders are requested for any or all of the above lots or singly in the case of engines. Forms and all particulars may be obtained from

The Controller, Aircraft Disposal Department, York House, Kingsway, W.C.2.

Closing date for Tenders—July 28th, 1919.

HOW TO ENCOURAGE CIVIL AVIATION!

The London & Provincial Aviation Co.

REGRET to announce that after between nine and ten years' experience of Practical Aviation on the part of their Principal, after building aeroplanes for 5½ years without a breakage in the air, and after training 550 pilots for the Flying Services with only one fatal accident, they are compelled to cease business owing to the operations of the Department of Civil Aviation.

The said operations make it impossible for the L. & P. Co. to obtain any adequate return for capital, labour, enterprise, experience or industry. The shareholders therefore consider that it is better to play for nothing than to work for nothing.

A number of highly-skilled mechanics will be thrown on an over-crowded labour market.

A number of aeroplanes and engines of proved quality will remain idle.

A number of people will be deprived of the opportunity of flying.

A number of opportunities of increasing public interest in flying will be lost.

A good aerodrome will be left idle.

For further particulars apply—

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AIRCRAFT FINANCE

WHITEHEAD AIRCRAFT SHAREHOLDERS.

What happened and what was said at the meeting of Whitehead Aircraft (Ltd.) shareholders last Friday was interesting and illuminating. The object of the meeting was to pass a resolution for the voluntary winding up of the company. This was carried, but not without some opposition.

LORD WEMYSS' ATTITUDE.

Lord Wemyss, who presided, said that some of the shareholders present might be surprised to see him still occupying the position of Chairman of the company. (It may be necessary to mention that his Lordship had told shareholders at the General Meeting that he would not have any more connection with the company: His association has been brief.) In explanation he would say that he found it difficult to resist the strong appeals that were made to him, apparently with the unanimous support of the previous meeting, that he should continue to occupy the chair, and, further, he did not like, having been captain of the ship, to leave it when it was in troubled waters. When he previously addressed them he told them that they had remunerative contracts in sight, but he also told them perfectly frankly that the undertaking of those contracts depended absolutely on their securing fresh capital.

Unfortunately, the times were not then propitious for the raising of that necessary capital, and the creditors were pressing, and it was therefore necessary to have some alternative scheme. It seemed to him, in the circumstances, that the best chance for the shareholders was to have some amalgamation with an existing company or to sell the property to another corporation or an individual. If their assets had been less valuable than he believed they would prove to be, their task would have been easier, because there would have been fewer people who would want to negotiate for the purchase of those assets.

He thought, however, they had been fortunate in beginning negotiations with a gentleman who was a very successful business man and whose financial position was absolutely undoubted. He referred to Mr. Taylor.

He had been told that various accusations had been made to the effect that all money subscribed had not gone into the coffers of the company. He had ascertained that that was not the fact. It was not correct to say so. What gave rise to the rumour was this. Mr. Whitehead applied for a great number of shares on which he paid 1s. and on which he received the ordinary underwriting commission in order to provide further monies for the company. Mr. Whitehead sold a great number of these shares, and on receiving the money took up the shares he had applied for and paid the money to the company.

THE PROSPECTIVE PURCHASER.

Mr. A. Taylor then addressed the meeting, and said that he was connected with a firm of engineers who had helped to win the war by the construction of aeroplane engines, and they had evolved a light car for which they had a sale of upwards of 15,000. They had to make those cars somewhere, and in looking round for a factory they had come across the premises of the Whitehead Aircraft Company.

If the shareholders would work with the Board, with the liquidators and the Receiver, and if they would keep discord out of the proceedings and avoid the expenses of litigation, his people would meet them at the right and proper time and make a fair proposal for the property, giving them everything that the merits of the situation warranted after the debts had been paid.

Mr. Leaney asked why all the money at call had not been called up. He saw by the balance-sheet that £131,000 of the issued capital had not been called up.

The Chairman said Mr. Whitehead had these shares allotted to him as explained, but he had not the money himself to pay them up.

Mr. Whitehead rose to explain his position. He said that on June 30th last, when the Treasury sanction expired on the issue there were 85,000 Preference shares left which would not have the Treasury sanction on the following day. Owing to an arrangement with the then existing shareholders he was not able to place these shares until £300,000 of Ordinary shares had been allotted and paid for. Therefore, he could not take up those Preference shares in full at that date. As a matter of fact temporarily he made himself the "goat" to the extent of £5,000. He had not been able to place the shares. "Not one of you," he said, 'was so hard hit as I am."

Mr. Evans stated that the proposal made by Mr. Taylor could not be considered by the shareholders. They were practically asked to allow him to make all the investigations he chose, and then the shareholders would be asked to consent to any proposal that he desired to make.

Mr. Hammond strongly advised the shareholders to adopt a compulsory winding-up of the company in order that the position might be investigated.

CURRENT TOPICS.

A SPECULATION FEVER.

As soon as the National Loan is out of the way there will be an avalanche of fresh borrowings of all sorts and descriptions, with a good sprinkling of highly speculative things. Doubtless they will be swallowed voraciously by the public. It is beyond question that the speculative germ is rather virulent just now. Those who have profited by the war want to make more money, and those who have suffered because of the war seek compensation. It is wise to inoculate oneself against this fever.

TUBES: AN AMALGAMATION.

There has just been formed a company called "Tube Investments, Ltd.," with a capital of £1,250,000. The objective is to amalgamate by a purchase of shares certain undertakings known to the Aircraft Industry. Thus Accles and Pollock, Ltd., are mentioned, as well as Tubes, Limited, Oredenda Conduits Co., Ltd., and the Simplex Conduits, Ltd. Figuring in the directorate is Arthur Chamberlain, Edgbaston; J. H. Ashton, Birmingham; T. Pollock, a director of Accles and Pollock; and C. T. Barlow and J. Baker, also on the board of Accles and Pollock.

BEARDMORES AND FOREIGN TRADE.

Instead of establishing a new department for the purpose of specialising and developing their export business, William Beardmore and Co. have come to an arrangement with the City firm of John Buck and Co., who have branches throughout the world. To complete the scheme Beardmores have acquired some of the capital of John Buck and Co. and will have the benefit of its experience and organisation.

PROPAGANDA.

Two daily newspapers have blossomed out this week with Aviation Supplements. This is a good sign.

WHITEHEAD AIRCRAFT IN THE COURTS.

In the Companies Winding-up Court on Tuesday last New Pegamoid, Ltd., and another petitioned before Mr. Justice P. O. Lawrence for the compulsory winding up of Whitehead Aircraft (1917), Ltd.

Mr. Owen Thompson, K.C., who appeared for the petitioners, said the company wished for an adjournment. He (counsel) said he understood there was some suggestion of a voluntary liquidation, which would enable all the creditors to be paid in full. This was a company with £1,000,000 capital, and it was not the desire of the petitioners to ruin the company.

PAYMENT IN FULL?

Mr. Cecil Turner, for the company, said a meeting of creditors had been held, at which 70 appeared, and a special resolution was passed unanimously to the effect that it would be in the interests of all that there should be a voluntary liquidation. It was hoped that all would be paid in full, and that there would be a surplus.

Mr. Owen Thompson said he would not oppose a fortnight's adjournment if there was a prospect of the company's suggestion being realised.

Mr. H. E. Wright, appearing for creditors for £5,500, supporting the petition, said he thought a week was the outside time that should be allowed. He understood that a meeting of shareholders had been called for next Friday, and that the meeting of creditors to pass the special resolution would be at the beginning of next week.

Mr. Cecil Turner said the first meeting of creditors with a view to passing the special resolutions would be held next Friday.

Counsel appearing for £3,000 ordinary and a large number of preference shares supported the adjournment for a week.

The Palmer Tyre Co., creditors for £1,482, appeared by counsel, who also represented creditors for £29,000, who at a meeting expressed the opinion that a voluntary winding up would be better for all parties, supported a fortnight's adjournment.

Mr. Turner said a fortnight would enable them to crystallise the matter.

His Lordship said he thought a week's adjournment would be more advisable at the present, and made an order to that effect.

AIRCRAFT IN PARLIAMENT

The following oral answer was given on June 26th :—

AEROPLANES (CYPRESS WOOD).

Mr. REMER asked the Under Secretary of State for Air whether, in view of the fact that the use of cypress on aeroplanes cost the nation over a quarter of a million sterling, he will appoint a small Committee of Inquiry to go into the whole circumstances

Major-Gen. SEELY : The matter has already been fully investigated. The decision to use cypress was taken by the Department on expert advice as a war measure to meet a pressing emergency. I see no reason for a special Committee of Inquiry.

Mr. REMER asked the Under Secretary of State for the Air whether his attention has been called to a minute in his Department proving that one of his present advisers on timber was the official responsible for sanctioning the use of cypress; and what action he intends to take.

Major-Gen. SEELY : I do not know to what document my hon. friend refers in the first part of the question. But, in any case, I do not think any further action is required.

TIMBER TRANSPORT.

Mr. REMER asked the Under Secretary of State for Air whether large quantities of timber were dispatched by rail from Glasgow to London for no other purposes but to be stored; and whether, in view of the fact that traders are complaining of congestion on the railway he will take steps to see that no waste of transport facilities is incurred.

Major-Gen SEELY : I am unable to trace the incident referred to; but if my hon. friend will supply fuller particulars I will have further inquiries made.

FLYING-BOATS.

Lieut.-Comdr. KENWORTHY asked the Under Secretary of State for Air what was the cost for construction of the R34 type of airship; what was the cost of its shed; what is the personnel required at the shed for handling the airship, etc.; what is the estimated total monthly cost of the airship when in commission, including pay of personnel; and what is the cost of the N3B type of flying boat seaplane, 1919, pattern.

Major-Gen. SEELY : The first part of the question is for the Board of Admiralty, and perhaps the hon. and gallant Member will address the question to them. The cost of the latest flying-boat built to N3B specification is £9,000 complete with engines; the specification is, however, not a new one.

Lieut.-Comdr. KENWORTHY : What is the cost of the shed ?

Major-Gen. SEELY : Questions as to the shed of the airship should be addressed to the Admiralty. They ordered the ships, although the Air Ministry had control of them for experimental purposes. The actual details of the contract price should be asked of the Admiralty.

Lieut.-Comdr. KENWORTHY : What is the personnel ? Has the right hon. gentleman information as to the number of persons necessary to handle this airship ?

Major-Gen. SEELY : I have suggested that on that point also the question should be addressed to the Admiralty. I included that in the first part of the answer. I think they will be able to give the information required.

Capt. BENN : Are we to understand from that answer that the Air Ministry has not complete control over the lighter-than-air material ?

Major-Gen. SEELY : Yes, that is so. At present we have not complete control of lighter-than-air ships. With regard to personnel, we are responsible for that. The matter is complicated, but it will be adjusted in a very short time

* * *

The following written answer was given on June 26th :—

ROYAL AIR FORCE.—DOGS (IMPORTATION).

Colonel WESTON asked the Under Secretary of State for the Air Ministry, in view of the official report that at one aerodrome 64 dogs had been illegally imported, how dogs on aerodromes would be protected from infection.

Major-Gen. SEELY : The irregular importation of dogs is strictly forbidden, and should be impossible.

Colonel WESTON asked the Parliamentary Secretary to the Board of Agriculture whether he has received any proof of a case of landing dogs illegally from an aeroplane.

Mr. PRATT : The Board of Agriculture have received no official report of the illegal landing of any dog.

* * *

The following oral answer was given on June 30th :—

AIRCRAFT PRODUCTION DEPARTMENT (OFFICERS' LETTERS).

Mr. KELLAWAY (Parliamentary Secretary to the Ministry of Munitions), replying to Sir Francis Lowe, said : Unless marked "Personal" or "Private," letters addressed to individual members of the staff of the Ministry of Munitions are opened in the registry I understand that there is no similar rule in the Admiralty or War Office. The practice was adopted to prevent delay or miscarriage of correspondence. If correspondence is addressed to members of the Ministry and not marked "Private" or "Personal," it is presumably on official business and is opened.

* * *

The following written answer was given on June 30th :—

APRON DEFENCE, LONDON.

Lieut.-Col. PEEL asked the Under Secretary of State to the Air Ministry whether any action has been taken regarding a scheme for the so-called apron defence of London sent to General Headquarters, Home Forces, by Mr. Samuel Jones, of Debenham, on Jan. 31st, 1918; and whether this was the first occasion on which such a scheme was put forward ?

Mr. CHURCHILL : The apron defence of London was installed in 1917. The proposals received from Mr. Samuel Jones, of Debenham, were duly considered, but were found impracticable.

* * *

The following written answers were given on July 1st :—

ROYAL AIR FORCE.—SCAPA SEAPLANE STATION.

Captain BROWN asked the Under Secretary of State to the Air Ministry whether it is necessary to maintain the Scapa seaplane station, where four men are retained without anything to do.

Major-Gen. SEELY : Scapa seaplane base is being retained temporarily until Smoogroo is ready, and will be given up shortly. The station is in charge of a care and maintenance party who are responsible for equipment and stores.

HOURS (NUMBERING).

Colonel WEDGWOOD asked the Under Secretary of State to the Air Ministry whether the system of numbering the hours continuously up to 24, which was adopted in the Army last year, has also been adopted in the Royal Air Force; and, if so, from what date and under what Regulation.

Major-Gen. SEELY : The system in question was adopted throughout the Royal Air Force from midnight, Oct. 19th/20th, 1918, under Air Ministry Weekly Order No. 1,232, dated Oct. 10th, 1918.

FLYING EXHIBITIONS.

Mr. JOYNSON-HICKS asked the Under Secretary of State to the Air Ministry whether any, and, if so, what arrangements are being made for flying exhibitions by members of the Royal Air Force in connection with Peace or other celebrations.

Major-Gen. SEELY : No special exhibitions by Royal Air Force machines are being arranged for. All available machines are already demonstrating on behalf of the "Victory Loan." I think that this is the most useful way of celebrating Peace at the present time

WEEK-END LEAVE.

Major-Gen. SEELY, replying to a question asked by Mr Campbell if the officer commanding No. 10 Group, R.A.F., has issued an order suspending week-end leave, said : Week-end leave has not been stopped. The pre-war practice of granting week-end leave from Saturday midday to Sunday night has been reintroduced. At the same time it has been found possible to restore the practice prevailing before the war of observing general holidays and the giving of extended leave so far as the exigencies of the service permit

LADY SHORTHAND WRITERS (RIPON).

Mr. RENDALL asked the Under Secretary of State to the Air Ministry if he is aware that two lady shorthand-writers engaged at the R.A.F. Ripon depot in January, after five or six weeks' training in technical work, were discharged, although they volunteered to join the W.R.A.F., and that two other ladies requiring training were engaged; what reasons caused this change; and will he insist on an impartial inquiry into the chief section leader's conduct

Major-Gen. SEELY : I have not yet been able to trace the incident referred to, but further inquiries are being made both by the Air Ministry and the War Office, as the depot at Ripon is administered by that Department.

AIR NAVIGATION REGULATIONS.

Mr. JOYNSON-HICKS asked the Under Secretary of State to the Air Ministry whether any number of hours' solo flying is necessary before civilian pilots are licensed; and whether inquiries are being made regarding all crashes which occur in civilian flying.

Major-Gen. SEELY : (1) Tests required for civilian pilots are specified in the directions issued under Air Navigation Regulations, 1919. All pilots who have been licensed have had a large number of solo flying hours to their credit. (2) All possible inquiries are made. The question is being considered by a Committee dealing with points arising on the subject of the Air Navigation Regulations

* * *

The following oral answers were given on July 2nd :—

R.34 AIRSHIP.

Lieut.-Commander KENWORTHY asked the First Lord of the Admiralty if he will state the cost for construction of the R 34 type of airship, the cost of the housing-shed and extensions, the personnel required at the shed for handling, berthing, cleaning the airship, etc., the estimated total monthly cost of the airship when in commission, including pay of persons employed in ship and shed; how many of these airships are under construction; and whether work is being continued on them.

Dr. MACNAMARA : The cost of constructing an airship of R 34 type is approximately £350,000. The cost of the housing-shed at East Fortune, together with extensions and windscreens, is approximately £166,000. Fourteen officers and 400 men are required at the station for handling, berthing, cleaning airships, etc. The estimated total monthly cost of the airship when in commission depends on the distance flown. Taking as basis 8,000 nautical miles per month at a speed of 40 knots, it amounts to about £2,600 at current rates for cost of petrol, oil, and gas. This figure includes the wages of crew and also one-fourth the total pay of the personnel required for handling, etc., as this latter is adequate for maintaining four airships in commission No further airships of this class are under construction, but six of improved types have been ordered and are in varying stages of construction. Work upon them is being continued.

An HON. MEMBER : Can the right hon. gentleman say whether he has any news of the ship ?

Dr. MACNAMARA : I am sorry to say I have not.

Lieut.-Commander KENWORTHY : Will Peace make any difference to the programme ?

Dr. MACNAMARA : Speaking off-hand I should say no.

* * *

The following written answers were given on July 2nd :—

CANADIAN AIR FORCE.

Captain W. BENN asked the Under Secretary of State to the Air Ministry whether he is in a position to make any statement about the Canadian Air Force.

Major-Gen. SEELY : I understand the question is under the consideration of the Dominion Government, who will doubtless make their own announcement of policy in due course.

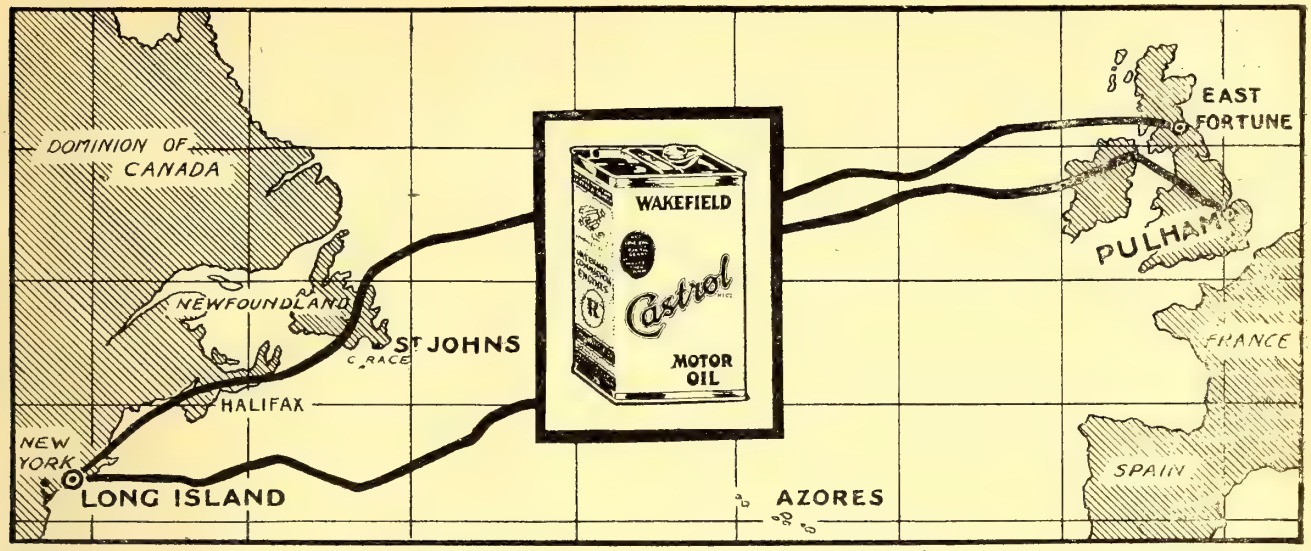
ROYAL AIR FORCE.—AEROPLANES (AUTOMATIC CONTROL).

Captain WEDGWOOD BENN asked the Under Secretary of State to the Air Ministry whether he can amplify the statement recently made by Mr. Baker, the United States of America Secretary for War, on the question of automatic control of aeroplanes.

Major-Gen. SEELY : I regret that I am not in a position to do so at the moment. I will have further investigation made and communicate with my hon. and gallant friend.

MARRIED QUARTERS.

Major-Gen. SEELY, replying to Major Lloyd-Greame, said : I realise that married officers and other ranks of the Royal Air Force are probably finding difficulties in obtaining suitable accommodation near aerodromes. Married quarters will eventually be provided at permanent stations, and in the meantime the possibility of making temporary use of suitable hutting accommodation where available is being investigated.



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WOMEN'S CORPS (RAILWAY WARRANTS).

Major-Gen. SEELY, replying to Mr. F. C. Thomson, said that, although concessions were made to the Army and Air Force with regard to leave being a public charge, they were not extended to the women's corps because of the difference in their conditions of service. The question of making similar concessions to the women's corps is now under consideration

* * *

The following oral answers were given on July 3rd :—

FLYING-BOAT CONTRACTS.

Mr. MACQUISTEN asked the Secretary to the Admiralty whether, at the outbreak of war, the Admiralty purchased a flying-boat of new and successful design, by Mr. Norman Thompson, built by Messrs. White and Thompson (subsequently renamed the Norman Thompson Flight Company in 1915), a pioneer firm, established in 1909; whether in 1915 the Admiralty placed an order with the Norman Thompson Flight Company for 10 flying-boats of such size that the firm were compelled to lay out considerable money in additional buildings to their existing works; whether for 12 months after these extensions were completed in May, 1916, the Government were aware that the firm were only able to work at about one-third full output owing to constant changes in design ordered by the Admiralty and shortage of orders, and, if so, whether he will explain why in the autumn of 1916 the Admiralty refused to allow the War Office to place orders with the firm.

Dr. MACNAMARA : With my hon. friend's permission I will circulate the answer in the "Official Report."

The following is the reply referred to :—

In August, 1914, the Admiralty requisitioned a seaplane from Messrs. White and Thompson. The seaplane was an improved form of the "Curtiss" single-engined flying-boat, of which Messrs. White and Thompson were sole concessionaires.

Trials of this machine were successful, and as a result of the trials the machine was purchased and six further machines were ordered. A further order for 10 "America" type seaplanes, to be fitted with engines to be supplied by the Admiralty, was placed with the firm in July, 1915, tender price being finally accepted Dec. 28th, 1915. An advance of 25 per cent. of the contract price was made with the acceptance of tender at firm's request, the firm stating that the greater part of the profits they might derive from the contract would be spent on new factory extensions and land which they were making arrangements to purchase. The firm did not state that such extensions were necessary on account of the size of the flying-boats.

Shortly after the order was placed it was decided to fit 140 horse-power instead of 100 horse-power engines in order to improve the performances of the machines. At this time the firm had in hand 18 S.38 type school aeroplanes; delivery of the last of these was made on June 7th, 1916. In July, 1916, an order for 20 F.B.A. flying-boats was placed with the firm. Various orders for spare parts were also in hand. In August, 1916, the War Office asked the Admiralty whether there was any objection to the firm's resources being utilised for supply of spare parts.

The 10 "America" and 20 F.B.A. flying-boats were then under construction, and it was under consideration to place an order for small flying-boats of the firm's own design, in which circumstances the War Office was informed that the Admiralty's orders would absorb the firm's whole output for some time.

Mr. MACQUISTEN asked the Parliamentary Secretary to the Ministry of Munitions whether a design of flying-boat by the Norman Thompson Flight Company, known as type N.T. 2 B, and officially adopted by the Air Ministry in April, 1918, as a standard naval instruction machine, was ordered in repetition from them and from other firms; whether, in June, 1917, the Air Board required the firm to increase their works for the production of one of their designs of flying-boats, type N.T. 4 A, and subsequently agreed to advance £20,000 for new buildings; whether, after placing considerable orders in the autumn of 1917 for N.T. 4 A flying-boats, the Air Board cancelled those orders in January, 1918, and gave no new orders until May, 1918, after the appointment of a receiver for the debenture holders; whether the Aircraft Finance Department of the Ministry of Munitions in October, 1918, refused the recommendation of the Lubbock Committee of the Treasury to pay off the debentures issued to Messrs. Cox and Company as security for advances and revest the control of the company in the directors; and, if so, whether he proposes to take any action in the matter ?

The FINANCIAL SECRETARY TO THE MINISTRY OF MUNITIONS (Mr. James Hope) : The answer to the first three parts of this question is in the affirmative. No such recommendation was ever made by the Lubbock Committee as is suggested in the fourth part of the question, and the fifth part does not accordingly arise.

Mr. MACQUISTEN : Will the hon. gentleman make an investigation into the whole transaction of the Admiralty with this particular company, and allow Mr. Thompson to appear before him ?

Mr. HOPE : Not on the information I have at present. If my hon. and learned friend will give me any more information, I shall be delighted to act upon it, but at present his premises, I think, are wrong.

Mr. MACQUISTEN : As the hon. gentleman's information is so meagre, will he take the steps I suggest, so as to get the necessary information ?

Mr. HOPE : I take it that it is for my hon. and learned friend to supply me with premises on which I can reasonably act.

ROYAL AIR FORCE.—TECHNICAL OFFICERS.

Sir F. HALL asked the Under Secretary of State to the Air Ministry if he can state what amount of technical pay, if any, it has been decided to award to technical officers in Class A of the Royal Air Force; whether the same is to be retrospective from Sept. 1st, 1918, and will include technical officers demobilised before the decision has been arrived at, and, if so, whether an officer who would thus be entitled to additional pay can claim the same together with gratuity based on the larger amount of pay ?

The UNDER SECRETARY OF STATE FOR AIR (Major-Gen Seely) : The whole question of pay is now under consideration, and I hope to be able to give further information in a short time. Perhaps the hon. and gallant gentleman will put down a question next week.

ATLANTIC FLIGHT (AIRSHIP R.34)

Captain W. BENN asked the Under Secretary of State to the Air Ministry whether he can make a statement about the Atlantic trip of the airship R 34

Major-Gen SEELY : His Majesty's airship R.34 left East Fortune, near Edinburgh, at 2.48 yesterday morning on an experimental cruise across the Atlantic. She is equipped with every known form of scientific instrument which it was considered would be of value for the trip. We are sure that much valuable information will be obtained as to the possibilities of air traffic across the Atlantic

All being well she will drop messages at Newfoundland and Halifax, and proceed to New York. I should like to acknowledge the great assistance given by the Admiralty in every respect to the Air Ministry, who are responsible for the flight.

His Majesty's ships "Tiger" and "Renown" are in the Atlantic sending and receiving wireless messages. At six o'clock this morning the airship was reported to be about 1,030 miles on her course, and 885 miles from St. John's. The weather reports are very favourable, and it is hoped that she will soon get a following wind.

I may add that what weighed with us most in deciding to attempt this flight was the hope of thereby making still closer the ties between this country and America

* * *

The following written answers were given on July 3rd :—

ROYAL AIR FORCE (BADGES).

Lieut.-Colonel ARCHER-SHEE asked the Secretary of State for War whether officers who have qualified as pilots or observers during the war, and have served in that capacity at the front, are entitled to wear wings on their uniform if since transferred to a line regiment.

Mr. CHURCHILL : Badges of the Royal Air Force may not be worn by Army officers after return to Army duty with their units. A notification to this effect was issued in Army Council Instruction 1,110, of 1918.

CELLULOSE ACETATE.

Lieut.-Colonel THORNE asked (1) the Secretary of State for War the names of the firms referred to on page 5 of the Fifth Report of the Select Committee on National Expenditure who were invited to tender in July, 1915, for supplies of cellulose acetate and what was the reason for refusing to send a tender form to the Cellon Company, of London, and who was the person responsible, and his name, who thus refused permission to an English company and invited tenders from a firm of neutrals adjacent to enemy territory, the Cellonit Gesellschaft Dreyfus, of Basle, who were advertising their wares in the enemy Press; and was the Department aware of this firm's advertisements in the "Chemiker Zeitung" when they invited them to tender; and (2) the Parliamentary Secretary to the Ministry of Munitions the reason why in March, 1918, his Department made an Order forbidding the importation of cellulose acetate as indicated in the Fifth Report of the Select Committee on National Expenditure, in view of the fact that all that which was being produced in this country was pronounced to be defective; will he state the names of the contractors who carried out the erection and extension of the British Cellulose Company's work at Spondon, Derby; and whether this was a contract between the Ministry of Munitions and the builders or the British Cellulose Company and the builders ?

Mr. KELLAWAY : I will reply to these questions at the same time. A Committee appointed by the Government is examining this question, and, as was stated by the Leader of the House on July 1st, it is hoped that their report will be ready by the end of the month. In these circumstances I do not think it would be desirable to make any statement at present.

* * *

The following oral answer was given on July 7th :—

NAVY, ARMY AND AIR FORCES (ESTIMATES).

Sir DONALD MACLEAN asked the Lord Privy Seal when he proposes to re-introduce the Estimates for the Navy, Army, and Air Forces in accordance with his promise ?

Mr. BONAR LAW : My right hon. friend is mistaken in saying that I gave any promise that new Estimates would be introduced, though I said that the suggestion would be considered. I did say, however, that I thought there ought to be a discussion of the whole subject in the House when we revert to a peace footing, but I do not think that the time has yet come when it would be useful to have that discussion.

* * *

The following written answer was given on July 7th.

IRELAND, MILITARY AND AIR FORCES.

Mr. MACPHERSON, the Chief Secretary for Ireland, replying to Lieut.-Col. Malone, said that it is not proposed to withdraw the Army of Occupation from Ireland.

Mr. CHURCHILL (the Secretary of State for War), replying to Lieut.-Col. Malone said that there were 59,529 Army and 1,789 Air Force officers and other ranks now stationed in Ireland.

* * *

The following oral answer was given on July 8th :—

CANTEEN FUNDS (DISTRIBUTION).

Mr. FORSTER (the Financial Secretary to the War Office), replying to Major Glyn, said that the details of the grants from canteens funds are too lengthy to be given in answer to a question, but he would arrange for them to be published in the Official Report

According to the Official Report, a grant of £2,000 was made by the Central Regimental Fund to the Hospital for Officers, Royal Air Force, in 1917.

* * *

The following oral answers were given on July 9th :—

RIGID AIRSHIPS.

Lieut.-Commander KENWORTHY asked the First Lord of the Admiralty what will be the total cost of the six rigid airships of an improved type now under construction for the Navy; whether the signature of Peace will enable the building of some or all of these expensive airships to be postponed; and, if not, why is there no difference between the War and Peace airship programme.

Mr. LONG : The estimated total cost of the six rigid airships is £2,200,000. The rigid airship programme was thoroughly revised shortly after the Armistice was signed, and was reduced as far as is consistent with the Peace requirements of the Navy, and with the necessary development of the Airship service. No further reduction is at present contemplated. It should be noted that the six airships are not, as implied in the question, of a single type, but of several types, representing successive stages of development.

Captain WEDGWOOD BENN : Is it proposed to hand over the construction of the lighter-than-air-craft to the Air Ministry; and, if so, when ?

Mr. LONG : That does not arise on this question at all.

Lieut.-Commander KENWORTHY : Is it not to be taken into consideration, in the interests of scientific experiment, at any rate, to postpone this building and the expenditure of this money until a later date, and until we have had more experience of this kind of vessel ?

Mr. LONG : Those questions have already been taken into consideration by the Board of Admiralty in arriving at their decision.

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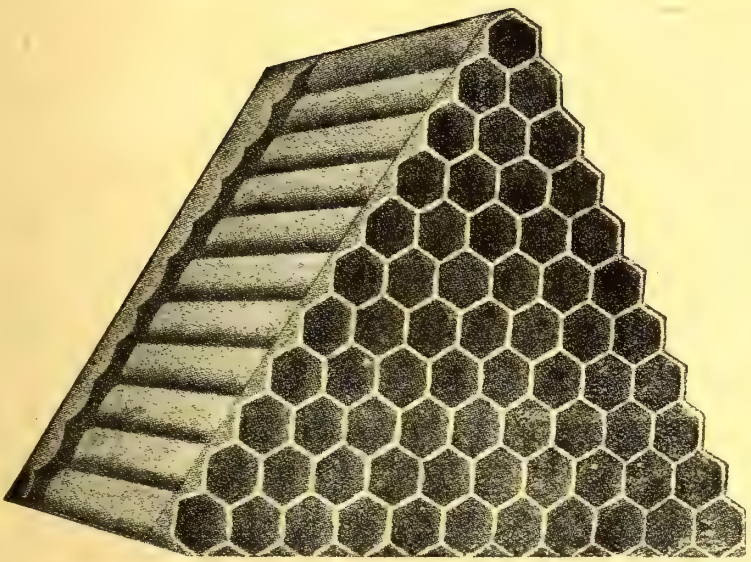

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VICTORY

MEETING

Saturday Next, July 19th, 1919

(3.30 P.M.) AT THE

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A PILOT IN THE DOCK. —*(continued.)*

By "THE LINCOLN IMP."

This article was begun as long ago as May 21st, but the Air Regulations have taken up so much of the Imp's time that the sequel has been postponed until now. It is therefore necessary to refresh your memories by "harking back" to the definitions previously laid down.

Culpable Homicide.

Homicide is the killing of one man by another. Unless evidence is given that such killing was justifiable or excusable it is culpable homicide. Culpable homicide done by malice aforethought is murder; if done without malice it is manslaughter. "Malice" has here a technical meaning, and since the Indictments Act, 1915, need not even be alleged in the indictment, but to establish murder it is still necessary to prove that the killing was the result of an act done wilfully and without lawful excuse, the known or obvious consequence of which was the injury of another.

Manslaughter.

Manslaughter is a culpable homicide not done of malice aforethought. Thus a pilot who dived on a crowd for sport or to frighten the people in the erroneous belief that he could avoid all hurt to any of them would be guilty of manslaughter. And, moreover, "if a person whilst doing or attempting to do another act undesignedly kills a man—if the act intended or attempted were a felony, the killing is murder; if unlawful, but not amounting to felony, the killing is manslaughter; if lawful, homicide by misadventure merely." (Archbold, 25th ed., p. 852.)

The Sleaford Case.

In the case recently tried before Shearman, J., at the Lincoln Assizes, the undisputed facts were that two officers being driven in a trap on the high road were killed by an aeroplane piloted by the accused, who was before the Court on a charge of manslaughter.

It was not suggested that the pilot intentionally dived at the trap; much less that the pilot had any intention of doing any injury to anyone, in which case the charge would have been murder; the charge of manslaughter was based on the contention that the pilot was doing an unlawful act in flying low over the high road in breach of the R.A.F. regulations, or, alternatively, that he was culpably negligent in doing the lawful act of flying. By the way, no one seems to have suggested that the *usque ad cœlum* doctrine applied and made him a trespasser on the highway! The jury acquitted the accused.

Importance of the Case.

The Imp has as yet seen no technical report of the case, but from the newspaper account it would seem that there was no evidence tendered of negligent piloting, and the jury rightly acquitted on this head. The breach of R.A.F. regulations would seem to have been admittedly proved, so that the finding of the jury necessarily involves that the R.A.F. regulation against low flying is not part and parcel of the ordinary law of the land.

If it is law, its breach was unlawful but not felonious, and in committing the breach the pilot had *un*designedly killed a man and had therefore committed manslaughter according to Archbold's definition which the Imp has just quoted. There are good grounds for the jury's finding inasmuch as Service Regulations are not always drafted with such skill and care that their wording can safely be allowed to make a criminal out of a pilot who but for that wording would be innocent of crime, though guilty of a breach of Service Regulations.

The Air Regulations.

The Air Regulations, 1919, it will be remembered, are made by order of the Secretary of State under the express authority of Parliament. They are therefore part and parcel of the law of the land. Under the heading "General Safety Provisions" Regulation 5 (2) provides: "No person in any aircraft shall . . . (c) carry out any flying which by reason of low altitude or proximity to persons is dangerous to public safety." Suppose, then, that on the trial for manslaughter of a pilot who had undesignedly killed a man by low flying the jury found that (a) he was not negligent in flying low, but (b) he had contravened Regulation 5 (2) (c).

As matter of law, is this a finding of manslaughter? "Yes," you say, "if it is right that contravention of the regulation is an unlawful act in the doing of which the pilot undesignedly killed the man. This falls within the exact wording of the definition of manslaughter you have quoted." True, but wait a bit. A penalty is laid down for contravention of the Regulations—six months' imprisonment or a £200 fine or both. Surely (it will some day be argued) the draftsman did not intend to incorporate by implication the penalty for manslaughter as well? Surely the statutory penalty is the only one?

See the absurdity of any other construction. A pilot's engine cuts out. He has to fly low over a crowd to land on the far side and without negligence he kills one of them. This is a contravention of Reg. 5 (2) (c), and according to your contention is also an unlawful fact. To any proceedings for contravention it will be a good defence to prove that the contravention was due to the engine cutting out as its unavoidable cause (Reg. 10 (1)). But according to your argument, though defensible, it is still an unlawful act and consequently manslaughter! This is one of the endless questions of interpretation which the Regulations are destined to raise in the future.

THE COMPANIES (CONSOLIDATION) ACTS, 1908—1917.

IN THE MATTER OF

The Norman Thompson Flight Company, Limited.

(In Voluntary Liquidation.)

Pursuant to Section 188 of the Companies (Consolidation) Act, 1908, Notice is hereby given that a meeting of the creditors of the above named Company will be held at the Hall of the Institute of Chartered Accountants, Moorgate Place, Moorgate Street, London, E.C.2, at 2.30 p.m., on Monday, the 28th July, 1919.

Notice is also hereby given that the creditors of the above named Company are required, on or before the 22nd July, 1919, to send in their names and addresses and particulars of their debts and claims to W. R. Clemens of Aldermans' House. Aldermans' Walk, Bishopsgate, London, E.C.2., one of the Liquidators of the Company, and, if so required by notice in writing from the said Liquidator, are, by their solicitors or personally, to come in and prove their debts or claims, at such time and place as shall be specified in such notice, or in default thereof they will be excluded from the benefit of any distribution made before such debts are proved.

Dated this 15th day of July, 1919.

H. J. MORLAND, F.C.A.
W. R. CLEMENS, A.C.A.
Joint Liquidators of the Company.

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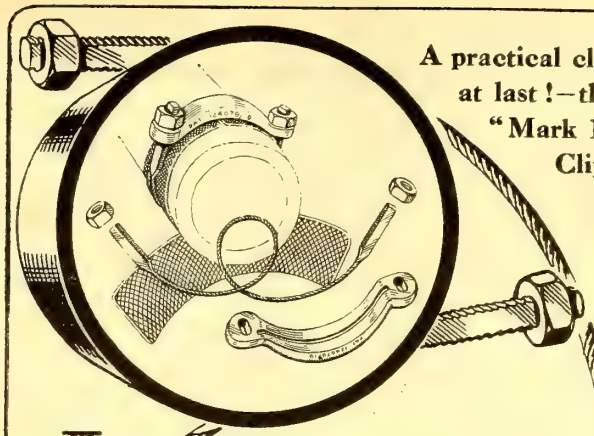

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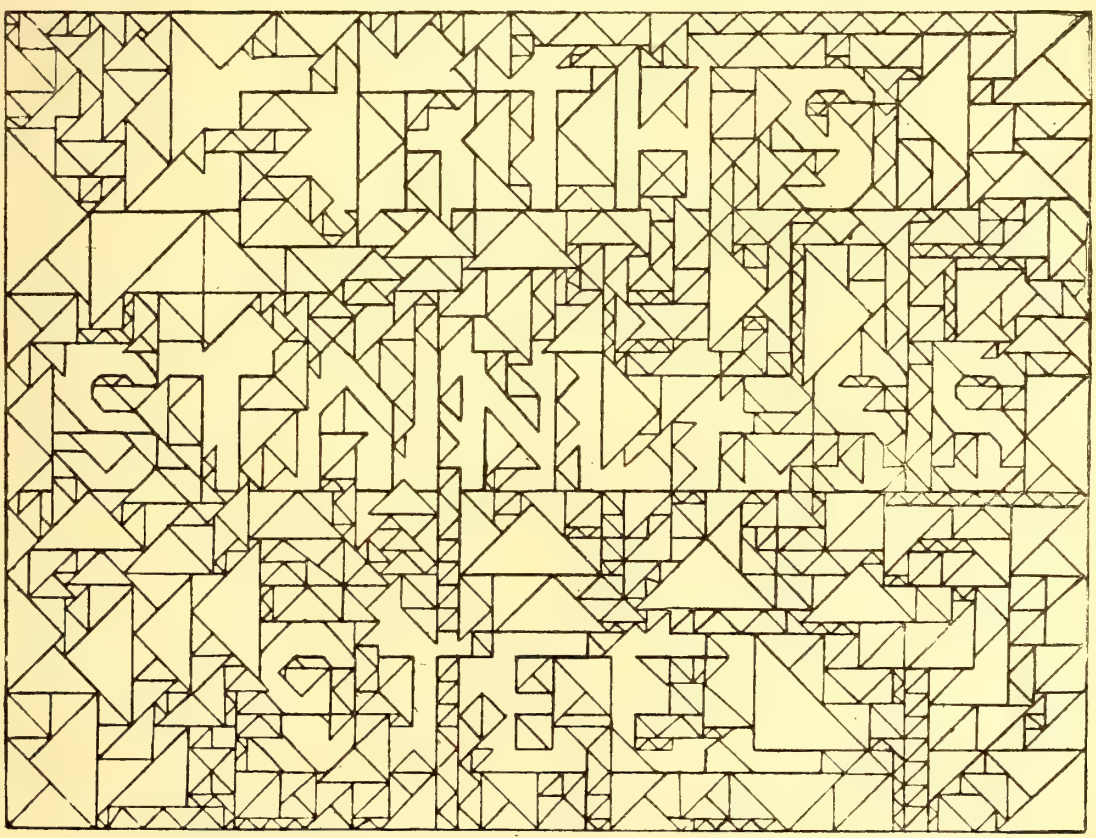

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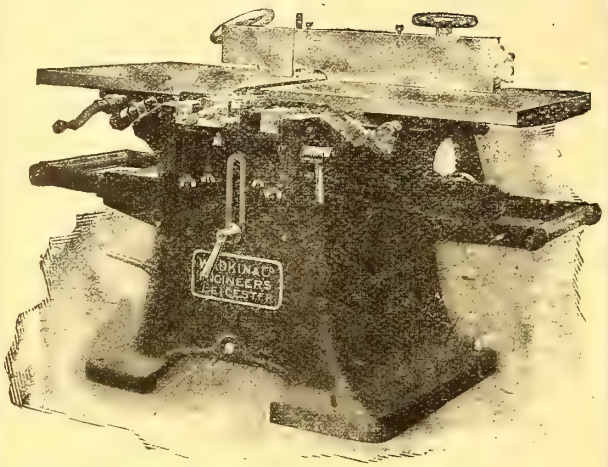

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NAVAL & MILITARY AERONAUTICS

GREAT BRITAIN.

FROM THE COURT CIRCULAR.

BUCKINGHAM PALACE, July 10th.

The following officer was introduced into the presence of the King, when His Majesty invested him with the Insignia of the Most Honourable Order of the Bath (Companion, Military Division) :—Major-Gen. Tom Webb-Bowen, R.A.F.

His Majesty then conferred decorations as follows :—

THE MILITARY CROSS.—Capt. Charles Banks, R.A.F.; Capt Erroll Mauduit, K.R.R.C., attd. R.A.F.; Capt. Ronald Mauduit, Dragoon Gds., attd. R.A.F.; Lt. Albert Robertson, Aust. F.C.

BUCKINGHAM PALACE, July 12th.

The following were severally introduced into the presence of the King, when His Majesty invested them with the Insignia of the respective Divisions of the Orders into which they have been admitted :—

THE MOST DISTINGUISHED ORDER OF SAINT MICHAEL AND SAINT GEORGE.—Companion.—Lt.-Col. Henry Smyth-Osbourne, R.A.F.

THE DISTINGUISHED SERVICE ORDER.—Maj. Francis Feeney, R.A.F.

THE MOST EXCELLENT ORDER OF THE BRITISH EMPIRE.—Officers (Military Division).—Lt.-Col. Reuben Farley, R.A.F.; Lt.-Col. John Rubie, R.A.F.; and Maj. Charles Bell, R.A.F.

Member (Military Division).—Capt. William Bowring, R.A.F.

NAVAL.

ADMIRALTY, July 12th.

The King has been pleased to approve of the award of the following decoration to the following officer :—

DISTINGUISHED SERVICE CROSS.

Paymr. Lt. (now actg. Paymr. Lt.-Comdr.) H. G. Badger, R.N.—For distinguished services as observer in one of the seaplanes employed on spotting duties during the attack on the German cruiser "Königsberg" on July 6th and 11th, 1915.

ADMIRALTY APPOINTMENTS.

The following appointments have been made :—

JULY 11th.—Eng. Comdr.—W. W. Newton, to "Argus," July 10th.

JULY 14th.—Comdr.—C. V. Robinson, to "Empress," in command, July 12th.

R.N.R.—Paymr. Sub-Lt. (temp.).—H G. Swanwick, to "Empress," June 28th.

* * *

On July 11th two Naval F.5 flying-boats (two 350 h.p. Rolls-Royce engines) left Felixstowe for Dundee, this being the first stage of a nine days' flight to Scandinavia and back. The boats belong to No. 4 Communication Squadron, and each one carries a crew of five, including a wireless operator.

Owing to thick fog one of the boats was forced to land at Orford Bay, Suffolk, on July 11th, but proceeded to Dundee the following day.

The route will be *via* Dundee to Christiansand, Christiania, Copenhagen, Stockholm *via* the Baltic Coast, Goteborg (direct route *via* Lydkoping and Nonkoping), Esbjerg, and so back to Felixstowe, covering a total distance of 2,380 miles.

The meteorological authorities in the three countries concerned have arranged to forward to the stopping points daily reports and forecasts of weather conditions.

* * *

On July 7th H.M.A. R.33 started from Pulham, Norfolk, on a flight of 900 miles. During the flight she passed over Nottingham, Grantham, Peterborough, and Norwich, and returned to Pulham on July 8th, the flight having been accomplished in 31 hours.

H.M.A. R.33 will shortly fly from the Naval Airship Station at Howden, East Yorks, to India. The journey will take from 15 to 20 days, and stops will be made at towns (unnamed) in France and Switzerland, and at Rome and Cairo.

Twenty-two tons of petrol will be carried, the distance being roughly estimated at 6,000 miles. The gunner's seat in the tail of the airship will be used for meteorological work and for observation.

The ship is expected to leave Pulham shortly for Howden.

* * *

The officers and crew of Seaplane 8663 claimed in the Prize Court on July 14th for prize bounty for the destruction of U.C.36. Mr. Wilfred Lewis appeared on behalf of the claimants.

In this case it appeared from the affidavit of Captain Henry George Boswell, D.S.C., R.A.F., that on May 20th, 1917, he was in command, jointly with Captain Charles Reginald Morrish, D.S.C., R.A.F., of H.M. Seaplane 8663, and he sighted an enemy submarine 20 miles E.N.E. of the North Hinder Lightship in the North Sea.

The seaplane attacked the submarine with bombs, two of which struck her, and she sank by the stern. There were no survivors. The submarine had been ascertained to be the U.C.36, manned by 25 hands.

Mr. T. H. T. Case, on behalf of the Procurator-General, said that the claims were not opposed.

The President granted declarations that the following amount of prize bounty was payable to the Seaplane 8663, namely, £125.

MILITARY.

FROM THE "LONDON GAZETTE."

WAR OFFICE, July 7th

REGULAR FORCES.—COMMANDS AND STAFF.—HDQRS. OF ADMIN. SERVS AND DEPTS.—The following relinquish their temp. appts. :—Mil Counsellor (graded for purposes of pay as a G.O.C in C., 2nd Class, without allces.).—Lt.-Gen Sir D. Henderson, K.C.B., K.C.V.O., D.S.O., June 14th

WAR OFFICE, July 8th.

REGULAR FORCES.—INFANTRY.—RIF. BRIG.—Capt. W. J. C. Kennedy-Cochran-Patrick, D.S.O., M.C. (attd. R.A.F.), resigns his commn., July 9th.

MEMORANDUM.—To be temp. Sec. Lt. :—Actg. Serjt. G. H .Godwin, R.A.F., for duty as an Officer Instr., June 29th.

WAR OFFICE, July 9th.

REGULAR FORCES.—ARMY MEDICAL SERVICE.—The following temp. Capt. relinquishes his commn. :—H. Greenwood, on transfer to R.A.F., Oct. 1st, 1918.

WAR OFFICE, July 10th.

REGULAR FORCES.—OVERSEAS FORCES.—CANADA.—CAN. AIR FORCE.—Temp. Capt. (actg. Lt.-Col.) G. C. St. P. de Dombasle, from Nova Scotia R., to be temp. Lt.-Col., and to remain secd., Feb. 28th.

WAR OFFICE, July 11th.

REGULAR FORCES.—INFANTRY.—9th Bn. Royal Scots.—Sec. Lt. (Lt., R.A.F.) A. Henderson to be Lt., and to remain secd., Sept. 28th, 1918.

OVERSEAS FORCES.—CANADA.—MEMORANDUM.—Temp. Lt.-Col. (temp. Brig.-Gen.) A. C. Critchley, C.M.G., D.S.O. (Can. Cav.), ceases to be secd. for duty with the R.A.F., May 31st.

WAR OFFICE, July 12th.

REGULAR FORCES.—INFANTRY.—SERVICE BATTALIONS.—R. WAR. R.—Temp. Lt. V. W. Thompson (14th Bn.) to be atg. Capt. while comdg. No. 12 Anti-Aircraft Co., Feb. 4th.

* * *

The following communiqué was issued by the War Office on July 8th :—

Tsaritsin-Saratov Front.—Tsaritsin was taken on June 30th by Denikin after fierce fighting; tanks and aeroplanes co-operated.

The following communiqué was issued at Simla on July 8th :—

Aeroplanes from Chaman report a certain amount of movement among Abdul Qudo's troops and tribesmen within the Afghan limits, who are concentrating west of the Bogra Pass, probably on account of the water there.

The following communiqué was issued at Simla on July 9th :—

A letter from the Amir of Afghanistan dated June 29th was received at Simla yesterday, in which he enters into a long dissertation on the one-sided character of the Armistice terms and the impossibility of their literal observance.

He also considers it advisable that we should forgo the free movement of aeroplanes over Afghan territory, which, he states, will inevitably provoke the Afghans to fire upon them, in spite of strict prohibition, which would result in our retaliation, leading to a breach of the Armistice.

* * *

It was reported from Chaman that on July 9th British aeroplanes bombed some tribesmen near the Bogra Pass.

* * *

Apropos the photograph which appeared in THE AEROPLANE recently of a Bristol monoplane crossing the Andes, a correspondent writes saying that the sight of the machine recalls happy memories of Bolo muddling. Apparently, 12 of these Bristol monoplanes were sent to Chile as part payment for a battleship. It is alleged that these particular machines were stored in the Royal Enclosure at Ascot for many months until the Authorities decided that something ought to be done with them. One day instructions arrived that they were to be stripped of all useful accessories prior to "reduction to produce." Consequently, Vickers guns, pressure pumps, instruments and so forth were removed. Six months later still nothing had happened and the fuselages were hidden by cobwebs and dust.

Then one day instructions were issued for six of the machines to be sent to the School of Aerial Gunnery at Marske and the others to Montrose. The various accessories which had been removed were replaced hastily and the machines were dispatched. A few days afterwards they were returned to Ascot, and the only explanation given was that the pilots at this Station at the time did not like monoplanes, though, as a matter of fact, the Bristol had been proved to be an extraordinarily fine fighting machine.

Later, again, the machines were sent for another and equally futile journey, and, finally, it was decided to send them to Chile, after adapting them to take 110 h.p. Le Rhône engines.

It would be interesting to know whether the machines which actually got to Chile were those which showed such curious

homing proclivities. Should they be so, one would be surprised to learn that two of the machines succeeded in crossing the Andes after thus being bandied about in England if one did not know the excellence of the design and workmanship of the Bristol firm. If, in fact, the Chilian machines are actually the Ascot machines we have here another splendid testimonial to the Bristol Company.

* * *

The following highly coloured story was issued recently by the Air Ministry. The Aeroplane disclaims all responsibility :—

A remarkable tribute to the stability of the British aeroplane comes from India in the form of a story of an airman's race from Amballa to Simla against heavy dust and thunder storms. Major H. A. Tweedie, Australian Flying Corps, flying a Sopwith "Camel," left Amballa for Simla. Visibility was so poor, that at a height of only 6,000 feet it was impossible to see a spot five miles distant, and more extraordinary still no hills were visible. Flying by compass, Major Tweedie bore north-east into the clouds at 7,500 feet and again climbing failed to get above the clouds.

He then made up his mind that it was practically useless to carry on, but looking around he found nothing could be seen; a dense fog and ominous indications of a severe duststorm were creeping up behind. Climbing still higher Major Tweedie observed that the storm was getting nearer and nearer. He says he could not make up his mind which would reach Simla first. Hoping against hope that he could race the storm he climbed his machine to 10,000 feet, and was relieved to see the Simla hills in front of him.

In order to approach the aerodrome it was necessary to come down into a cup in the hills. The moment he throttled down, however, the machine became unmanageable owing to the bumps due to the thunderstorm overhead. Eventually, compelled to approach the ground "down wind" owing to the storm, he was lucky enough to make the dangerous approach of about 300 feet deep and only accessible from one end. Jumping a wall between trees fifteen feet higher the pilot made the landing just as the storm broke. So severe was it that within a quarter of an hour there were over twenty holes in the fabric of the planes caused by hailstones larger than pigeons' eggs.

The arrival of the machine at Simla created a great impression, particularly amongst the natives, who saw an aeroplane for the first time.

* * *

Messrs. Robinson and Cleaver have put in a claim to the Royal Commission on Awards to Inventors in respect of suits for aviators. The claim was heard on July 14th, and the Commission reserved their decision.

AIR FORCE.

From the "London Gazette."

Air Ministry, July 8th.

R.A.F.—The following temp. appts are made at the Air Ministry.—Staff Officers, 3rd Class (Air).—Capt. R. G. Parry, D.S.O., July 4th, 1918 (substituted for notification in "Gazette," Oct. 18th, 1918)

Staff Officers, 4th Class (T.).—Lt. S. J. Furse, Sept. 14th, 1918.

The notification in "Gazette," June 20th, concerning Capt. W. A. A. Chauncy is cancelled.

Flying Branch.—Maj. F. W. Lucas, O.B.E., to be actg. Lt.-Col. (A'ship) while specially empld., May 26th.

Capt. W. H. Mackenzie to be actg. Maj. while empld. as Maj. (A. and S.), May 1st.

Sec. Lt. C. W. Sutcliffe to be Sec. Lt. (A.), from (Ad.), April 8th.

P.F.O. G. L. Barrett (late R.N.A.S.) is granted a temp. commn. as Sec. Lt. (K.B.), May 16th, 1918 (substituted for notification in "Gazette," July 9th, 1918).

D. J. Stewart (temp. Sec. Lt., R.E.) is granted a temp. commn. as Sec. Lt. (O.), April 24th, 1918.

Sec. Lt. G. A. Lynch (Sec. Lt., Yorks L.I.) is granted a temp. commn. as Sec. Lt. (O.), Aug. 8th, 1918.

The following relinquish their commns. on ceasing to be empld. :—Sec. Lt. R. Smith, Oct. 9th, 1918, and is granted hon. rank of Sec. Lt. (substituted for notification in "Gazette," Oct. 18th, 1918); Lt. D. Leeson (Capt., Brit. Col. R.), Nov. 19th, 1918; Lt. F. J. Simpson (Lt., Brit. Col. R.), Dec. 18th, 1918 (substituted for notification in "Gazette" June 6th); Sec. Lt. (Hon. Lt.) A. L. G. Price (Somerset L.I.), Jan. 25th; Lt. A. Gibson (Lt., Sask. R.), Feb 19th; Sec. Lt. W. R. Hudson (Lt., Manitoba R.), March 10th; Lt. G. E. Leishman (Lt., Cent. Ont. R.), March 31st; Sec. Lt. A. E. White, M.C. (Lt., Can. Rly. Servs.), April 8th; Lt. J. P. Francis (Lt., Can. Hrs.), April 14th; Sec. Lt. (Hon. Lt.) G. W. Browne (Lt., Manitoba R.), April 22nd; Lt. W. J. Gillespie (Lt., E. Ont. R.), April 30th; Lt. G. E. Lucas (Lt., W. Ont. R.), Lt. D. R. Smith (Lt., Quebec R.), May 4th; Lt. D. R. McLaren, D.S.O., M.C., D.F.C., May 14th; Lt. J. E. Price (Lt., Sask. R.), May 16th; Sec. Lt. (Hon. Lt.) H. Symons (Lt., Herts R., T.F.), May 23rd; Lt.-Col. A. C. Critchley, C.M.G., D.S.O. (Lt.-Col., temp. Brig.-Gen., Lord Strathcona's Horse), May 31st; Lt. H. F. Moore (Lt., Manitoba R.), June 10th; Capt. R. T. Van-Der-Byl (Lt., temp. Capt., Brit. Col. R.), June 23rd; Lt. R. H. Luxton (Lt., Can. F. Art.), June 27th; Lt. A. H. Hinton (Lt., Can. F. Art.), June 28th.

Transfd. to unempld. list :—Sec. Lt. J. MacDonald, Feb. 6th; Capt. J. H. N. Drope, Feb. 11th; Sec. Lt. J. L. Brown, Feb. 15th; Sec. Lt. R. J. Palmer, Feb 19th; Sec. Lt. F. D. Butcher, Feb. 21st (substituted for notification in "Gazette" of April 1st); Sec. Lt. H. Cooper, March 6th; Sec. Lt. G. W. Dyson, March 13th; Lt. W. E. Cowan, March 24th; Lt. A. H. Wallace, March 27th; Lt. J. E. De Watteville, March 30th; Lt. J. T. Morgan, March 31st; Lt. R. J. Dawes, D.F.C., Sec. Lt. W. G. Watson, April 1st; Sec. Lt. W. McL. Hirons, April 3rd; Lt. H. Hadley, April 4th; Lt. E. B. Hamel, April 5th; Lt. H. G. Herbert, April 8th; Lt. T. M. Nicholl-Carne, April 9th; Sec. Lt. (Hon. Lt.) H. B. Hampson, April 10th; Sec. Lt. A. J. Hiff, Sec. Lt. L. C. Hillman, Capt. O. Hook, April 11th; Sec. Lt. (Hon. Lt.) D. G. O. Hepworth, April 12th; Lt. M. O. Haskell, D.F.C., Lt. H. Hiley, Sec. Lt. A. E. Walsh, Sec. Lt. C. Watson, April 13th; Lt. G. T. Dunstan, April 14th; Lt. D. M. Hambly, Sec. Lt. D. G. Higgins, Sec. Lt. E. A. D. Watmouth, April 15th; Sec. Lt. W. S. Eastaugh, Sec. Lt. J. J. Haslett, April 16th; Lt. G. H. Halls, Sec. Lt. S. H. Hamblin, Sec. Lt. (Hon. Lt.) G. G. Harris, April 17th; Lt. P. A. de Escofet, Sec. Lt. W. A. Hall, April 18th; Sec. Lt. J. Bill, Sec. Lt. M. A. Dixon, Lt. D. L. Helliwell, Sec. Lt. E. H. Henson, April 19th; Lt. J. R. O'Connell, April 20th; Sec. Lt. W. S. Hedley, April 22nd; Lt. E. R. Watson, April 24th; Sec. Lt. L. M. Hall, Sec. Lt. M. E. V. Hill, Lt. G. N. Smith, April 25th; Sec. Lt. (Hon. Lt.) H. H. Warren, April 30th; Sec. Lt. E. C. Cross, Capt. H. R. C. Dewes, Sec. Lt. D. Walker, Sec. Lt. M. A. Watts, May 1st; Sec. Lt. J. G. Hayes, Sec. Lt. H. Waddington, May 6th; Sec. Lt. O. D. E. Hillsdon, May 7th; Lt. E. D. Hall, May 8th; Lt. F. J. B. Hammersley, May 9th; Sec. Lt. M. S. Hale, Lt. E. W. Walls, Lt. J. W. Wathers, May 10th; Lt. R. N. Haile, Sec. Lt. H. E. Wase, May 14th; Sec. Lt. C. H. Hempel, Sec. Lt. J. E. Watts, May 15th; Lt. S. H. Wallace, May 18th; Lt. W. B. Henderson, Sec. Lt. W. C. Henry, Sec. Lt. F. P. Walker, May 20th; Lt. H. L. W. Hancock, Lt. R. M. Williams, May 21st; Sec. Lt. H. L. Herman, May 22nd; Sec. Lt. C. T. Halliday, Lt. H. Hamer, May 23rd; Lt. F. J. Hansell, Sec. Lt. (Hon. Lt.) C. T. Wakeford, May 25th; Sec. Lt. J. McDonald, Sec. Lt. J. O. Waddington, May 26th; Sec. Lt. J. A. Hannigan, Sec. Lt. G. W. Heslam, Sec. Lt. R. C. Wackett, Lt. A. E. Ward, Sec. Lt. V. A. J. Wagstaff, Lt. E. L. Walters, May 28th; Sec. Lt. J. W. Hartley, Sec. Lt. V. Heller, May 29th; Lt. W. F. Williamson, Sec. Lt. N. S. Watt, May 30th; Sec. Lt. N. M. Harrison, Lt. E. G. Hayes, Sec. Lt. G. O. Parker, Lt. I. W. Parnell, Capt. A. Payze, May 31st; Lt. R. Done, Lt. T. H. Hampshire, Lt. H. S. Notley, June 1st; Sec. Lt. R. K. Harvey, Sec. Lt. B. G. Wattmough, Lt. W. W. Waterson, June 2nd; Capt. H. B. T. Hawkins, Lt. N. Parkinson, Capt. H. S. Paynter, Lt. (Hon. Capt.) G. C. Wall, June 3rd; Sec. Lt. J. Cumming, Lt. G. W. Hawkins, M.C., Capt. B. W. Hemsley, Lt. H. W. Hewett, June 4th; Sec. Lt. L. Badger, Lt. C. H. Biddlecombe, Lt. G. E. Cooper (R.G.A.), June 5th; Maj. E. T. Newton Clare, D.S.O., Sec. Lt. C. R. Palmear, June 6th; Sec. Lt. F. E. L. Elliott (R.A.), Lt. L. W. Heath, Sec. Lt. C. A. White, June 7th; Lt. E. Harling, June 8th; Lt. S. E. Faber, A.F.C., Sec. Lt. R. Hacking, Sec. Lt. O. T. Hazell, Sec. Lt. J. Helingoe, Sec. Lt. C. F. Hull, June 10th; Lt. S. G. Budgett, Lt. G. H. Heaton, Lt. G. B. Hett, D.F.C., Lt. H. Wesley-Segui, Lt. C. F. Whistance, June 11th; Sec. Lt. (Hon. Capt.) J. Hewitt, Lt. L. R. Heywood, Sec. Lt. R. E. Hudson, June 12th; Sec. Lt. A. S. Cameron, Sec. Lt. R. W. Drewett (Lond. R.), Sec. Lt. H. J. Ewan, Lt. H. T. Hammond, Sec. Lt. A. G. Harrison, Sec. Lt. A. E. Heath, Sec. Lt. R. V. N. Makepeace, Lt. T. W. Mansell, Sec. Lt. R. R. Martin, Sec. Lt. S. Max, Lt. W. J. N. Morrisby, Lt. M. Munden, Sec. Lt. J. M. Neall, Sec. Lt. L. D. H. Nel, Lt. E. Osborne, Sec. Lt. G. H. Pascal, Sec. Lt. B. Pemberton, Sec. Lt. G. E. Watson, June 13th; Sec. Lt. R. S. Hancock, Sec. Lt. V. F. Hardy, Sec. Lt. (Hon. Lt.) C. P. Harrison, M.C., Sec. Lt. J. A. Hart, Sec. Lt. A. R. Hartley, Sec. Lt. P. S. Henderson, Sec. Lt. J. E. Neilson, June 14th; Lt. A. R. Metelerkamp, June 15th; Lt. S. D. Chard, Sec. Lt. E. H. Halley, June 16th; Sec. Lt. J. L. Ure, Sec. Lt. C. R. Wakefield, June 17th; Sec. Lt. C. A. Chaplin (R.F.A.), Sec. Lt. D. E. Haighton, Lt. W. Hallitt, June 18th; Lt. A. I. Birnie, June 19th; Sec. Lt. W. B. Crouch, Capt. E. P. Hardman, Lt. S. C. Howes, Lt. B. W. Smyth-Pigott, M.C., June 20th; Sec. Lt. F. Fletcher, Sec. Lt. C. B. Hales, Sec. Lt. J. F. Higgins, Sec. Lt. J. J. Melvill, Lt. J. Wood, June 21st; Sec. Lt. J. W. Hammond, June 22nd; Sec. Lt. A. Cairnie, June 24th; Capt. A. H. H. Gilligan, A.F.C., Lt. A. Hepburn, June 25th; Sec. Lt. W. H. Gladwin, Sec. Lt. T. Hall, Lt. H. R. Owen, June 26th; Sec. Lt. H. W. Atherton, Lt. E. P. Fletcher (R.F.A.), Lt. H. D. Hamilton, Sec. Lt. H. A. Myott, Lt. V. S. Parker, June 27th; Sec. Lt. J. T. Molteno, June 28th, Lt. R. T. Percival, June 30th; Sec. Lt. A. Bargwanna, Lt. R. E. L. Davies, D.F.C., Lt. L. M. McNab, July 1st; Lt. (Hon. Capt.) H. W. Eades, Sec. Lt. V. S. G. Hawkins, July 3rd; Sec. Lt. W. G. Pearce, July 6th.

Maj. G. S. M. Ashby (R.G.A.) relinquishes his commn. on account of ill-health contracted on active service, June 25th.

Capt. E. G. F. Thompson relinquishes his commn. on account of ill-health, and is permitted to retain his rank, April 17th (substituted for the notification in "Gazette" of Oct. 1st, 1918).

The following Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank :—W. M. Davidson (contracted on active service), Jan. 22nd (substituted for the notification in "Gazette," Jan. 21st.); S. Anderson (caused by wounds), Feb. 22nd (substituted for the notification in "Gazette," Feb. 21st); O. A. Moore, May 23rd (substituted for the notification in "Gazette," April 15th).

Lt. F. T. S. Menendez, M.C., relinquishes his commn. on account of ill-health, and is permitted to retain his rank, June 5th (substituted for notification in "Gazette," March 14th).

The following Sec. Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank :—H. L. Buckley, June 24th; G. P. Dymond, June 27th; C. S. Gregg (contracted on active service), June 28th; C. R. Abell, July 4th.

The initials of Sec. Lt. W. J. Cairns are as now described, and not "W. G.," as stated in "Gazette," May 6th.

The initials of Sec. Lt. F. N. York are as now described, and not "F. W.," as stated in "Gazette," May 23rd.

The notification in "Gazette," Sept. 17th, 1918, concerning Sec. Lt. E. Tomkins is cancelled.

The notification in "Gazette," Feb. 11th, concerning Lt. R. K. McConnell is cancelled (notification in "Gazette," April 1st, to stand).

The notification in "Gazette," March 7th, concerning Sec. Lt. T. E. W. Browne is cancelled (notification in "Gazette," April 1st, to stand).

The notification in "Gazette," March 11th, concerning Sec. Lt. C. S. Muir is cancelled (the notification in "Gazette" April 1st, to stand).

The notification in "Gazette," March 18th, concerning Sec. Lt. D. J. Brooks is cancelled (the notification in "Gazette," April 1st, to stand).

The notification in "Gazette," March 25th, concerning Lt. (actg. Capt.) R. McLaughlin, D.F.C., is cancelled (the notification in "Gazette," April 4th, to stand).

The notification in "Gazette," April 1st, concerning Sec. Lt. (Hon. Lt.) A. K. Boning is cancelled.

The notification in "Gazette," March 6th, concerning Sec. Lt. S. A. Church is cancelled.

The notification in "Gazette," May 27th, concerning Sec. Lt. M. M. McRae is cancelled.

Administrative Branch.—Capts. to be Capts. :—W. S. Evans, from (S.O.), Jan. 19th; A. C. Bolton, M.C., from (S.O.), April 1st; P. F. J. Kent, from (A.), April 17th.

Lt. G. A. McMillan to be graded for purposes of pay and allowances of Capt. whilst empld. as Capt., May 1st (substituted for notification in "Gazette," May 30th).

Lts. to be Lts. :—A. W. Allan, from (A.), June 4th, 1918 (substituted for notification in "Gazette," March 28th); F. A. Gill, from (O.), Sept. 13th, 1918.

D. W. McEwan (Lt., Arg. and Suth. Highrs.) is granted temp. commn. as Lt., Oct. 28th, 1918.

Sec. Lt. P. Reed to be Sec. Lt., from (A.), June 17th.

Sec. Lt. F. A. A. Hewson to be Sec. Lt., from (O.), Dec. 19th, 1918 (substituted for notification in "Gazette," April 18th).

Sec. Lt. (Hon. Lt.) C. C. Blizard to be Sec. Lt., from (O.), June 17th, and to be Hon. Lt.

Lt. L. G. Bacon relinquishes his commn. on ceasing to be empld., and is permitted to retain his rank, April 8th, 1918.

The following relinquish their commns. on ceasing to be empld. :—Capt. K. H. Marshall (Capt., Loud. R.), Nov. 2nd, 1918; Lt. T. P. L.

Molloy (Lt., Dorset R.), June 9th; Lt. R. T. Wilson (Lt., H.L.I., T.F.), June 11th; Lt. (Hon. Capt.) E. W. P. Newman (Scot. Rif.), June 12th; Sec. Lt. (actg. Lt.) M. E. Dunham (Lt., R. Berks R.), June 14th.

Transferred to unempld. list:—Sec. Lt. (Hon. Lt.) A. K. Boning, Jan. 30th; Lt. H. D. Higham, Sec. Lt. W. Hassall, Lt. A. R. Harris, April 10th; Sec. Lt. F. M. Hawthorn, April 14th; Sec. Lt. S. A. Church, April 24th; Sec. Lt. F. Waldron, Lt. G. Wallis, Sec. Lt. H. T. Joy, April 30th; Lt. E. D. Warburton, May 13th; Sec. Lt. R. C. Harley, May 15th; Sec. Lt. M. H. McRae, May 20th; Capt. F. M. Hannay, May 23rd; Lt. L. P. Wallis, May 26th; Maj. H. W. Davies, May 27th; Sec. Lt. G. C. Harvey, May 29th; Lt. F. W. Newby, May 31st; Lt. E. R. Harris, June 1st; Sec. Lt. K. G. Ward, June 3rd; Lt. A. E. Harford, June 5th; Lt. C. Watson, June 11th; Lt. H. D. Evans, Sec. Lt. F. C. Hilbert, Lt. O. I. Norton, Lt. (Hon. Capt.) R. K. Nunes, June 13th; Sec. Lt. A. F. White, Lt. H. McG. Wood, June 15th; Sec. Lt. J. C. Fairer, June 21st; Lt. (Hon. Capt.) F. C. McBride, June 24th; Lt. H. Pooley, June 29th.

Sec. Lt. H. J. Coles to take rank and precedence as if his appt. as Sec. Lt. bore date March 1st.

TECHNICAL BRANCH.—Lt. A. W. Allan to be Lt., Grade (B), from (Ad.), Aug. 11th, 1918 (substituted for notification in "Gazette" of March 28th.

Lt. L. L. W. Smythe to be Lt., Grade (B), from (Ad.), June 26th.

Sec. Lt. H. G. Burroughs to be Lt., without pay and allces. of that rank, Dec. 30th, 1918.

Sec. Lts. to be Sec. Lts., Grade (A):—C. H. Marston, from (Ad.), May 28th, 1918; L. B. Hogben, from (Ad.), Nov. 7th, 1918; E. B. Saunders, from (O.), March 1st.

Sec. Lt. H. G. G Rawlings (late Gen. List, R.F.C., on prob.) is confirmed in his rank as a Sec. Lt., Grade (B), Nov. 1st, 1918 (substituted for notification in "Gazette" of Nov. 4th, 1918).

Lt. M. P. Spencer (Lt., Nort. R.) relinquishes his comm. on ceasing to be empld., April 29th.

Transferred to unempld. list:—Lt. R. Hegan, Feb. 13th; Sec. Lt. (Hon. Lt.) L. C. Hearne, April 3rd; Capt. (actg. Maj.) C. H. Nathan, April 9th; Sec. Lt. E. A. Pollitt, April 19th; Sec. Lt. C. E. D. Marsden, April 20th; Capt. S. R. Hemingway, April 26th, Lt. G. R. Waters, April 29th; Capt. B. F. Bedford, Lt. J. Hodder, Lt. H. L. Waddington, May 1st; Sec. Lt. M. D. Hart, May 6th; Sec. Lt. C. R. Orchard, May 7th; Sec. Lt. G. C. Harrison, May 8th; Lt. (Hon. Capt.) E. H. Walter, May 9th; Lt. S. H. Hawes, May 17th; Sec. Lt. (Hon. Lt.) A. C. White, May 18th; Sec. Lt. W. C. Hanney, May 29th; Sec. Lt. E. G. Wait, May 30th; Lt. H. Fernihough, Lt. C. B. Maddocks, Sec. Lt. P. H. Newbery, Capt. L. G. P. Warren, May 31st; Sec. Lt. P. D. Wilson, June 7th; Capt. W. M. Groom, June 10th; Capt. F/R. Hardie, Lt. R. F. McMichael, June 13th; Lt. F. Atkins, Sec. Lt. W. F. Hendry, June 17th; Sec. Lt. (Hon. Lt.) A Howard, June 20th; Lt. H. Viney, June 22nd; Lt. C. S. Heaton, June 25th; Sec. Lt. E. J. S. Aston, June 26th; Capt. B. Grant (R.N.V.R.), Sec. Lt. G. J. Finley, June 28th; Lt. S. Crowther, Sec. Lt. H. J. Phillips, July 1st; Lt. A. V. McPhail, July 6th

The initials of Lt. E. H. Edwards are as now described, and not "E. W.," as stated in "Gazette" of April 25th.

The notification in "Gazette" of May 6th concerning Capt. C. D. Butler is cancelled.

The notification in "Gazette" of June 4th, 1918, concerning Flt. Lt. H. W. Campion (late R.N.A.S.) is cancelled.

The notification in "Gazette" of Jan. 3rd concerning Sec. Lt. H. I. Allen is cancelled.

The notification in "Gazette" of June 20th concerning Lt. C. E. Maryon is cancelled.

MEDICAL BRANCH.—Transferred to unempld. list:—Capt. H. T. H. Butt, March 3rd; Capt. W. F. Walker, April 16th; Capt. R. H. Dixon, M.B., June 3rd; Lt. G. M. Mellor, June 25th

DENTAL BRANCH.—Lt. H. Wardill is transferred to unempld. list, April 3rd.

CHAPLAINS BRANCH.—Rev. T. L. Beveridge (temp. Chapln. to the Forces, 2nd Class, R.A.C.D.) is granted a temp. commn. as Chapln., with the relative rank of Capt., and is granted the relative rank of Maj. whilst empld. as Asst. Principal Chapln. (Presbyterian), June 5th.

MEMORANDA.—The following heading, concerning the grant of temp. commns. to Overseas Cadets, is substituted for the notifications which appeared in "Gazettes" dated May 2nd, 6th, 9th, and 27th, June 6th, 10th, 13th, 20th, 24th, and 27th, July 1st and 4th:—

"The following Overseas Cadets are granted temp. commns. as Sec. Lts., with effect from Feb. 15th, and relinquish such commns., with permission to retain the rank, from the day following termination of the standardised voyage in the case of those claiming immediate repatriation, and from the day following demobilisation in England in all other cases."

The following Overseas Cadets are granted temp. commns. as Sec. Lts., with effect from Feb. 15th, and relinquish such commns., with permission to retain the rank, from the day following termination of the standardised voyage in the case of those claiming immediate repatriation, and from the day following demobilisation in England in all other cases:—100987 E. G. Hickmott, 178179 H. C. Johnston, 68081 S. Julian, 7 1181 E. R. O'Connell, 13296 J. H. Walmsley.

The following Cadets are granted hon commns. as Sec. Lts.:—100212 J. F. Morison, Jan. 2nd; 180710 H. W. Ash, 94039 S. Moreman, Jan. 12th; 976239 B. Robinson, 137102 C. A. F. Rushford, 137095 D. S. Robinson, 37370 S. Rheim, Jan. 13th; 117347 L. T. Gwyther, 176100 C. E. Jenkinson, 21684 G. T. Mann, 110745 B. E. Stott, Jan. 15th; N. M. Ffrench, Jan. 17th; 179153 H. C. Howells, Jan. 19th; 177279 J. R. Jones, Jan. 25th; 110868 W. H. Price, Jan. 28th; 180192 J. A. Browswood, 178108 F. Beech, 337131 F. J. Brown, G.8739 J. H. Crossland, 17322 F. W. Clements, 175504 W. Connon, 275031 H. A. Crook, 56736 T. B. Daniels, 51030 L. G. Enright, 27168 J. Evans, 179442 C. Hotter, 120664 J. Hubbock, 137640 A. Jones, 175319 T. H. Lewis, 176184 W. H. Lewis, 54/060071 A. Letters, TL/211306 J. L. Milne, 176793 C. J. Morley, 17684 L. C. Ramsey, 175148 H. A. Sloman, 315020 J. E. Sharp, 128705 G. Strachan, 128442 J. C. Thurburn, 176836 E. G. Thomas, 137039 W. R. Tribe, 137032 E. W. M. Thompson, 137095 A. C. Tate, 133716 R. Whitworth, 7584 E. Willoughby, 117274 T. W. Yeates, Jan. 31st; 100694 D. F. Menzies, 175212 R. Y. Rutherford, Feb. 3rd; 7519 F. H. B. Allen, 176203 R. H. Bryson, 176212 V. L. Benson, 64978 C. Booth, 117004 H. H. Burrows, 10/78/210 J. Y. Childs, 180653 E. Chappelow, 97707 J. Curtis, 215036 W. E. Chandler, 229536 F. W. Davies, 229508 F. H. Down, 113246 W. E. Green, 177409 H. Gribbon, 37725 A. Hunt, 178856 E. R. Holloway, 176245 H. R. Jackson, 205062 A. H. King, 6355 J. H. Lewis, 176107 W. Millington, 129303 P. McG. McLean, 28635 R. H. McCullock, 35692 J. Middleton, 48157 H. Parkin, 175143 T. E. Price, 137088 G. Richards, 137097 F. L. Roberts, 110512 A. J. Smith, 128492 A. F. C. Smith, 176378 W. H. Spikins, 137055 O. E. E. Wood, Feb. 10th; 175163 A. Adams, 126366 J. Anderson, 176900 D. E. Bryett, 175035 H. C. Bailey, 216781 S. J. Baxter, 17600 P. J. Barrow, 176175 A. Cooke, 110059 H. R. Comerford, 21107 D. I. Evans, 092761 E. Farrell, 176243 D. Heap, 178859 G. Hammond, 210857 A. W. Jupp, 177210 H. Jopling, 203835 M. R. Knight, 176350 A. W. Kay, 176791 A. J. LI. Lewis, 9116 H. W. Marriott, 179461 D. R. Pocock, 95418 A. Ross, 64983 E. Roberts, 176371 F. W. Roberts, 70669 K. K. Robson, 176381 E. H. Smith, 128714 J. Shepherd, 128500 P. H. Stearn, 128403 W. J. Sargeant, 117092 D. R. Thomas, 110952 R. N. Tanner, 18456 J. A. Verel, 110416 R. A. Wathen, 176131 F. D. Wheeler, Feb. 11th; 39606 N. J. Albin, 2367 A. Adlington, S.S./5284 J. G. Bates, 31490 A. G. Bateman, 176211 G. R. Bestic, 175629 W. Brown, 4959 W. D. Candy, 128351 C. M. Cassie, 50128 C. Cowell, 353933 H. F. Crowhurst, 240762 W. J. Milne, 206050 W. A. Newton, F/14214 T. D. S. Outred, 70676 S. E. Payne, 37734 W. E. Pechey, 176428 J. R. Palmer, 25442 J. Retson, 117924 P. Shaw, 53583 W. H. Secker, 128111 F. W. K. Symons, 22513 W. P. T. Vear, Feb. 12th; 110994 G. A. Broderick, 90521 A. H. Burton, 374018 A. T. Burridge 128457 H. C. Cocksedge, 237953 H. H. Duckett, 110361 C. Drake, 117794 D. McI. Graham, 110102 A. J. O. Hopkins, 110781 J. S. Pearson, 96526 G. W. O. Rudd, 94836 P. T. Saunders, 85305 L. W. Seer, 48226 C. G. Swift, 128146 J. R. Taylor, 128064 T. Webb, Feb. 14th; 238614 H. D. Benham, 178461 H. Bush, 374077 C. Coles, 175663 R. G. Cross, 175519 J. A. Gilbert, 524491 E. A. Hull, 175185 G. W. T. Hartnell, 176342 C. Ll. Jones, 129322 V. C. B. Johnson, 31185 D. S. Kirkland, 137577 T. Lomas, 128906 D. W. Robertson, 51308 T. N. Rowe, 73853 H. F. Redway, 128904 K. M. Ross, 128703 W. H. Simson, 128723 C. F. Spark, 49816 D. D. Thompson, 300055 H. G. Williams, 110480 A. Wilson, 176842 E. J. Yapp, Feb. 17th; 137124 S. A. Andrews, 94677 A. Aitcheson, 69286 J. H. Asher, 136048 R. E. Blanche, 6304 A. H. Bayes, 179013 J. C. Beattie, 151340 C. B Bickell, 157135 A. R. Burberry, 128813 W. Bretherton, 25927 P. J. Chappill, 180655 D. Cranston, 179715 E. A. Challis, 22232 E. W. Clarke, 175507 G. Currie, 180658 B. R. Davis, 117496 C. J. Dean, 180663 S. Downing, 179430 W. E. Davies, 197339 J. H. Freer, 180714 W. A. Fleming, 178814 W. Fraser, 128530 W. Griffin, H. S. Howarth, 84932 W. B. Hargreaves, R. T. Hibberd, 179440 G. Henning, 181356 W. A. Hardy, 178893 C. Hinchcliffe, 179437 R. C. Huzzey, 179201 J. Hillman, 175131 H. Harrison, 178864 K. Ivy, 20293 A. V. Irish, 128519 J. W. B. Kent, 117539 W. J. King, 66504 D. O. Ledgar, 37696 W. F. Lovering, 178865 E. G. Legg, 117605 S. Law, 180455 W. W. McKerrow, 17945 T. Mcillroy, 100533 A. Millar, 178088 E. A. Miles, 21662 W. T. Menniss, 180686 T. W. Machin, 117315 R. Mackay, 1311 V. E. Parker, 240068 A. C. Packman, 53035 R. Pick, 435 A. Richards, 176821 B. S. Ringer, 115047 J. J. Snow, 178831 D. E. Smithson, 128546 H. C. Turrell, 128774 S. W. Tweedy, 100225 A. Webb, 45265 W. H. Watson, 128973 G. E. Winn, 175928 H. Yeomans, 110774 C. G. Young, Feb. 18th; 179389 G. N. Beck, 19416 A. E. Savill, 179009 A. C. Tucker, Feb. 19th; 126336 R. J. Anderson, 61756 J. Duncan, 28028 S. P. Grieve, Feb. 21st; 73544 C. J. E. Birch, 308329 G. Campbell, M/32282 E. B. Eastland, 204514 H. Elmer, 49642 L. C. Gleaves, 177460 J. E. Hooper, 5043 C Lexious-Lawson, 9972 S. C. Lovell, 35590 H. Owen, 70590 E. D. Owens, 767417 G. R. Powell, 534876 K. H. Shalis, 501906 D. Ward, 203819 L. H. Welsh, 46915 E. W. Wilsher, 147076 D Wright, 245514 R. J. Wright, Feb. 22nd; 39645 C. W. Crowder, 403559 E. Saville, 5653 E. M. Smith, Feb. 24th; 128706 G. B. Smith, Feb. 25th; 399768 C. Burgess, 35377 H. C Burgess, 39266 G. V. Close, 117495 W. Davis, 15306 C. F. Guise, 39908 A Hurst, 173838 J. G. Langton, Feb. 27th; 137274 W. G. Hammond, March 1st; 125806 A. Bullard, 6760 R. Clay, 113477 A. H. Muidhead, 137785 J. H. Meek, 12318 J. J. O'Leary, 512686 G. S. Plant, 62211 R. Woodhouse, March 4th; 522564 E. B. Saunders, March 5th; 100588 L. E Coleman, 99715 D. T. Dickie, 5069 T. Edwards, 175989 C. T. Filer, A. H. Giles, 17652 H. S. Gray, 17146 J. T. Goldsmith, 117389 F. W. Hall, 30323 T. W. Howells, 193001 H. A. Lewis, 32257 J. G. Ledingham, 530110 J. A. Ladds, March 6th; 100305 G. B. E. Norburn, 177285 C. Potter, 19561 J. L. Pendleton, 4117195 W. H. Pace, 110464 F. Rurcie, 9693 H. Tullock, 128315 H. I. Thomas, March 6th; 402105 G. W. L. Carter, 65663 G. Fluck, 6278 L. F. L. Salmons, 36398 C. Savage, 190702 J. Woodcock, March 7th; 59290 W. H. Evans, 767277 A. J. Gallop, o/81168 C. J. Herald, 11071 W. B. R. Skinner, 2112 R. A. Turner, 450775 A. F. Willis, March 8th; 98737 A. Bridgeman, 8175 G. H. Merry, March 10th; 175712 G. E. Palmer, March 11th; 18108 H. S. Abrahams, 39649 J. L. Barton, 155707 R. B. Culverwell, 176219 D. Creighton, 6081 J. A. Lathean, 117025 A. E. Lewis, 240376 A. Minshall, 176907 C. H. Moore, 94794 E. A. Osborn, 52193 H. Ogden, 176610 J. E. Preece, 25322 W. E. Rassell, 137100 F. W. Robinson, 110524 J. R. Robison, 432489 W. G. Tonge, 154714 J. A. Vallance, 100360 F. C. Wallen, March 13th; 12223 J. C. Anton, 519165 M. Illicott, 288147 I. O. Pugh, 117481 J. Strathian, March 14th; 54523 G. A. Harriman, 6958 S. Macario, 34874 N. Small, 10/156312 E. Ward, March 15th; 175391 W. W. G. Harris, March 17th; 110779 C. Carter, March 18th; 176305 A. W. Bessant, 137136 D. Brooke, 110678 W. Cambage, F/16791 F. C. J. Carpenter, 117168 D. Conroy, 176222 H. A. Dalton, 20209 W. D. Gannaway, 128017 W. Horsley, 117195 R. Henry, 13090 P. D. Lane, 6140 L. Matthews, 128898 A. Othick, 179263 W. H. Stone, 203501 G. I. Smith, 117990 L. R. G. Smith, 30764 N. Tucker, 1173376 H. Wilsdon, 2690 J. C. Westwood, D. J. A. Yeomans, March 19th; 175933 L. R. W. Knight, 43263 H. B. Spry, 5/31145 H. Warby, March 20th; 36827 E. B. Snelling, March 21st; 81018 F. W. Luck, 117394 H. C. Miller, March 22nd; 103625 A. C. McCullum, March 25th; 110927 H. P. Barnard, 69312 J. R Barnett, 402655 H. Boyle, 175239 H. G. Blade, 176315 H. Beavis, 132132 A. Clark, F/40594 P. Crosland, 176323 F. A. Cridland, 128281 H. R. Cardale, 180459 L. K. Garrett, 128850 B. L. Gilles, 175922 C. Garner, 175743 H. T. Hughes, 117353 T. A Joy, 114693 R. E. Keeling, 44028 E. C. Mills, 251562 A. L. Mitchell, 175017 T. R. Morrall, 176923 A. V. Norman, 100365 F. L. Palmer, 82455 H. T. Philips, 70957 S. Parker, 305653 W. G. C. Pleases, 117986 F. A. Pearce, 176370 E. C. G. Roper, 128423 C. L. Richardson, 10899 J. W. Russell, 3/26129 J. Souter, 128523 W. E. Stephens, 128434 F. Savage, 128429 N. S. Sheryer, 12822 F. E. Streets, March 28th; 2810 A. Shaw, 7744 S. Smythe, 179466 V. Snook, 06772 F. West, March 28th; 4719 C. H. Gillam, 254662 C. P. Hardacre, 3003 G. Vaughan-Evans, March 29th; 110962 E. C. Davis, March 31st; 128863 J. Harrison, April 1st; D. P. Smith, April 3rd; O/32134 W. H. Brown, April 4th; 31087 R. H. Cater, C/26303 D. H. Farrar, 175056 G. R. Graham, 176002 R. E. W. C. Hawkshaw, 117718 G. H. Hill, 175204 N. E. Lane, April 5th; 175246 J. McD. Colvin, 175430 A. M. Cave, 175640 D. J. E. Davies, 57214 C. J. Guy, 526665 R. K. Robson, 128324 L. A. Stuart, 176854 B. R. M. Smith, 25466 W. Weir, 175100 J. H. Wright, April 7th; 128879 S. Lees, 89754 V. Peacock, April 10th; 90279 F. Charnley, 128899 S. A. Pougnet, May 1st; 94878 C. R. Smith, May 6th; 40024 G. Harris, May 8th; 117737 H. T. Armstrong, 137214 F. J. Collis, 97552 A. Reynolds, May 12th.

Lt. H. D. Goldsmith, D.S.O. (Maj., Bt. Lt.-Col., D. of Corn. L.I.), relinquishes his commn. on ceasing to be empld., Jan. 1st.

Transferred to unempld. list:—Sec. Lt. (actg. Lt.) J. W. Mayall, April 12th; Capt. G. C. V. Hewson, May 14th; Capt. G. B. Fraser (King Edward's Horse), June 8th; Lt. R. A. Pennington, June 17th; Sec. Lt. H. Jones, from (S.O.), Maj. H. A. Moore, C.B.E., M.C., July 1st.

Maj. W. J. C. Kennedy-Cockran-Partick, D.S.O., M.C. (Capt., R. Brig.), resigns his commn., and is permitted to retain his rank, July 9th.

The notification in "Gazette" of April 29th, concerning Sec. Lt. (actg. Capt.) J. L. Brown is cancelled.

AIR MINISTRY, July 11th.

R.A.F.—Chief of the Air Staff.—The notification in "Gazette" of June 20th concerning Maj.-Gen. Sir H. M. Trenchard, K.C.B., D.S.O., is cancelled.

FLYING BRANCH.—Lt.-Col. J. C. Halahan, C.B.E., to be Lt.-Col (A.), from Group Comdr., July 1st.

Maj. R. A. Bradley to be Lt.-Col., Aug. 1st, 1918

Majs. to be actg. Lt.-Cols. whilst empld. as Lt.-Cols. (A.):—C. H. B. Blount, M.C., A. V. Holt, D.S.O., S. Smith, D.S.O., A.F.C., May 1st.

Maj. G. F. H. Faithfull to be actg. Lt.-Col. whilst empld. as Lt.-Col. (K.B.) from May 1st to June 9th

Maj. W. J. C. Kennedy-Cockran-Patrick, D.S.O., M.C., to be Maj. (A.), from (S.O.), July 1st.

Capts. to be actg. Majs. whilst empld. as Majs. (A.) :—G. C. Bailey, D.S.O., W. E. Collison, C. R. Cox, A.F.C, C. C. Durston, J. F. Gordon, D.F.C., C. H. Hayward, P. Huskinson, M.C., G. C. Pirie, M.C., V. A. H. Robeson, M.C., J. G. Selby, M.C., D. F. Stevenson, D.S.O., M.C., H. G. Smart, May 1st.

Capt. J. A. Cochrane, M.C., to be actg. Maj. whilst empld as Maj. (K.B.), May 1st.

Capt. C. J. Galpin, D.S.O., to be actg. Maj. (A. and S.), without pay and allces. of that rank, whilst specially empld., May 1st.

Capt. W. St. J. Scott-Scott to be Capt. (A.), from S.O., April 10th (substituted for notification in "Gazette" of June 24th).

Lts. to be actg. Capts. whilst empld. as Capts. (A.) :—P. J. Barnett, M.C., C. K. M. Douglas, A.F.C., D. W. Grinnel-Milne, A. McGregor, D.F.C., R. K. Morris, M.C., S. E. Toomer, May 1st

Lts. to be actg. Capts. while empld. as Capts. (K.B.) :—(Hon. Maj.) G. T. J. Barry, W. R. Phillips, D.F.C, May 1st

Lt. (Hon. Capt.) E. H. Grant to be Lt. (A.), from (S.O.), June 2nd.

Lt. (actg. Capt.) H. E. Hazlehurst to be Lt. (A.), from (T.), and to relinquish actg. rank of Capt., Sept. 23rd, 1918 (substituted for notification in "Gazette," Oct. 4th, 1918).

Lt. L. V. Dell to be Lt. (O.), from (Ad.), May 15th.

177155 Flt. Cadet F. W. Carter is granted a temp. commn. as Sec. Lt. (O.), Sept. 27th, 1918.

Sec. Lt. C. H. Taylor (Capt., I.A.R.O.) relinquishes his commn. on reversion to I.A.R.O., May 20th.

The following relinquish their commns. on ceasing to be empld. :—Lt. S. C. Burt (Lt., Brit. Col. R.), April 9th; Sec. Lt. (Hon. Lt.) G. W. F. W. Downer (Lt., R.H. and R.F.A.), May 17th; Lt. T. H. Wickett (Lt., W. Ont. R.), May 31st; Lt. R. P. Baker (Capt., Brit. Col. R.), June 9th; Lt. G. C. T. Hadrill (Lt., R.A.S.C.), June 18th; Lt. (Hon. Capt.) D. S. Inglis (Lt., Gord. Highrs.), June 23rd; Sec. Lt. (Hon. Lt.) W. V. Tyrrel (Lt., R.I. Rif.), June 24th; Lt. H. M. Tulloch (Lt., I.A.), June 27th; Lt. J. P. Cunninghame (Lt., Alberta R.), July 2nd.

Transferred to the unempld. list :—Lt. R. T. W. Hill, Dec. 31st, 1918; Lt. A. Blair, Jan 27th; Lt. J. E. Fitzpatrick, Feb. 8th; Sec. Lt. C. G. Hoffman, Feb. 14th; Sec. Lt. A. R. Giroux, Feb. 18th; Sec. Lt. W. F. Spencer, March 1st; Lt. E. A. Stewardson, March 4th; Sec. Lt. L. S. Anderson, March 26th; Lt. H. S. Holcombe, Sec. Lt. C. Herr, Sec. Lt. A. S. McGrath, April 1st; Lt. C. C. F. Rkins (Essex R.), April 8th; Sec. Lt. W. Bartley, Sec. Lt. R. C. Hirst, Lt. R. H. Reece, April 9th; Maj. H. P. L. Higman, D.F.C., April 10th; Lt. J. W. Hart, Lt. C. H. Tyreman, April 11th; Sec. Lt. F. E. Power, April 13th; Lt. R. H. Dennis, Lt. G. R. Hicks, Sec. Lt. J. S. Howard, April 14th; Sec. Lt. G. C. Edmond, Lt. B. De Higman, April 15th; Sec. Lt. G. C. Hinge, April 16th; Sec. Lt. L. Harrison, April 17th; Sec. Lt. H. Hillier, April 18th; Sec. Lt. F. E. Armstrong, Lt. H. T. Singleton, Sec. Lt. H. M. Stover, Sec. Lt. F. L. Vanallan, April 19th; Lt. H. A. Hince, Sec. Lt. F. S. Smith, April 20th; Sec. Lt. E. I. Davis, Lt. W. Hardy, Sec. Lt. G. R. Hodson, April 21st; Sec. Lt. D. V. Hoskins, April 24th; Sec. Lt. P. Davey, Sec. Lt. R. E. Haestier, April 25th; Sec. Lt. J. K. Hill, Capt. J. E. Wood, April 30th; Sec. Lt. A. C. E. Smith, May 1st; Lt. G. Hall, May 2nd; Capt. G. H. B. McCall, May 3rd; Lt. J. D. V. Holmes, May 4th; Lt. R. J. Stallard, May 5th; Sec. Lt. H. P. Hobbs, May 6th; Sec. Lt. T. C. Stranger, Lt. C. H. Sands, May 7th; Sec. Lt. H. Hough, May 8th, Lt. M. D. C. Drummond, May 9th; Lt. C. W. Harbidge, May 13th; Sec. Lt. A. Abernethy, Lt. W. E. Beckett, May 15th; Sec. Lt. G. J. Ellsmere, Sec. Lt. E. P. Hall, Lt. C. E. Hill, Sec. Lt. R. Hopkins, Sec. Lt. T. Moffatt, Sec. Lt. J. A. Simmers (substituted for the notification in the "Gazette" of May 13th), May 20th; Lt. C. A. H. Aspinall, Sec. Lt. O. P. Bewers, May 21st; Lt. F. Parf, May 22nd, Lt. J. E. Adam, Lt. D. Adams, Sec. Lt. M. Furney, Sec. Lt. K. S. Hill, May 23rd; Lt. A. E. G. Bailey, May 24th; Capt. G. H. Hooper, M.C., May 25th; Lt. B. E. Barwell, Sec. Lt. J. Durie, Sec. Lt. C. Harrison, Sec. Lt. (Hon. Lt.) A. E. Haynes, M.C., May 28th; Lt. D. B. Adamson, Sec. Lt. I. P. Aitken, Sec. Lt. (Hon. Lt.) R. L. Bateman, May 29th; Sec. Lt. A. N. Abbott, Sec. Lt. H. C. E. Adlard, Sec. Lt. S. J. Alderson, Capt. F. J. Bailey, Sec. Lt. C. H. Baker, Capt. L. W. Barney, Sec. Lt. H. S. Sandiford, May 30th; Capt. W. H. S. Aplin, Lt. W. Arthur, Lt. H. W. L. Baartman, Lt. F. R. Baker, May 31st; Sec. Lt. E. H. Bird, June 1st; Sec. Lt. F. A. Beardmore, Sec. Lt. A. E. Beilby, Sec. Lt. R. D. Bird, Lt. G. M. Duncan, D.F.C., Sec. Lt. J. M. Munro, June 2nd; Sec. Lt. W. R. Atkinson, Capt. J. S. Beattie, Sec. Lt. J. Evans, Lt. L. J. Minter, June 3rd; Lt. C. D. Barnard, June 4th, Capt. H. S. Broad, Lt. J. Evans, M.C. (Welsh R.), Lt. G. Shaw, Lt. B. W. Sims, June 5th; Lt. L. T. Sloot, June 6th; Lt. M. D. Allen, Lt. G. Archer, Sec. Lt. W. W. Ash, Sec. Lt. W. G. Baker, Lt. G. T. Eveleigh, Sec. Lt. O. D. E. Hillsdon, Sec. Lt. F. C. Mildenhall, Lt. W. B. Shelton, Capt W. A. Shirlaw (H.L.I., T.F.), June 7th; Sec. Lt. (Hon. Lt.) H. R. Hill, M.C., June 8th; Sec. Lt. A. G. Ely, Sec. Lt. (Hon. Lt.) J. Montgomery, Lt. D. H. Phillips, June 9th; Sec. Lt. C. P. Bristow, Sec. Lt. O. Matthews, Lt. O. M. D. Rochs, Sec. Lt. (Hon. Lt.) H. Sainsbury, June 10th; Capt. H. W. Bean, Lt. A. L. B. Bennett, Lt. A. Blount, Sec. Lt. (Hon. Lt.) H. Dinwoodie, M.C., June 11th; Lt. W. H. Delamere, Lt. (Hon. Capt.) D. Walrond-Skinner, June 12th; Lt. F. Adams, Sec. Lt. F. Barker, Lt. J. G. Beck, Lt. L. G. Brazier, Sec. Lt. (Hon. Lt.) J. Donaldson (Seaforth Highrs.), Lt. L. Duffus, Lt. D. C. Dunlop, Sec. Lt. W. E. Eastman, Sec. Lt. W. Fenwick, Lt. H. Ford, Sec. Lt. T. W. N. Hitge, Sec. Lt. E. G. Hill, Lt. (Hon. Capt) R. Lindsay, Lt. F. P. Serginson, June 13th; Sec. Lt. A. S. Adams, Lt. R. W. Anderson, Sec. Lt. H. C. A. Arnot, Sec. Lt. C. A. Backberg, Lt. J. M. Batting, Lt. R. V. Betts, Lt. H. A. Bird, Sec. Lt. T. J. Birmingham, Sec. Lt. F. C. Bowler, Lt. (Hon. Capt.) C. Duttson, Lt. W. B. Hills, Sec. Lt. H. L. Magid, June 14th; Sec. Lt. R. Hinsch, Lt. D. A. Savage, M.C, June 15th; Sec. Lt. B. G. W. Adams, Sec. Lt. V. V. Anderson, Lt. A. B. Bennett, Sec. Lt. G. E. Martienssen, June 16th; Lt. A. W. Blake, Lt. J. Hogan, Sec. Lt. L. W. Savidge, Sec. Lt. S. L. R. Switzer, June 17th; Sec. Lt. J. Malcolm, June 18th; Sec. Lt. (Hon. Lt.) H. M. Fulton, Capt. H. H. Square, Sec. Lt. H. Ward, June 19th; Sec. Lt. (Hon. Lt.) C. A. S. Booth, Sec. Lt. F. B. Booth, Sec. Lt. J. W. Bowler, Sec. Lt. J. C. Edwards, June 20th; Lt. G. A. Cox, June 21st; Lt. G. P. Olley, Lt. E. L. Pratt, June 22nd; Lt. P. H. Burt, Lt. W. N. Fraser, Lt. S. J. N. Haigh, Capt. H. T. Jones, Sec. Lt. T. St. J. H. Silvester, Lt. W. S. Wheeler, June 24th; Sec. Lt. H. Burns, Capt. N. B. Hair, Sec. Lt. H. Hudson, Lt. W. C. Sidaway, June 25th; Lt. R. W. M. Andrew, Sec. Lt. D. J. Georgeson (Gordon Highrs.), Sec. Lt. (Hon. Lt.) V. R. Husband, Sec. Lt. J. M. James, Sec. Lt. (Hon. Lt.) T. Large, June 26th; Sec. Lt. R. C. Capel-Cure, Lt. A. Carruthers, Sec. Lt. E. E. Fresson, Sec. Lt. (Hon. Lt.) W. Hawk, June 27th; Sec. Lt. K. R. Angus, Lt. J. A. Blythe, Lt. H. A. Howell, Lt. G. E. Marden, M.C., Sec. Lt. J. G. MacDougall, Sec. Lt. E. H. H. Peel, Lt. K. B. Watson, Sec. Lt. W. V. Wood, June 28th; Lt. W. G. Albu (R.I. Fus.), Lt. E. H. M. Fetch, Lt. J. R. Foster, Lt. C. E. Kingsford-Smith, June 29th; Lt. D. P. Farley, July 1st; Sec. R. M. M. Houston, July 2nd; Sec. Lt. C. R. Abell, Sec. Lt. R. J. Acheson, Lt. L. de S. Duke, Lt. S. Gavin, M.C., July 3rd; Lt. L. B. Aylen, Capt. G. E. Hervey, D.S.C. Lt. F. Jardine, July 6th; Lt. H. F. Birchal, D.F.C., July 7th; Lt. E. A. Alton, Lt. W. D. Archer, Sec. Lt. J. F. Lochhead, July 9th; Lt. H. E. R. Fitchat, Sec. Lt. M. McConville, M.C., Lt. C. W. Meredith, July 10th; Lt. G. E. Brookes, Sec. Lt. H. A. Paquette, Capt E. E. E. Pope, July 11th.

Lt. W. A. Stead relinquishes his commn. on account of ill-health contracted on active service, and is permitted to retain his rank, June 25th.

The following Sec. Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank :—F. A. Maples, April 10th (substituted for the notification in the "Gazette" of Jan. 28th); W. A. Gurr, April 29th; C. G. Parmelee (caused by wounds), June 26th; J. R. Roulston (contracted on active service), July 3rd; H. S. Dyson, July 4th (substituted for the notification in the "Gazette" of Jan. 31st); E. R. Moore (contracted on active service), July 9th.

The initials of Sec. Lt. W. J. Cairns are as now described, and not "W. G.," as stated in "Gazette," May 6th.

The surname of H. C. Biard is as now described, and not as stated in "Gazette," July 30th, 1918.

The surname of Lt. (Hon. Capt.) E. C. Fernandes-Ferreira is as now described, and not as stated in "Gazette," May 16th.

The notification in "Gazette," May 31st, 1918, concerning Sec. Lt. K. R. Campbell is cancelled.

The notification in "Gazette," March 4th, concerning Lt. J. E. Burke is cancelled.

The notification in "Gazette," March 21st, concerning Sec. Lt. R. P. Stockton is cancelled.

The notification in "Gazette," April 1st, concerning Sec. Lt. N. H. Midgley is cancelled.

The notification in "Gazette," April 1st, concerning Lt. E. H. Tredcroft, D.F.C., is cancelled.

The notification in "Gazette," April 4th, concerning Sec. Lt. J. D. Scott is cancelled.

The notification in "Gazette," April 25th, concerning Sec. Lt. S. B. Milner is cancelled (the notification in "Gazette," April 15th, to stand).

The notification in "Gazette," April 29th, concerning Sec. Lt. W. V. Thomas is cancelled.

The notification in "Gazette," May 6th, concerning Lt. (actg. Capt.) D. Sutherland is cancelled (the notification in "Gazette," March 11th, to stand).

The notification in "Gazette," May 13th, concerning Sec. Lt. M. D. McTaggart is cancelled (the notification in "Gazette," June 24th, to stand).

The notifications in "Gazette," May 30th (page 6658) concerning Sec. Lt. F. E. Power are cancelled.

The notification in "Gazette," June 6th, concerning Sec. Lt. (Hon Lt.) R. B. Francis (Lt., Can. M.G.C.) is cancelled (the notification in "Gazette," May 6th, to stand).

The notifications in "Gazettes," Jan. 21st and June 20th, concerning Capt. G. L. Hartgill are cancelled (the notification in "Gazette," June 17th, to stand).

The notification in "Gazette," July 1st, concerning Lt. E. S. C. Sen is cancelled.

ADMINISTRATIVE BRANCH.—Capt. E. N. E. Waldron to be Capt., from (S.O.), May 1st.

Sec. Lt. E. R. Webb to be graded for purposes of pay and allces. as Capt. whilst empld. as Capt., May 1st.

H. Milman (Capt., R.E.) is granted a temp. commn. as Sec. Lt., May 27th, 1918, and to be Hon. Capt. (substituted for the notification in "Gazette," Dec. 10th, 1918).

Sec. Lt. J. W. Thompson (late Gen. List, R.F.C., on prob.) is confirmed in rank as Sec. Lt., Dec. 10th, 1918.

The following are granted temp. commns. as Sec. Lts :—F. G. L. Heyes, June 24th; W. Graham, July 4th; E. C. A. Clarke, W. Macpherson, C. S. Roads, July 7th.

The following relinquish their commns. on ceasing to be empld. :—Capt. H. B. S. Stephenson (Capt., R. Mun. Fus.), Nov. 25th, 1918; Sec. Lt. (Hon. Lt.) F. H. Sibley (Capt., R.F.A.), June 13th; Lt. J. T. Wright (Lt., R.N.), June 25th.

Transferred to unempld. list :—Lt. (Hon. Capt.) H. P. G. Branston (Sher. For.), Feb. 8th; Sec. Lt. N. H. Midgley, Feb. 12th; Lt. M. J. Fenwick, March 14th; Sec. Lt. (actg. Lt.) W. L. Roblou, March 19th (substituted for notification in "Gazette" of July 4th); Lt. D. Miller, Sec. Lt. C. E. Thorpe, March 21st; Sec. Lt. P. J. Holmes, April 16th; Lt. T. B. Duncan, M.C. (Scott. Rif.), April 19th; Lt. J. McK. Hooper, April 25th; Lt. J. T. Denman, April 27th; Lt. L. S. Thompson (R. Dev. Yeo., T.F.), May 6th; Lt. A. S. Hibbs, May 8th; Sec. Lt. B. M. Hickman, May 14th; Lt. E. S. C. Sen, May 23rd; Sec. Lt. R. G. Ashby May 24th; Sec. Lt. H. G. Arnold, Lt. F. Bagot, May 29th; Lt. J. D. P. Sowbury, June 1st; Lt. F. H. Barratt, Sec. Lt. R. F. Pyke, June 2nd; Sec. Lt. S. V. Daley, June 6th; Lt. J. C. G. Sibley, June 7th; Lt. V. C. Baker, June 9th; Lt. R. W. G. Morrison, June 11th; Lt. L. Taylor, June 12th; Lt. J. H. Clive (Lt., Lond. R., T.F.), Capt. C. W. Small, June 14th; Capt. E. H. T. Atkinson, June 17th; Sec. Lt. E. H. Sherman, M.C., June 18th, Sec. Lt. (Hon. Capt.) G. H. Blake, D.C.M., June 19th; Sec. Lt. V. Brimacombe, June 20th; Sec. Lt. J. Ferguson, June 21st; Lt. C. F. Palmer, June 24th; Sec. Lt. E. N. Allott, Sec. Lt. W. C. Snowdon, Capt. J. W. Culme-Seymour, June 25th; Sec. Lt. W. E. Doran, June 26th; Capt. H. Sherwood, Maj. J. B. Handley-Seymour, June 27th; Sec. Lt. W. Fillery, June 29th; Lt. H. S. Nicholls, July 1st; Lt. W. J. McLean, July 3rd.

Lt. L. G. Hall relinquishes his commn. on account of ill-health contracted on active service, and is granted the rank of Capt., June 12th.

Lt. L. D. Brown relinquishes his commn. on account of ill-health contracted on active service, and is permitted to retain his rank, June 30th.

Sec. Lt. H. T. Wellard relinquishes his commn. on account of ill-health, and is permitted to retain his rank, July 3rd.

The rank of Lt. F. R. T. Pearson is as now described, and not Sec. Lt. as stated in the "Gazette" of March 21st.

The notification in the "Gazette" of June 10th concerning Sec. Lt. R. C. E. Vernede is cancelled.

TECHNICAL BRANCH.—Capt. A. C. Baker to be actg. Maj. whilst empld. as Maj., Grade (A.), from April 1st, 1918, to March 12th.

Lt. H. E. Hazlehurst to be actg. Capt. whilst empld. as Capt., Grade (A.), Sept. 16th, 1918 (substituted for notification in the "Gazette" of Nov. 29th, 1918).

Lt. H. E. Hazlehurst to be actg. Capt. whilst empld. as Capt., Grade (A.), from (A.), from Dec 11th, 1918, to April 30th.

Sec. Lts. to be graded for purposes of pay and allces. of Capts. whilst empld. as Capts., Grade (A.) :—(Hon. Lt.) J. Drew, (Hon. Capt.) R. C. Fowler, T. E. Morton, May 1st.

Sec. Lts. to be graded for purposes of pay and allces. as Lts. whilst empld. as Lts., Grade (A.) :—G. J. C. W. Fitzwilliam, L. T. Bulmer, May 1st.

Sec. Lt. J. R. Hovenden to be Lt., without pay and allces, of that rank, Aug. 28th, 1918.

Sec. Lt. C. R. Booth to be Sec. Lt., Grade (A.), from (Ad.), Feb. 22nd.

Sec. Lt. F. S. Read to be Sec. Lt., Grade (B.), from (Ad.), Oct. 1st, 1918.

Sec. Lt. (Hon. Lt.) C. O. Wright (Lt., King's Own R. Lancs. R.) relinquishes his commn. on ceasing to be empld., June 10th.

Transferred to unempld. list :—Maj. (actg. Lt. Col.) A. S. Hellawell, O.B.E., March 27th (substituted for notifications in the "Gazettes" of April 4th and June 27th); Sec. Lt. J. W. Davis, April 1st; Lt. D. N. Stewart, April 2nd; Lt. R. Hopkin, Sec. Lt. W. H. Hildreth, April 17th; Lt. C. E. Devas, April 18th; Lt. L. H. Scott, April 20th; Sec. Lt. C. E. Hodges, April 30th; Sec. Lt. J. E. Kocford, May 2nd; Sec. Lt. H. D.

Dall, May 6th; Capt. H. K. Hitchcock, May 12th; Sec. Lt. H G Smith, May 19th; Sec. Lt. M. Bateson, Sec. Lt. E. G. Doyland, May 21st; Lt. W. D. Hogarth, May 24th; Lt. J. Hooper, May 26th; Sec. Lt. E. A. Sullivan, Sec. Lt. (Hon. Lt.) R. J. Wallace (R. Scots, T.F.), May 28th; Capt. R. Bissett, Sec. Lt. (Hon. Lt.) S. O. Savillec, May 29th; Sec. Lt. H. Hilsdon, Capt D. Cameron-Swan, May 30th; Capt. F. W. Strong, May 31st; Lt. (Hon. Capt.) A. D. S. Barr, Capt. H. E. Shaw, Maj. D. B. Sanders, June 1st, Sec. Lt. R. O. Street, June 3rd; Sec. Lt. J. L. Baring, June 6th; Capt. J. G. Dothie, Sec. Lt. W. A. Hill, June 7th; Sec. Lt. H. Archer, June 8th; Sec. Lt. J. F. Farquharson, June 10th; Sec. Lt. S. W. Bennett, June 11th; Capt. H. S. Slade, June 12th; Lt. T. J Boyer, June 14th; Lt. E. H. Hart, Lt. G. F. Wilson, June 17th; Sec. Lt. F. N. Lynch-White, June 19th; Maj. E. Darrell-Huskinson, Sec. Lt. H. S. Smith, Maj. G. L. Wightman, June 23rd; Sec. Lt. H. H. Fanthorpe, Sec. Lt. A. Marr, June 24th; Sec. Lt B. B. Long, Sec. Lt. H. W. Levy, June 25th; Sec. Lt. G. Albert, June 26th; Lt. H. H. Ballard, June 28th; Sec. Lt. W. Massey, June 30th; Sec. Lt. W. E. Dewberry, Maj. H. W. Prance, Capt. P. Swain, July 1st; Sec. Lt. H. A. P. Disney, Maj. E. R. Peal, O.B.E., D.S.C., July 2nd.

Sec. Lt. (Hon. Lt.) F. J Colishaw relinquishes his commn on account of ill-health contracted on active service, and is permitted to retain the rank of Lt., July 3rd.

The notification in "Gazette" of April 25th concerning Sec. Lt. F. E. Miles is cancelled (notification in "Gazette" of April 15th to stand).

The notification in "Gazette" of June 13th concerning Lt. J. W. McKee is cancelled.

MEDICAL BRANCH.—A. G. Graham is granted a temp commn. as Capt., July 18th, 1918 (substituted for notification in "Gazette" of July 19th).

Transferred to unempld. list:—Capt. M. R. Dobson, April 25th; Capt. T. R. F. Kerby, June 29th; Maj H. F. Horne, July 2nd.

DENTAL BRANCH.—Capt. J. Barratt is transferred to unempld. list, May 29th.

MEMORANDA.—Sec. Lt. J. Keyes to be Lt., May 22nd.

Lt. (Hon. Capt.) E. H. Grant (Capt., Arg. and Suthd. Highrs.) relinquishes his commn. on ceasing to be empld., July 3rd.

Transferred to unempld. list:—Maj. (actg. Col.) C. A. J. Butter, O.B.E. (Sco. Horse, Yeo., T.F.), Feb. 7th (substituted for notification in "Gazette" of Feb. 21st); Sec. Lt. (actg. Capt.) F. C. Payne, from (S.O.), April 10th; Lt. H. Hibbard, from (S.O.), May 2nd; Lt. V. L. Anderson, from (S.O.), May 28th; Capt. A. H. Stuart, from (S.O.), May 29th; Lt.-Col. J A. Houison-Crauford, C.M.G., C.B.E., from (S.O.), June 1st; Lt.-Col. F. H. Cleaver, C.B.E., D.S.O., from (S.O.), June 26th; Capt. G. C Milnes, M.C., from (S.O.), July 2nd.

Sec. Lt. C. W. Kerr to take rank and prec. as if his appt. as Sec. Lt. bore date May 1st, 1918.

The name and number of the following Oversea Cadet is as now described and not as in "Gazette" of June 13th:—183105 G. E. Glenn.

The notification in "Gazette" of June 6th concerning 177155 Flt Cadet F. W. Carter is cancelled.

In connection with the Victory March through London on July 19th the Royal Air Force will contribute a contingent of 55 officers and 605 men, and the W.R.A.F. four officers and 120 ranks. Nineteen squadrons from the Army of Occupation will be represented, together with personnel from the four Areas and from the 29th and 11th Groups. These numbers will be exclusive of the G.O.C. and Staff.

Major-General Sir J. M. Salmond, K.C.B., C.M.G., C.V.O., D.S.O., commanding the R.A.F. in the field, will be in command of the contingent, with Brigadier-General G. L. Lambe, C.M.G., D.S.O., as his Chief Staff Officer.

* * *

The Air Ministry announces that the R.A.F. Eastern aerodrome at Yatesbury has been closed. All machines landing at Yatesbury should, therefore, use the Western aerodrome.

The aerodrome at Wyton has also been relinquished by the R.A.F.

* * *

An order has been issued by the Air Ministry with regard to the supply and renewal of artificial limbs for disabled airmen.

The procedure followed is precisely the same as that applying to disabled soldiers, i.e., through the Local War Pensions Committee and the Director of Artificial Limb Supplies—Ministry of Pensions.

Thus, if a discharged disabled airman is in need of further surgical treatment, or if his artificial limb requires repair he should apply direct to his Local War Pensions Committee. In the former case the Committee will arrange for his treatment by the nearest Civil, Military, or Air Force hospital available.

The Committee will also defray all travelling expenses necessarily incurred by a discharged airman in connection with the repair or renewal of his artificial limb, and his attendance at the hospital selected.

* * *

Saturday, July 12th, was the last day of the Royal Naval, Military and Air Force Tournament. It was an unqualified success, and it is greatly to be regretted that it was not possible to continue the Tournament for a longer period.

The prizes were presented by H.R.H. the Duchess of Albany.

The following are among the results of the competitions held at the Royal Naval, Military, and Air Force Tournament:—

JULY 8th.—Tug-of-War (110 st.).—The winners of the Navy, Army, and Air Force competitions were 3rd Bn. Leinster Regt., the challenge cup being presented in the arena by Capt. R. C. Dalglish, Royal Navy.

JULY 9th.—Sabre v. Sabre (Championship).—1, Col. R. B. Campbell, D.S.O., Gordon Highrs.; 2, C.P.O. Cassford, Royal Navy; 3, Capt. Walter Palmer, M.C., K.R.R.C.; 4, tie between Serjt.-Maj. H. Grainger, R.A.F., and Comdr. E. W. H. Brookfield, Royal Navy; 5, Major E. G. S. Cooke, 8th Bn. Essex Regt.

July 11th.—Tug-of-War (130 stone).—3rd Battalion Coldstream Guards (Chelsea) beat No. 5 Stores Depot, R.A.F., Earl's Court, by two pulls to nil.

July 12th.—Bayonet v. Bayonet Championship.—Lieut. F. H. Durham, R.M.A., 1; Serjt.-Major H. Grainger, R.A.F., 2; Serjt. H C. Randall, R.M.A., 3.

* * *

On Aug. 15th and 16th a cricket match between teams representing the R.A.F. and the Army will be played at the Oval.

* * *

At Stratford Police Court recently, Serjt. Eric Potter, R.A.F., was sentenced to one month's imprisonment with hard labour, for stealing a number of cricket pads, a quantity of motor cycle fittings, and other articles. It was stated that the prisoner was in charge of the stores at the Woodford Depot of the R.A.F., and that he had sent five cases of goods to his home in Staffordsnire.

* * *

By order of the Home Secretary, Captain Walter Raymond Hinchcliffe, D.F.C., R.A.F., who was sentenced on June 28th to six months' imprisonment in the second division for the theft of a motor-cycle and side-car at Skegness, has been released on account of ill-health.

* * *

At Sussex Assizes on July 10th Lieut. Leslie Joseph Holland, R.A.F., was sentenced to five years' penal servitude for assaulting William Farrow, manager of the Shoreham branch of Farrow's Bank, with intent to rob him.

Prisoner, who was a customer of the bank, entered the premises disguised, and, on the pretence of desiring to open an account, enticed the manager from behind the counter, and then struck him on the head with a sandbag containing sand and two shillings' worth of coppers, and threatened him with a revolver A struggle lasting 10 minutes ensued, causing a crowd to assemble outside the bank. Three man broke into the bank, as the door had become unlatched during the struggle, and secured Holland.

The defence was that war service had rendered the prisoner unaccountable for his actions.

FRANCE.

The following has been received from a Paris correspondent:—

Fate, silent, inexorable Fate, has claimed another of her foremost subjects. In the afternoon of the 10th inst. Lieut. Jean Navarre was killed whilst trying to land at Villacoublay. Further reports on the actual accident will be awaited with interest, as it seems that by dexterous navigating, after an apparent misjudgment of distance, he almost landed safely, but, losing flying speed, he sideslipped on the turn and crashed.

Navarre was one of the first Aces of the war early in 1916, and performed prodigies of valour during the Verdun battles, bringing down nine Boches in three following special missions. At this latter work he vied with Védrines in success.—F. T. N.

U.S.A.

The following appeared in the official Air Service news published in the United States of America:—

"The Army Air Service has been chosen by more than forty high school graduates of Greater New York this year as a technical institution of higher learning, in preference to the technical colleges of the country. Of this number more than one-half are financially able to attend regular institutions of learning, but all elected the Army to gain knowledge that will fit them as aeronautical engineers at the end of a three-year course.

"The others are students who would be obliged to work their way through college and have chosen the Army because their status will be exactly the same as the boys of independent means and completion of the course is assured.

"The incident has opened the eyes of Army officials to the new and high regard of the educational value of the Army and the possibilities of securing men of the highest order for the Air Service. Accordingly an energetic campaign is being prepared to present the opportunities for higher education and technical aeronautical instruction to high school graduates in all parts of the country. A number of aviation officers will be detailed for this work, and educational boards will be requested to include such an officer as a speaker in the graduation programme of public schools.

"It is pointed out that the Army instruction is not confined to theory, but combines a minimum of theory with a maximum of practical work which should develop aviation experts of the highest order. The social and athletic features of college life are not lost in the Army. Regular hours, good food, and plenty of exercise will keep the students in the best physical condition, and programmes of sports are followed by the men with the same degree of enthusiasm as in college.

"A feature which particularly appeals to proud parents is that every letter from 'the boy' does not contain an eloquent story of destitution and the crying need of a check, for in the Army he is being paid while he learns. With the signing of the peace treaty soldiers will be allowed to wear civilian clothes, and with liberal

pass privileges the hours of study are practically the same as in college.

"The New York boys have dubbed the aviation school 'Khaki University.' The Army extends a hearty invitation to any high school graduate who wishes to associate himself with the development of the commercial aviation to acquire a technical education at the expense of the Government."

* * *

The first U.S.A. Government peace-time order for aeroplanes has been placed by the Navy Department with the Loening Aero. Eng. Corp., New York, for the immediate delivery of six special Loening monoplanes for shipboard observation use.

With characteristic American modesty it is claimed that this machine, a new type of two-seater fighter, after official tests was found to be the fastest and best performing two-seater fighter in the world.

They are intended to be launched from the deck of a ship, and each is fitted with a 300-h.p. Hispano-Suiza engine.

PERSONAL NOTICES.

NAVAL.

Engagement.

CUCKNEY—WILLIAMS.—The engagement is announced between Captain E. J. Cuckney, D.S.C., R.A.F., and Miss L. Williams, of Wimbledon.

MILITARY.

Death.

BODDAM-WHETHAM.—Lieut.-Colonel A. C. Boddam-Whetham, D.S.O., 4th Battn. Argyll and Sutherland Highlanders and R.A.F., of Earlscliffe, Folkestone, who was killed in an aeroplane accident in Egypt on June 22nd, was the eldest son of the late J. W. Boddam-Whetham, late of Kirklington Hall, Notts, and Mrs. Boddam-Whetham, and husband of May Grace Boddam-Whetham. He was 35 years of age.

Engagement.

MAUDUIT—BROOKSBANK.—A marriage has been arranged, and will shortly take place, between Captain Mauduit, 7th Dragoon Guards and R.A.F., eldest son of Lieut.-Colonel Mauduit, of 57, Sloane Street, and Mrs. Mauduit, and Irene, daughter of the late Captain A. H. Brooksbank, 19th Hussars, and Mrs. Brooksbank, of Middleton Hall, Yorkshire.

AIR FORCE

Deaths.

HALL, SUMNER, VANCE and JAFFE.—On July 9th the military postal aeroplane, No. 41,591, crashed near Pourriers (Var). As a result of the accident the petrol tank exploded and the machine caught fire. The four occupants were killed. They were Lieuts. Hall, Sumner, and Vance, and Cpl. Jaffé.

Lieut. Francis Cyril Sumner, R.A.F., was the eldest son of Mrs. Sumner, "Inversnaid," Bromley, Kent, and of the late Frank Sumner, Engineer to the City Corporation. He was 20 years of age.

HERBERT, HILEY, and BIZION.—Two pilots and a mechanic were killed at Farnborough on July 14th as the result of a collison in the air. One of the machines concerned was a two-seater Avro, of which the pilot was Lieut. Herbert, R.A.F., attached to the Royal Aircraft Establishment, and Air Mechanic C. Hiley. The other was an S.E. Fighter piloted by Lieut. Bizion, R.A.F.

KNIGHT.—Lieut. C. R. Wentworth Knight, R.A.F., who was killed in action on June 21st at Topsa, on the Archangel Front, was the only son of Mr. and Mrs. W. H. Knight, of Towns End House, Limington, Ilchester. He was 21 years of age, and had served continuously in France and elsewhere since January, 1915.

MATURIN.—An inquest was held on July 10th on the body of Lieut. William Henry Maturin, R.A.F., an American, aged 28, who shot himself while drowning in Langstone Harbour. It was stated that Mr. Maturin had been invalided out of the R.A.F. and he had been unable to obtain work. A verdict of suicide while temporarily insane was returned.

Engagement.

TAYLOR—LOCOCK.—The engagement is announced of Capt. Bernard A. Taylor, R.A.F., only son of Mr. and Mrs. A. E. Taylor, of Crawley, Sussex, and Kitty, third daughter of the late Capt. H. F. Leicester Locock and Mrs. Leicester Locock, of Pook's Hill, of Angmering, Sussex.

Marriages.

BARTON—LEE.—On July 5th, at Woodton Parish Church, Lieut. Charles Frederic Barton, R.A.F., of Toronto, Canada, was married to Mary Letitia Driffield Lee, younger daughter of the Rev. Frederick and Mrs. Lee, of Woodton Rectory, Bungay, by the Rector, the father of the bride.

EVAMY—HANNAFORD.—On July 9th, at St. Matthias Church, Torquay, Capt. H. S. Evamy, R.A.F., was married to Dorothy Jeanette, eldest daughter of Mr. and Mrs. C. J. Hannaford, of Chulmleigh and Torquay, Devon, by the Rev. W. P. Alford.

TOLFREE—NASH.—On June 26th, at Kasr-er-Nil Garrison Church, Cairo, Lieut. W. M. N. Tolfree, R.A.F., youngest son of Mr. and Mrs. W. H. Tolfree, of Winsford, Cheshire, was married to Frances Winifred, only daughter of Mr. and Mrs. F. R. Nash, of Guildford, Surrey, by the Rev. E. L. Millen, C.F., assisted by the Rev. H. Valentine, C.F.

Births.

CUMMINGS.—On July 8th, at Streatham Manor, the wife of Lieut. Philip H. Cummings, D.F.C., R.A.F.—a daughter.

HELLYAR.—On July 12th, 1919, at 27, Bonham Road, Brixton Hill, S.W.2, to Captain (late R.A.F.) and Mrs. William F. Hellyar—a daughter.

HUMFRESS.—On July 5th, at 61, Rusholme Road, Putney Heath, the wife of Capt. H. T. Humfress, R.A.F., of a daughter.

LINDEMAN.—On July 8th, at 12, Walpole Gardnes, Gunnersbury, the wife of Capt. Gerald N. Lindeman, R.A.F.—a son.

MAXTON.—On July 18th, at the Firs, Westgate-on-Sea, Ruby Beatrice (née Holmes), wife of Captain L. G. Maxton, R.A.F.—a son (Geoffrey).

ROBERTSON.—On July 6th, at Rempstone, Cheriton Road, Winchester, the wife of Capt. Norman Robertson, R.A.F., of a son.

SMITH.—On July 10th, at 20, Ladbroke Gardens, to Olive Merle (née Nickson), the wife of Capt. W. E. Smith, late R.A.F.—a son.

STAMMERS.—On July 8th, at the Nursing Home, Gerrards Cross, to Muriel, the wife of Capt. S. R. Stammers, A.F.C., late R.A.F., of a daughter.

STRICKLAND.—On June 30th, at Dublin, the wife (née Bentham) of Harley, Lieut. C. W. Strickland, R.A.F., of a daughter.

SOME THOUGHTS ON REORGANISATION.

One wonders why it is that in England everything appears to come too late. In whatever light one regards the late war one is sure to come upon something that might have happened earlier—that, indeed, should have happened earlier—to be really appreciated. Although, in some cases, it would have been better had it never happened at all. The Armistice was one of these latter things.

Take the signing of the Peace terms, which, it is stated, fell so adventitiously upon the very day (five years later) that the Archduke Franz Ferdinand of Austria was assassinated, that it seems to indicate some very clever arranging upon the part of the politicians.

"Playing to the Gallery" that sort of thing is called, but the Gallery is tired of the Play. It has had so many occasions for celebrating already that it scarcely knows what to do with July 19th. Besides, one cannot well celebrate any Peace properly while enduring a shortage of alcohol. And the thought of a Ministry of Health to look after one and tell one what not to do is enough to spoil anybody's pleasure.

But Peace Celebrations have little to do with reorganisation in the R.A.F., excepting always the fact that the R.A.F. will need a lot of reorganising after the Peace Celebrations. One does not really see why it should, but that seems the right kind of thing to say of the R.A.F.

Of course, reorganisation in the middle of a war is recognised by everybody as being bad. But one wonders if it is really so bad as no organisation at all. Or if it is as bad as forming a new Service on nearing the end of a war, just when Britain is about to start winning her last battle, having—in the good old way—lost most of the foregoing ones.

One has only to think of the R.N.A.S. to remember how badly in need of reorganisation it was. If only the Government could have been original for once and said—with the fashionable folk—"Oh! damn convention"—or some such thing—and reorganised that. One feels sure it would have paid in the long run.

Naturally, the pukka Navy people would have felt a little injured at first, because nobody likes to own one's poor and unconventional relations. But there seems no reason against a pilot becoming serious as he grows older. Personally, one rather doubts if he will.

One calls to mind a certain pilot, who, some few hours after one's first meeting with him, fused all the electric lights in the building so that one sat in darkness for a week.

Still, reorganisation is good even when it comes too late to save what might have been a very useful branch of His Majesty's Senior Service.—S. F. Benda.

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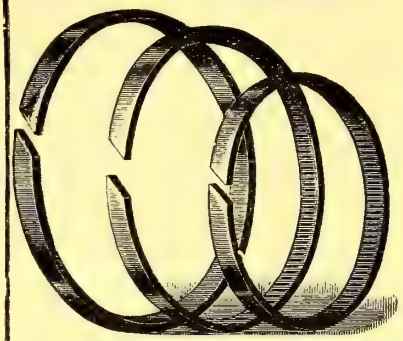

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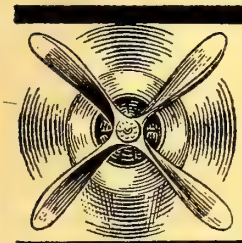

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WEDNESDAY, JULY 23, 1919.

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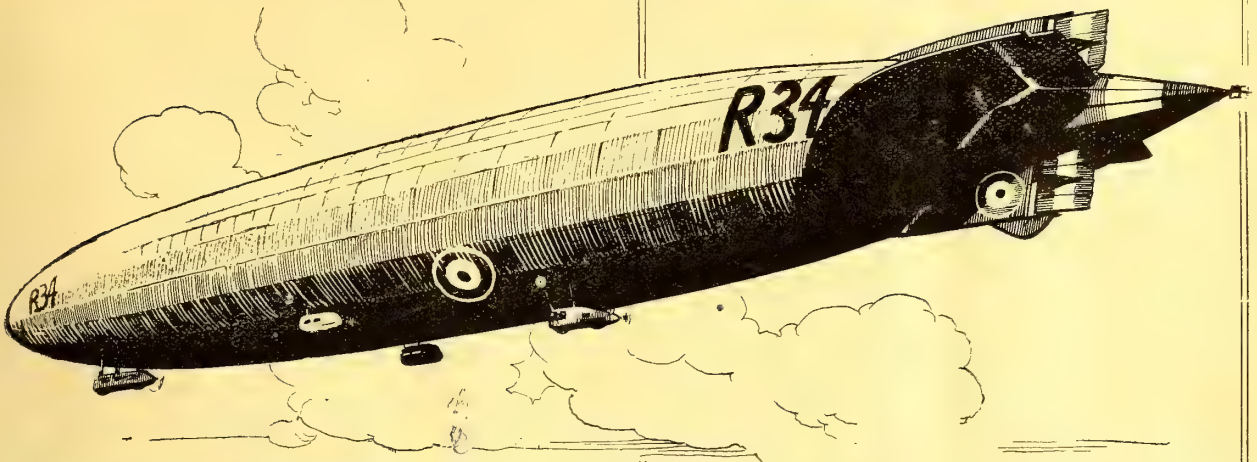

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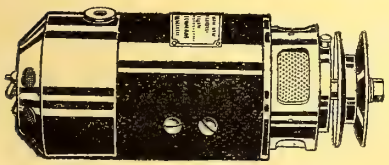

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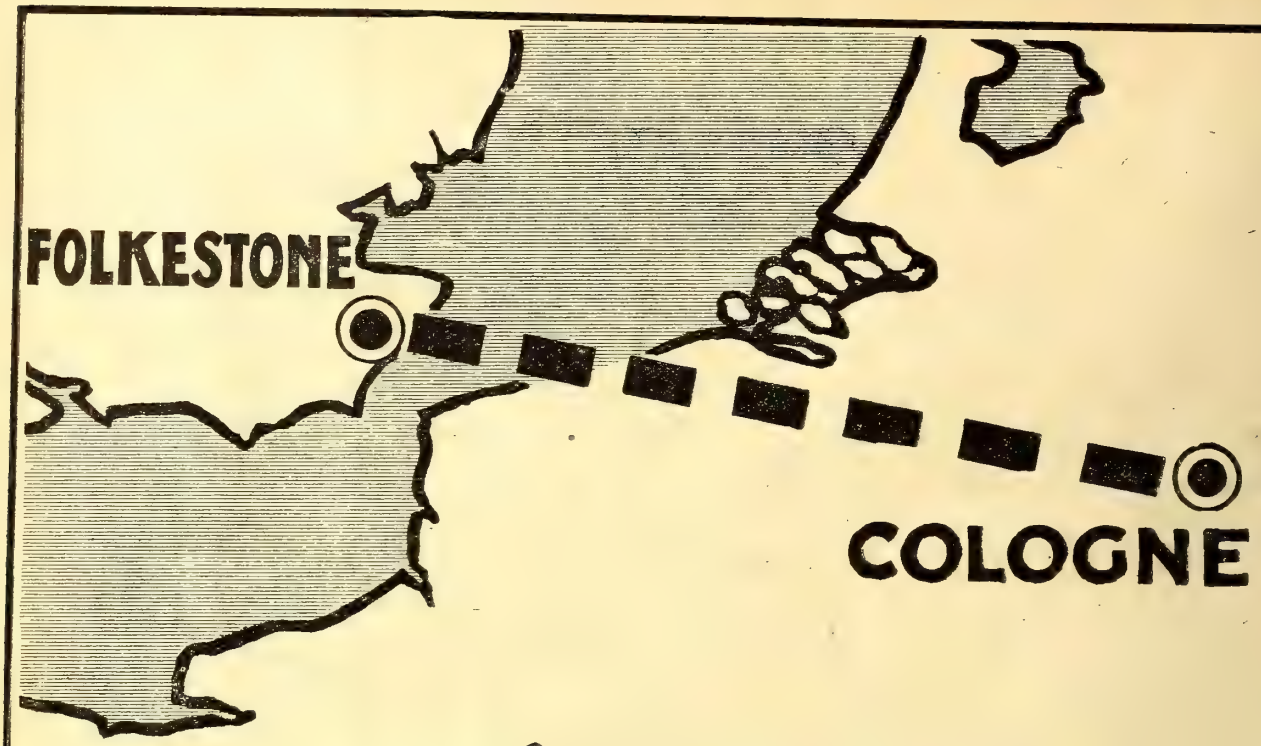

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—*Times*, Saturday, June 21st, 1919.

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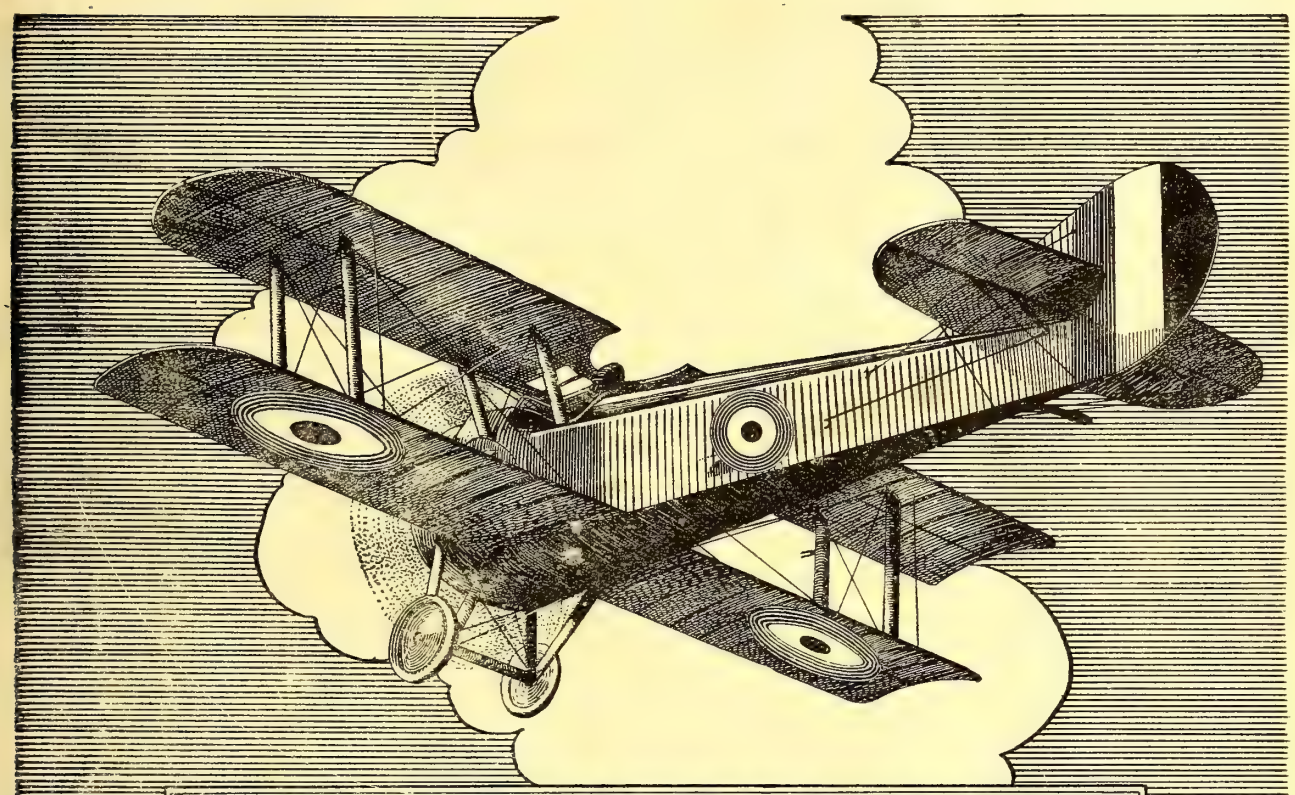

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VOL. XVII. No. 4.

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ON PREPARING FOR WAR.

Last week I endeavoured to show that there must be a next war, and prophesied that the great war will be one waged by all the Teuton tribes, such as Franks, Burgundians, Anglo-Saxons, Belgicæ, Jutes, and Germans, against the whole Slav Race. I propose now, purely as a matter of personal opinion and not in an impersonal editorial capacity, to hazard a few prophecies as to the manner of coming of the real World War, and as to the part which the Air Force will play therein.

Recently Major-General Sir Frederick Maurice, a very gallant soldier who threw up a splendid military career because he had the courage of his convictions, made the astonishing statement that, though he had been brought up to believe that preparation for war was the surest guarantee of peace, he now believed that "if you prepared for war you got war." The natural inference is that in his opinion if you do not prepare for war you do not get war.

That may be literally true, for the good and sufficient reason that if you do not prepare for war you get conquest. One still believes firmly that the only way in which the lamb can lie down peacefully with the lion is with the lamb inside. Surely General Maurice would not have us believe that the big strapping athletic man in the pink of condition is more likely to be assaulted in the street than is a little ill-conditioned chap, especially if the big man behaves like a gentleman and the little chap behaves like a cad. Yet that is precisely the difference between a big nation prepared for war and a little nation unprepared.

Let him remember that it was the impudent behaviour of Servia to Austria over the assassination of the Arch-Duke Franz-Ferdinand by a Servian at Sarajevo, as the result of a plot hatched in Servia, which was the small cause from which the long-avoided European tribe-fight began. And it was the bullying and blustering of unprepared Russia which actually began the war.

If Russia had been fully prepared Germany would not have fought when she did. And by the time the war did begin France and Great Britain might have been better prepared for it, and it might have been over quicker. But then again it might not. In any case it is foolish to argue that either man or nation must not train for fighting because if they do they will get into a fight. It seems so obvious that if they do not train they will merely be consistently bullied and assaulted by those who have the sense to go into training.

Therefore, whether we see a war coming or not it is our duty to keep in training—that is to say, to prepare for war. In our particular case the coming war can be seen quite plainly with the naked eye, though it is impossible to judge with any hope of accuracy when it is likely to arrive.

The war must evidently be with the Slav Race, for the Slavs are a very young and undeveloped people compared with the older civilisations of the West, and it is a law of history that the young races develop towards the West and in time replace the older races. Always the replacement is done by peaceful penetration in the end, for though waves of invasion from the East may have temporary success they are always beaten back, and leave only a trace behind.

Let us then consider how this war with the Slavs may arise.

History Repeating Itself.

Up to the present moment the course of the rebellion against the government of His Imperial Majesty the Tsar follows curiously along the lines of the French rebellion of 1789, which ultimately became known as the French Revolution and produced the first French Republic and the first French Empire.

The first outbreak followed closely the lines of the declaration of the States-General in France. The feeble but intense Kerensky resembled the "sea-green incorruptible" Robespierre, except that he lacked Robespierre's strength in dealing with his enemies and Robespierre's courage in dying for his opinions.

The two arch-criminals of the Bolshevik misrule, Lenin and Trotsky, seem to resemble Marat and Danton, or possibly Carnot and Barras, without the solidity of character of the Frenchmen, though it is said by those who ought to know that Lenin is an honest fanatic.

The Bolshevik "Red" Armies, with their People's Commissaries and their Soldiers' Councils, are like those which under the States-General defended the frontiers of France against the Germans, Austrians, and English. The fighting in Northern Russia and near Petersburg may be taken as a parallel to the battles of the period of Fleurus, and the fighting against Koltchak and Denikin is a close parallel to the campaigns of Kléber and Hoche against the loyalist Chouans in La Vendée in 1793 and against the Prince de Condé in the north.

It is to be hoped that Koltchak and Denikin will do better than did La Rochejacquelin, Stofflet, La Ville-Beaugé, and Vaugiraud at that period. They certainly have better backing from their Allies, but, being Russians themselves, their followers may fail in the moment of victory just because of that lack of intensity of purpose and that childish characteristic of losing heart or losing interest at the critical moment which stamps the Slav as the savage which he is, no matter what veneer of culture he may have acquired during a sojourn in a more civilised country, or in a school under the management of a civilised foreigner.

The Departure from the Parallel.

The parallel with the French Revolution fails in the fact that France was one single nation, whereas the Slav situation is complicated by the number of small "self-determined" Republics which have set themselves up, and keep upsetting themselves and everybody else. None can follow with any clearness of idea the squabbles of the Letts, Balts, Esthonians, Ruthenians, Finns, Karelians, Ukrainians, and so forth on the West and North of what used to be the Russian Empire.

Nor is the Polish position any clearer, seeing that the present Polish Government claims bits of Germany and Austria, as well as Gdansk (better known to the civilised world as Danzig), bits of Ruthenia, part of the Ukraine, and some of Hungary. The Polish propagandist people in Paris have recently been kind enough to send me a number of interesting pamphlets, which lead ultimately to the conclusion that at one time or another in its lurid history Poland has conquered most of Central Europe.

These conquests seem to have been made whenever a warlike Polish prince has prepared for war, and they seem to have been lost through unpreparedness for war. Which unpreparedness has always been due to the Slav's constitutional inability to stick to one object and make a job of it. The one perfectly clear fact which emerges from all the pamphlets is that German Poland has always been more prosperous than any other country inhabited by Poles. As, for example, the statement that in 1906-1910 Lithuania and White-Ruthenia (under Russian government) produced 6 quintals of rye per hectare, "Congress" Poland produced 10 quintals, and the German Polish province of Posen produced 15.6 quintals.

Delaying the Big War.

The natural inference is that the Slav, whether pure Russian, Pole, Lett, Ruthenian, or anything else, will only work when he has a master to make him work. So long as all these Slav tribes keep on squabbling among themselves the rest of Europe may exist in comparative peace and safety. Therefore it seems very sound policy to keep them all fighting. It prevents them from coming under the leadership of one great man, and incidentally it keeps the Slav population from increasing too rapidly.

But, and here is the key to the whole situation, if and when the Slav Napoleon arises, then the Slav peoples will be made to settle down to work. They will pile up wealth (for Russia is by nature the wealthiest portion of the world), they will pile up population, and then they will overflow, by the Law of Nature, to the West.

Where Is the Leader?

None can guess where that great Slav leader is to-day. Perhaps he is not yet born. Perhaps he is a boy soldier in a Bolshevik regiment. Perhaps he is an ambitious young officer of the old régime. It is well to remember that Napoleon, who was a mere youth when the French rebellion first began, was trained as a child in the old Royalist military academy; and similarly a young Russian officer whose personal ambition is greater than his loyalty to the Tsar may make himself master of the Slav peoples.

He will have no difficulty in finding supporters in the Bolshevik armies, for here the parallel to France of 1790 to 1800 is very close. The popular belief is that Napoleon's famous Marshals and Generals all rose from the ranks, and were men of the people. So far as one remembers, Lefebvre and Jourdan were the only Marshals who rose from the ranks, though several minor Generals did so. All the other Marshals and most of the Generals (who were as a rule older men than Napoleon himself) were trained at the old Ecole de Guerre, founded by M. le Duc de Choiseul in 1761, which preceded the Saint Cyr of to-day.

Hardly any, if any, of Napoleon's officers were of the Higher Nobility, but many were of the well-to-do Bourgeoisie or of the Minor Noblesse. When the utter chaos of the first years of the Revolution settled down under the Directory and the Consulates, and something like law and order was restored, the decent people who were still left in France felt it to be their duty to help in defending the Country against foreign invaders. Some of them even approved the Revolution in principle, though not as practised by the "Red" revolutionaries. And so they set to work and helped in restoring order and discipline in the Army, realising that even a Republican government was better than no government at all. And when Napoleon rose to power they supported him as a great leader who would do more for France than would any government composed of middle-class nonentities elected by the people. Wherein they were perfectly right.

The Parallel Again.

Something very similar is already happening in Russia to-day. Lenin and Company, who are the equivalent of the Directory, have already gone far towards abolishing Liberty—as understood by the mob. Their rule is "No work, no food." Their system of compulsory education is said to be excellent. I am told that it is modelled on the American system, modified and improved to suit their own purposes and the Russian mentality. They are hammering into the heads of their people the doctrine of obedience. And it is well to remember that, despite the Bolshevik outbreak of savagery, the Russian is by nature inclined to be obedient.

The survivors of the *bourgeoisie* in Russia are supporting these efforts to bring the populace into a proper state of subjection, for it is their only hope of self-preservation. The professional soldiers, having lost everything they ever possessed in the world except their military knowledge, are helping to put the Bolshevik troops into a proper state of discipline, for they know that without discipline they cannot even feed the troops and themselves.

The power of the Commissaries of the People in the Bolshevik armies is decaying—just as it decayed in the French Revolutionary Armies—and the power of the Directory over the troops and people is growing. As the Central Government's power grows, so the possibilities of mob-rule in the Provinces decreases. And so something like an established Government is coming into being. Such a Government will bring the mob properly to heel and Central Russia will become consolidated.

Meantime all the little Slav Republics round her borders will go on fighting with one another, becoming more and more poverty-stricken and depopulated. The result must be that when the great Russian leader arises—a new Peter the Great or Ivan the Terrible—these enfeebled States will fall easy victims to his well-fed and well-equipped armies.

Some day Lenin will be assassinated, or will commit suicide, or perhaps will die a natural death. He will probably be succeeded by weaker or less honestly fanatical or less able men, and then will come the opportunity of the great leader.

Or, as a possible alternative, Admiral Koltchak and General Denikin, either or both, may defeat the Bolsheviks utterly and establish a military government in Central Russia, under a Military Directory, in place of the Bolshevik Directory. In this case also the proletariat will be brought to heel, and a settled government will strengthen Central Russia while the outlying Slav tribes are hammering one another into a state of exhaustion and preparing themselves to be conquered.

The March of Conquest.

In either case the great leader will find his opportunity waiting for him. One by one the petty republics will be brought under his thumb. The Esthonians will seek his protection against the Letts, or *vice versa*, and he will help the one to conquer the other, so that ultimately he will absorb both. Similarly he will help the Servians to conquer the Bulgars, or *vice versa*. And he will help Jugo-Slavs to conquer the Poles or the Czecho-Slovaks, or the Roumanians, or the other way round.

It will not matter in the least to him which tribe he helps to conquer the other, because ultimately he will rake the lot into his great Russian Empire. And when he has done all that he will find himself up against the Teutonic and Latin races of Western Europe.

The Slavs will be flushed with conquest and will think that they can go on conquering Westward as easily as they absorbed all the little Slav republics. They will be met by the Germans in the North, by the Bavarians and Austrians in the Centre, and by the Swiss and Italians in the South.

How far that march of conquest will progress will depend on two or three factors. Firstly on how much strength Germany can raise to stop the Slav advance. Secondly on how much support France will give to Switzerland and Italy. And thirdly on how much help Great Britain will provide by sea, land, and air to Teutons and Latins alike. And it is precisely at this point that Britain's Air Power becomes the decisive factor.

THE NEW WORLD'S AFFAIRS.

So far I have purposely omitted any consideration of America's share in this coming war, because it seems quite possible that America will be very busy about her own affairs. At the present moment those who are in power in Japan are our loyal and gallant allies, and are therefore without doubt equally attached to our friends in the United States. But it is quite within the bounds of possibility that in time an ambitious Japanese leader may arise who may induce his people to attack America.

It is said that already individual Japanese are acquiring great interests in Mexico, and that among those interests is a great factory in Mexico City for the production of explosives. Doubtless those explosives are for use in Mexican mines, but the factory might, in time of Mexican civil war, be put to other uses. The United States also has great interests in Mexico, and it is conceivable that those interests might clash with Japanese interests while at the same time Japanese and American interests in Manchuria and Korea gave rise to quarrels.

Thus it might come about that, despite the best endeavours of our present friends in Japan, a war might break out between Japan and the United States. The Japanese Fleet might clear the U.S. Navy off the seas before Mr. Secretary Daniels' proposed "greatest fleet in the world" becomes a fleet in being. And then Japan could land troops unhindered in Mexico, whence they could attack the United States over open country without having to surmount the Pacific Slope and cross the barrier of the Rocky Mountains.

Thanks to America's intervention towards the end of the Anglo-Franco-German war, the United States have a large partially-trained Army which has within it a nucleus of officers and men who have seen several months of active service and have been in several serious battles. For the same reason they have a large number of young men who know how to fly, and many firms which can build aeroplanes and aero-engines, together with several dozens of active-service aviators and several firms which now know how to build aeroplanes-of-war, though none of the said aeroplanes were actually used on active service. Thus the States are ready to-day to meet quite a considerable enemy force.

Japan, though her Army and Navy never participated actively in the European war, made use of the Siege of Tsing-Tao to put a number of divisions successively under fire, thus using the siege as a kind of advanced training school for troops. And so Japan also has a nucleus of men with war experience.

A DISCOURAGING EXPERIENCE.

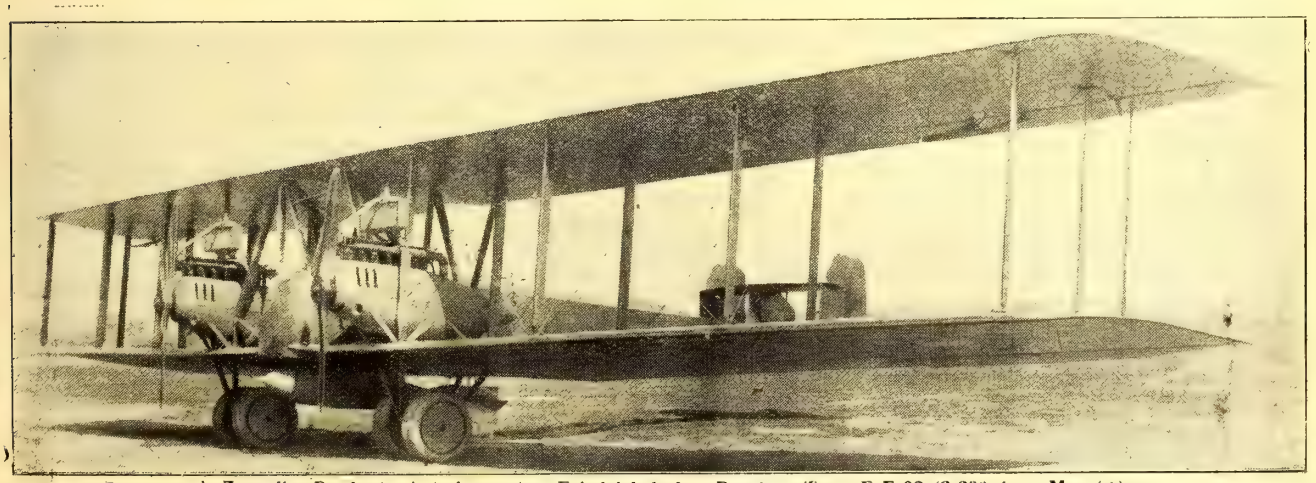
I hope very sincerely that this mutual experience of war will tend towards peace between our friends in America and in Japan. But, judging from all past history, a slight taste of war increases the appetite for war, and a long peace is only produced either by conquest or by mutual exhaustion.

One would have thought that as East Prussia, Poland, Galicia, and Hungary have been the cockpits of some of the fiercest fighting in the recent war the inhabitants of those countries would have had their bellyful of fighting for a generation. Yet we see them still fighting as amiably as ever. It hardly seems likely therefore that as neither the Japanese nor the Americans have seen any fighting at all on their own territory for over fifty years the people themselves will be deeply opposed to further wars.

Therefore, while hoping that a Japanese-American war may not occur, it would be very unwise to assume that it can not occur. And so it would be still more unwise to reckon on any substantial help from America when the war between the Slavs and the civilised races of Europe actually breaks out upon us. Let us return therefore to the purely European outlook.

TIME ESTIMATES.

As I have said, none can even guess at the time when this race-war will begin. There was a period of six years between the outbreak of the French Revolution and the first rise to a prominent position of Napoleon, and even then he was only an Army-Commander under the Republic. So that if the Russian Napoleon is following a career exactly similar to that of his great predecessor he may still three years hence be only a young commander of a Bolshevik army whose name is unknown



A Zeppelin Product: A twin-tractor Friedrichshafen Bomber, Type F.F.62 (2-260 h.p. Mercédès).

to us in the West. For, be it remembered, we have never yet heard the name of any one of the Bolshevik leaders in the field, though from the recent defeats of Koltchak and Denikin it is obvious that the Bolsheviks must have some very good soldiers among them.

[Since these notes were written it has been reported that the C.-in-C. of the Bolshevik armies is a certain Kemeneff, formerly Colonel on the General Staff of the Tsar's Army.]

Can anyone say who in their armies corresponds to Kellermann, Jourdan, or Pichegru, of the armies of the French Republic? To those who wish to get a fairly correct view of the Russian situation I recommend strongly the reading of those volumes of MM. Erckmann and Chatrian, entitled "The Story of a Peasant," which cover the whole period of the French Revolution. The parallel to Russian affairs is seen therein as being much closer than any study of Carlyle would lead one to believe.

The introduction of railways, motor-cars, aircraft, and telegraphy (wireless and otherwise) might lead one to imagine that the rise of the Russian Napoleon will be quicker than that of the French Emperor. A similar line of argument led some people to think that these aids to rapid transport and communication would shorten future wars.

As a matter of fact they increased the length of this recent war because aeroplane scouts enabled the British Army to escape after Mons, and later enabled our Army Commanders to judge exactly where a big attack was coming, and to concentrate forces in defence by means of the other means of rapid transport. But for these aids the war would have been over, so far as the West Front was concerned, in the first six weeks. We might have carried on a Naval war, but it is much more likely that Messrs. Asquith and Co. would have made a reasonable peace and that Germany would have been left free to hammer Russia and so delay the Slav irruption for another ten years or so.

All for the Best.

Nevertheless, things may have worked out for the best after all. Despite the heavy losses of the Western races in this war, we have learnt a vast amount about modern war material which the Slavs have not. We have built up huge factories and masses of machinery which can be turned again to produce war material, which the Slavs have not. Our bitter experiences may be made of good account in preparing for the next war.

As in all previous irruptions of barbarians from the East, Western science and organisation will be pitted against mere masses of humanity. French quickness of mind and scientific attainments, plus British solidity of purpose and sound practical ability, plus German power of organisation, ought to be able to stave off any Slav invasion of Europe, albeit the effort required will be much greater and much more prolonged than that which was needed to finish this recent scrap of four years and a bit.

And because we shall need all the strength we can collect it is merely silly to talk about crushing Germany out of existence. As I said last week, Germany divided into her natural component parts will be a very valuable barrier. Germany crushed out of existence (if such a thing were possible, which it is not) would be merely a roadway over which the Slav could march into France. On which point it is well to remember that the much advertised German atrocities in France and Belgium were a mere game of kiss-in-the-ring compared with atrocities committed by Slav troops in East Prussia, Poland, and Galicia, and by Servo-Slav troops against Italians, and by Bulgars against Servians and *vice versa*. The mere Teuton is an infant in comparison with the Oriental when it comes to atrocitising. I only hope that my esteemed friend Captain Alan Bott, M.C. (better known as "Contact"), who is telling his Eastern experiences so well in "Blackwood" at present, will tell in the coming instalments some of the stories of Bolshevik atrocities which he collected while in Odessa and elsewhere after escaping from Turkey. He will help materially to prepare us for the next war if he does so.

A Matter of Longitude.

The German is by no means the savage which our yellow press would have us believe. (And be it here noted that in a few years or a few months' time the same yellow press will be telling us what a fine chap the German is—when our Jew financiers want us to begin trading with Germany for their benefit.) Witness for example how the Kaiser's sons, and the aged Field-Marshal von Hindenberg and the ex-Chancellor von Bethmann-Holweg all came forward and accepted responsibility when the ridiculous Peace Conferenciers proposed to try the Emperor for the sins of his subjects.

Supposing that the war had gone the other way and that the Central Powers had proposed to try King George for England's perfidiousness. Can you imagine Mr. Lloyd George offering himself in his master's stead, as von Bethman-Holweg did? I do not say for a moment that Mr. George would not gladly die, or serve a life sentence, in his King's place. But, can you mentally see him doing it? And whether you can or not, does not von Bethmann-Holweg's offer show him to be a loyal gentleman?

Whether we like him or not we have got to live in the same world as the German, so we may as well make the best of him. According to the Army of the Rhine, the German is not at all a bad neighbour, and he knows more about building a handsome and pleasant city than we are ever likely to learn.

The fact of the matter is that in whatever country you choose to make investigations you can find people who will commit outrages and atrocities. The only material difference is that the farther East you go the greater will be the percentage of atrocities in proportion to the population. A conscript army includes all the criminals as well as all the saints of the population. Even a British volunteer army will commit a certain small number of atrocities, as anyone who served in South Africa knows. A British conscript army of the same size will commit more. A German conscript army will commit a still higher percentage in proportion to its size. And a Slav conscript army will be worse again.

It is purely a matter of longitude. The farther East you go the nearer you get to absolute savagery and total absence of all morals. The low-water mark is reached in Russia, for when you get past Russia you arrive in China, where there is an ancient civilisation, and where there is an old aristocracy. Even the Chinese are fairly expert torturers, but that is part of their system of civilisation, and is not mere wanton beastliness as in the case of the Slav.

The Task Before Us.

When once the British nation has made up its mind that the Western Nations have to prepare for this race-war with the Slavs it will be easy to induce people to see the need for a big Air Force. Meantime, we who are intimately concerned with aircraft have upon us the burden of preaching the Gospel of Aeronautics henceforth until the war begins.

We ourselves can visualise our fleets of tanks, guided by their attendant air scouts, ploughing through and through the Slav hordes. We can see our great bombing fleets destroying Slav cities in a way that has never been

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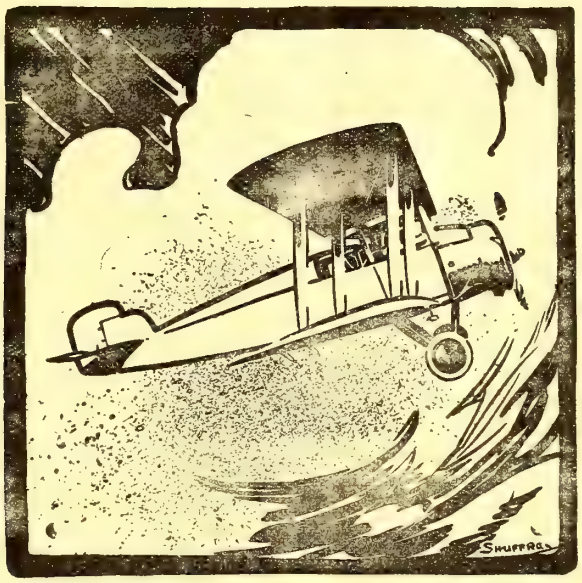

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attempted in this war. We can imagine our reconnaissance machines searching over the great forests of Central Europe for the tracks of the Slav armies, just as the splendid pre-war German machines did just five years ago. But we cannot get the stupid British Public to see it, nor can we get the self-interested British newspapers to make them see it.

Therefore all that we aeronautical people can do is to go on preaching aircraft and the use of aircraft, for on us will depend most of the air work of the war, as it did in this war. Under the Peace Treaty, the Germanic States may not maintain a military Air Force, and their magnificent aircraft factories will have to be shut down. Already the Rumpler Works, one of the oldest aircraft concerns in the world, are in liquidation, and others are following while they still have money to save.

So it will devolve upon us to supply the Western Nations with aircraft in the really Great War which is coming. That will certainly be a fine thing for the British Aircraft Industry, but it will not be possible unless we can maintain an Industry and an Air Force in the years which are immediately ahead.

Commercial aeronautics will not develop into real business for some years to come. How then shall we retain our British Air Power in the immediate future?

The answer is, very simply, by doing everything possible to make flying a gentleman's sport, and not a mere vulgar circus show, and by combining sport and duty in building up a huge Territorial Air Force. The sporting aviator will join such a Force, and it, as it grows, will give work to the Aircraft Industry, and will maintain our supply of skilled mechanics. And so we may at least do something to prepare for that great Race War which may come upon us in the next five years, but may not break in its full fury for fifty years or more.

C. G. G.

ON THE WRITING ON THE WALL.

Among that excellent series of mnemonic rhymes on Hebrew history from which one has quoted samples in this paper from time to time is one which runs :—

" At the writing on the wall all the Magi stood appalled,
Till somebody suggested that Daniel should be called.
So Daniel *was* called, but merely remarked in passin' :
'Ah! *Mene, mene, tekel upharsin!*'"

If one recollects rightly, the weird words in the last line being interpreted mean, " Thou hast been weighed in the balance and found wanting." And, as the Oriental Potentate to whom they referred refused to pay attention to the warning, his Empire (one cannot remember whether it was Babylon, Nineveh, or Assyria) expired shortly afterwards.

A Fair Warning.

We have just had a very similar warning in the form of that wonderful non-stop flight from Rome to London by Lieutenant Brack-Papa, of the Italian Army, on a S.I.A.-Fiat biplane, at a speed of over 160 miles per hour.

Are we going to heed the warning or are we not? The question is addressed equally to the British Aircraft Industry and to the Air Ministry.

For the last year we have patted ourselves on the back and prided ourselves on the fact that we held the Command of the Air—despite General Henderson's expressed opinion that such a command was impossible. And we had every right to do so, for the Germans were beaten out of the air, the French had no fighting aeroplanes worth mentioning, the first-class Italian machines were few and far between, and America had achieved the distinction of producing quantity devoid of quality. Great Britain at the end of the war stood alone as the leader of the world's aircraft design.

Since the war we have produced many excellent aircraft, and we have put up one or two fine performances, *but* we no longer lead as we did. As General Brancker said at the R.A.F. City Luncheon Club on Thursday last, other nations are overtaking us in the production of aircraft. The very performances on which we pride ourselves most have been beaten in one way or another.

Where We Are Beaten.

A British aeroplane was the first to cross the Atlantic without a stop, it is true. All honour to Sir John Alcock and Sir Arthur Brown. But their speed, despite a favouring wind, was far below that of Signor Brack-Papa's Fiat, which had no wind to help it, and in fact had the wind against it for much of the journey.

Also their time in the air—some 16 hours—was beaten before the war by Herr Rudolf Böhm on a Mercédès-engined Rumpler biplane, who flew for 24 hours 12 minutes without a stop.

To the Vickers-Rolls-Royce combination belongs the distinction of having covered the longest distance without a stop. Even allowing for the favouring wind that is at any rate a record of practical value, and not of purely sentimental interest, as is the crossing of the Atlantic *per se*.

It is of interest to note that the Fiat's journey was made with a single engine of 700 h.p. To this the phenomenal speed of the machine, and its capacity for carrying a big load at the same time, may be attributed. We in this country have not got a single engine of 700 h.p. When we want to carry a big load we have to sprinkle engines all over our machines in very inefficient positions, and so we are beaten on speed. Our tandem airscrew arrangement is about as bad as can be, despite the arguments of Technical Department " experts," but it cannot be avoided.

And though we have had designs for engines of 700 h.p. and more being hawked about the country for years, we have not got the engines. The Italians *have* got them. Hence our defeat in this exposition of high speed and long distance.

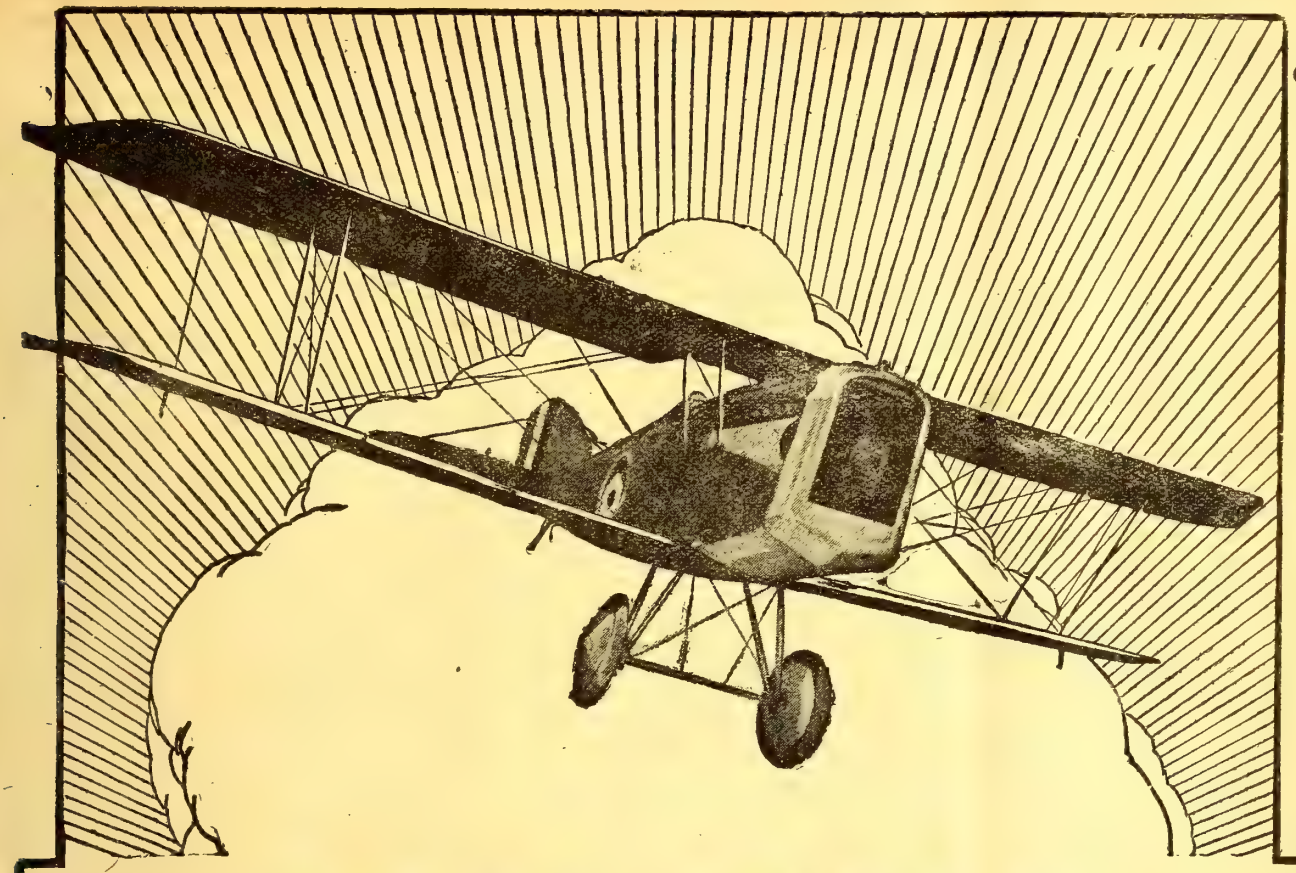
Similarly we pride ourselves on having produced the first airship to cross the Atlantic, and the first to go there and back. But the Zeppelin of 1917 did a longer and faster journey from Bulgaria to Central Africa and back. So, apart from a sentimental triumph, what on earth or in the air have we got to cheer about?

Who Is to Blame?

Readers may well ask, who is to blame for our losing our lead, and for this—the first and one hopes the last—of our defeats by our Allies in the air? Primarily, of course, the fault lies with the officials of the Air Ministry's Supply and Research Department as it is to-day, or Technical Department as it was, who cramp and crab private enterprise to-day as they did during the war.

Signor Brack-Papa has the honour of being the first to demonstrate publicly that an aeroplane can travel at 160 miles an hour. It is entirely the fault of the Air Ministry that the British Aircraft Industry was prevented from demonstrating in the Aerial Derby that we have several machines which can travel at speeds somewhere between 155 and 165 miles an hour.

This paper has constantly published accounts of the high speeds developed by the new French machines, such as the de Marçay and the Spad-Herbemont, and the new Italian machines, such as the S.I.A. and S.V.A., but the Air Ministry refused to permit the Bristol, Bat, Martinsyde, Nieuport, and Sopwith firms to prove that they were in the same or a superior class. We have not



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heard the last of this Air Ministry imbecility, one hopes, but the harm is done. The Fiat people have shown the world that they have something better than we have, so far as public performance is concerned.

Where the Industry Fails.

Personally one believes that the British firms mentioned hereinbefore can beat our esteemed Allies if given a fair chance, but it would be foolish to put all the blame on the Air Ministry because they have not already done so. Surely the past five or six or seven years ought to have taught the British Aircraft Industry that it is not enough to beat the World in aircraft and aero-engine design and construction. That is comparatively easy. The real difficulty is to beat the various Government Departments which hinder progress and hamper business.

If after three years of neglect, four and a half years of war, and six or seven months of a devastating peace, the Industry has not learnt the gentle art of wangling, then it is quite time for it to look around for new business managers. Surely if the Industry desired keenly to prove the superiority of British speed machines it could combine to defeat the officials of the Air Ministry, who are in reality intensely stupid, as their actions and arguments over the Aerial Derby affair have proved.

If the Society of British Aircraft Constructors and the Royal Aero Club (which homologates all British records) combined to demonstrate and advertise to the world at large the wonderful performances of British aeroplanes the Air Ministry would be completely beaten. It may be true that the Industry cannot exist without orders from the Air Ministry. One doubts it, because there is plenty of business to be got abroad by any enterprising firm that goes the right way to work. But it is perfectly true that the Air Ministry cannot exist without the Aircraft Industry.

The war proved that Trade designs could always beat Official designs, and if the S.B.A.C. struck against the imbecilities of the Technical and Supply Departments the Society would have all the practical and active-service people in the R.A.F. in its favour. The question is whether the members of the S.B.A.C. trust one another. There seem to be doubts on the subject. But if the S.B.A.C. is a solid body, without any members who will sell the Trade in order to curry favour with the Air Ministry, then it can beat the Air Ministry every time.

Precedents to be Avoided.

One has only to recall how before the war the motor trade, the cycle trade, and other British trades were beaten by foreign competition to realise how grave is the danger to our Aircraft Industry to-day. We must avoid at all costs that foolish British custom of sitting down and saying to ourselves: "British stuff is the best stuff. Let the foreigner come and fetch it."

We have got to go and fetch the foreigner to look at our stuff. We have got to take our stuff for the foreigner to look at. We have got to demonstrate at home and abroad that our stuff is the best. We have got to force the Air Ministry to let us demonstrate that our stuff is the best. We have got to "git up and git"—to use the expressive American phrase. We have got to get over the habit of doping ourselves with self-satisfaction. We have got to get busy. We have got to prevent ourselves from being beaten in the race for Commercial supremacy in the air by Germany, France, Italy, and even by America.—C. G. G.

THE TROOPS' DAY.

The following was issued by the Air Ministry on July 16th:—

"In response to inquiries received, the Air Ministry makes it known that during Peace Celebrations there will be no relaxation of the General Safety Provisions (Para. 5, Air Navigation Regulations) in regard to flying over town areas or populous districts, either for the purpose of taking photographs or for any other purpose.

"On Saturday, July 19th, the date of the Procession, no flying whatever will be permitted over London within a circle of four miles radius from Charing Cross."

It is seldom that one has cause to disagree with Major C. C. Turner, late R.A.F., and with those excellent articles which he contributes to the "Observer." But for once one feels it necessary to do so.

On July 20th he delivered himself of a strongly worded and richly deserved attack on the maladministration of Civil Aviation in this country, and showed clearly that civilian flying is suffering from "control amounting to oppression." But in the course of that attack at one point he confuses civil administration with military affairs and the public welfare, for he says:—"The prohibition of flying over London yesterday is a good instance of the state of the official mind. . . . It is not suggested that flying over London should be always permitted; there are good reasons why the prohibition should remain in force in normal times. But surely on Peace Day, when everything that can be done to signalise the greatest event in our history should be done, a few aeroplanes in the London sky (strictly ordered to maintain a safe altitude) would have been a fitting reminder and climax of the splendid work of the R.A.F. in the great conflict. But no: some pettifogging official had it in his power and had the meanness of spirit to cut it out."

It does not seem to have occurred to Major Turner, and to those who think as he does, that Saturday was essentially the Troops' Day. The British Army and the Allied troops, who were represented in the pageant, won the war. A detachment of the Royal Air Force represented the Naval and Military sections of the R.A.F. in the procession.

It would have been a breach of Service courtesy for R.A.F. aeroplanes to have flown overhead and to have diverted to themselves any of that attention which belonged by right to the troops on the ground. And if civilian aeroplanes had done so it would have been a gross impertinence.

Furthermore, on the minor point of public welfare, no altitude at which an aeroplane would be visible could have been safe on such a day. Every open space around London was filled with people making holiday, and an engine failure would have meant a descent either into the river or into a crowd.

Yet another good reason for prohibiting flying over London is that the occasion was not one on which it was seemly that officers of the King's Armed Forces should provide light entertainment for the mob. It is a regrettable fact that when portions of our victorious Army marched through London some weeks ago certain pilots so far forgot their positions as officers and gentlemen as to perform like circus clowns in the vicinity of Trafalgar Square and the Strand. With the R.A.F. in its present state the only guarantee against a repetition of such antics seems to be the total prohibition of flying. Doubtless when the R.A.F. contains only officers with permanent commissions, or with temporary commissions which they hope may become permanent, such safeguards will be unnecessary.

Some day perhaps the Royal Air Force may, in its reorganised state, provide for the people a pageant of its own at some great aerodrome where the populace may see it in its proper element and under seemly conditions. But the Troops' Day over London did not provide the time nor the place for a demonstration by the Royal Air Force.—C. G. G.

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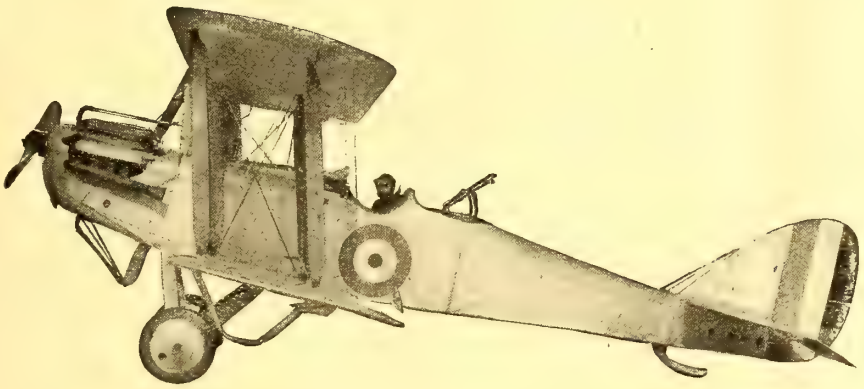

RELIABILITY and POWER.

¶ The Napier Aero Engine proved its reliability by carrying a D.H.9 Biplane with pilot, observer, and full load—total weight 1 ton 10 cwt. 80 lbs.—to a height of 30,500 feet, approximately—

SIX MILES UP IN THE AIR.

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140 MILES PER HOUR

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A REAL AID TO AVIATION.

At last a big prize has been put up for competition which will be a real incentive to aeronautical progress. Hitherto, with the exception of the Mortimer Singer and Michelin prizes, such prizes as have been offered have been more spectacular than useful. Thanks to assiduous booming, the "Daily Mail" prizes have roused the populace to a brief intense interest in specific "stunts," but the interest has been fleeting, and personally one has never been able to see that any permanent benefit has been conferred on British aviation by these semi-hysterical outbursts.

When the "Circuit of Britain" competition was the centre of sensation in 1911 one pointed out that the prize-money might have been offered in a manner more advantageous to aeronautical progress, but it was explained to one that the idea was to work up a big boom and then get it all over before public interest flagged. The policy seemed sound from the donors' point of view. One cannot scream at the top of one's voice for more than a limited period, and one bows to the "Daily Mail's" experience of mob psychology.

Now, however, British aeronautics has been offered a prize which is a real encouragement to enterprise. On July 16th the "Daily Express" announced that it offers a prize of £10,000 for a series of flights from England to India and England to South Africa and back.

The offer is made by the "Daily Express," a paper which from the earliest days has taken a sane and intelligent interest in aviation. It has never been hysterical over successes, and it has never been depressing over failures. It has not boomed fatal accidents, nor buried good performances. It has treated aviation as a coming method of transport and as an important factor in war.

Before the war the "Express" gave strong support to the needs of the Flying Services, and during the war it did great work in supporting agitations for the good of the Services. Mr. Blumenfeld, the Editor-in-Chief, and Mr. Wilson, the News Editor, have been for years keenly interested in flying, and have dealt with the subject in a sound and sensible way which should have been an example to the rest of the daily Press. To-day they are dealing with the giving of this handsome prize in an equally sound and sensible way.

One confesses to lamentable ignorance as to the precise period at which Lord Beaverbrook, better known as Max Aitken (and in Canada, one is told, as "the cement pier"), became a prevailing influence in the "Express," but it is generally supposed that he is practically the "owner," and such being the case it is only fair to attribute to his personal generosity and foresight a large share of the credit for this handsome gift to aeronautics and for the ideas which are behind it. Lord Beaverbrook has his enemies, as have all successful men, but even his enemies acknowledge his cleverness, and others who are neither his enemies nor personal friends say that he has one of the most brilliant brains of the century.

There is, it is true, nothing particularly brilliant in the idea of offering a £10,000 prize for aeronautics. It has been done before. But, and here is the real point, there is something brilliant in taking an old idea and getting out of it something far more useful than anything it has produced before. Lord Beaverbrook and his colleagues in this scheme deserve well of the people of the Empire.

One's only regret is that aircraft of recently inimical countries are barred. Such elimination of dangerous competitors seems rather a confession of weakness, for surely, if our aircraft are as good as we believe, we need not fear German competition.

Here is the announcement of the prize as published in the "Daily Express" on July 16th:—

£10,000 FOR RELIABILITY FLIGHTS.

"DAILY EXPRESS" OFFER.

AERIAL TESTS TO THE ENDS OF THE EMPIRE.

To Carry Cargo.

New Methods for Empire Commerce.

Now that the Atlantic has been bridged by air in both heavier-than-air and lighter-than-air craft, the next step is to prove the practicability of commercial flying within the Empire.

With this object in view, the "Daily Express" offers a prize of £10,000 not only to prove the feasibility of commercial flying within the Empire, but also to bring the outlying portions of the Empire into infinitely closer touch with the Mother Country.

Australia has offered a similar prize to the first aircraft to fly there from the United Kingdom. There remains, therefore, the task of establishing aerial communication on a commercial basis with South Africa and India. This task the "Daily Express" proposes to carry out.

Conditions.

In general, the terms and conditions of this £10,000 competition may be outlined as follows:—

(*a*) All types of aircraft are eligible for entry.

(*b*) *The competition is open to all the world, except late enemy countries.*

(*c*) All aircraft entered must carry a useful load of at least a ton both on the outward and homeward flights.

(*d*) Each entrant must produce one aircraft for the flight to and from South Africa, and one aircraft of a similar type for the flight to and from India.

(*e*) The factors considered in the award will be:—

Average reliability.

Airworthiness and general conduct of aircraft entered.

Average gain in speed over the established means of transport.

(*f*) As it is aimed that each aircraft shall carry a useful load of saleable or exchangeable commodities or raw materials, it will be to the advantage of competitors to study the commercial situation as affecting this interchange.

(*g*) Particulars of entries will be announced within the next few days.

(*h*) Competitors may undertake the flights at any date between the closing of the entries list, which will be announced later, and June 1st, 1920. Priority in completion will not prejudice the success of later but obviously more efficient performances.

(*i*) One complete failure by a competitor will involve disqualification for the award.

Empire Unity.

Further instructions as to the particulars and conditions of the competition will be announced later.

In making the preliminary announcement, however, it is in order to point out the importance to the Empire and to commerce of these unique reliability trials. In the first place, they will demonstrate the fact that aircraft is capable of bringing South Africa into as close touch with the heart of the Empire as Canada is with the fastest traffic by sea. These trials will demonstrate also that India is only a week away from London instead of a month, and this for sustained traffic, not for sporadic "stunts."

The political consequences of this achievement will be enormous. It is no exaggeration to state that the carrying out of the "Daily Express" £10,000 competition will lead at once to a new and great link of Empire. But it is not only from sentimental and patriotic reasons that these trials are pregnant with possibilities. With a world shortage of shipping that must persist for some years, and with the existence of great facilities for aircraft production, once the commercial value of air transport over great distances is established, an enormous step will have been taken in solving the admittedly difficult international economic situation which is a legacy of the world war.

On July 17th the "Express" published the following supplementary notes:—

India.

Peculiar importance is attached to the flight to India for these reasons:—

(*a*) The vast potential possibilities of India commercially to the Empire.

(*b*) The delay in both sea and cable routes to India, which has been greatly aggravated by the war. This delay will continue for years to come, to the detriment of both the United Kingdom and India.

(*c*) The fact that it is now established that the defence of

ROLLS ROYCE

THE FIRST DIRECT ATLANTIC FLIGHT

VICKERS—VIMY—ROLLS

Telegram:

To ROLLS-ROYCE, DERBY.

Congratulations on performance of the two "Eagle" Rolls-Royce engines, which propelled the Vickers "Vimy" safely across the Atlantic.

ALCOCK & BROWN.

: A TRIUMPH FOR : BRITISH ENGINEERING

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Telegrams: "Rolhead, Reg., London. Telephone: Gerrard 1654, 1655, 1656

the Indian frontiers in the future will rest chiefly in the air. The establishment of commercial air routes to and from India will have an enormous moral effect throughout the East, and may well eliminate the possibility of hostile incursions such as that recently undertaken by the Amir of Afghanistan.

South Africa.

South Africa also is keenly alive to the great mutual benefits, both material and sentimental, which will accrue from regular aerial transport to and from the Mother Country.

It is gratifying to note the sympathy shown to the project by prominent Canadian officials in London, despite the omission of Canada from the routes suggested. As stated in the preliminary announcement, this omission was due to the fact that the utility of trans-Atlantic traffic has already been demonstrated. Mr. Lloyd Harris, chairman of the Canadian Mission in London, writes to the "Daily Express":—

"I desire warmly to congratulate the 'Daily Express' on its vision and enterprise in seeking by so generous a prize to encourage aerial intercourse within the Empire. I have just returned from Canada to my work in London, and I feel that my countrymen will welcome the plans announced this morning in the 'Daily Express.' The swifter and more complete the means by which each part of this existing League of Nations known as the British Empire may know each other, the greater will be the future prosperity of all."

One gathers from other paragraphs in the "Express" of the 17th that the Royal Aero Club, by way of its Secretary, Mr. Harold Perrin, approves of the prize. In the nature of things the R.Ae.C. will have the regulation of the competition. It is to be hoped that it will handle it with greater intelligence and enterprise than it has shown in the matter of the Australian £10,000 prize or the Schneider Cup competition.

Meantime one commends the "Express" competition to the Aircraft Industry. At first sight the rules appear to favour airships. Perhaps they do. But, after all, aerial communication will fall into the hands of those best fitted to deal with it. If the aeroplane cannot beat the airship in this competition, then it proves that the airship is the best aircraft for the job. If so, then good luck to it.

In any case the proprietors and the management of the "Daily Express" deserve the cordial thanks of all concerned with aeronautics, not only for having put up one of the biggest prizes offered, but also for arranging a competition which will be quite the most useful to the development of aerial navigation.—C. G. G.

THE DEATH OF LIEUT.-COL. POLLOCK.

Those who have long been concerned with aeronautics and many of the younger airship officers will learn with deep regret of the death of Lieut.-Col. C. F. Pollock, O.B.E., A.F.C., on July 17th.

Colonel Pollock was one of the keenest amateur balloonists of his generation, and almost certainly held the record for the number of trips across the English Channel in free balloons. His first crossing was made in October, 1897, and, according to that excellent early book on lighter-than-air craft "The Boys' Book of Airships" by Harry DelaCombe (now Lieut.-Col. R.A.F.), he had crossed the Channel by balloon eleven times before M. Blériot made his famous crossing by aeroplane.

As soon after the outbreak of war as the Navy began training airship personnel, Mr. Pollock (as he then was) offered his services as an instructor in the handling of free balloons in the air, a very necessary preliminary to the navigating of airships. He was appointed Flight Lieut. R.N.A.S. Later he became Squadron Commander R.N.A.S., and ultimately Lieut.-Col. R.A.F.

Though by no means a young man, he made constant journeys in R.N.A.S. balloons, taking with him classes of aspirant airship officers, on occasion having as many as six pupils in the car at a time. Thanks to his able and sympathetic instruction, in the art of which he was an acknowledged master, a number of young men were thus taught the essentials of a branch of the King's Services which has done most valuable work in assuring the safety of seaborne supplies during the war. And nobody has better deserved the promotions and decorations conferred upon him than did the late Colonel Pollock.

After several years of this strenuous work Colonel Pollock's health became seriously affected, and of late he has suffered from rapid creeping paralysis. He realised recently that he had but a few months at most to live, and that towards the end he would be quite paralysed. Therefore on July 17th he took his own life.

Doubtless the verdict will be the conventional one of suicide while temporarily insane. It would seem more reasonable to regard Colonel Pollock's death as that of a brave man who preferred to leave this life quickly and in full command of his faculties rather than to remain a little while longer as a burden to himself and to those dear to him. None can doubt his courage or nerve. His Service career has proved both. His manner of ending his life was the supreme proof of those qualities.

As to the cause of his breakdown in health, it seems that here is a case for study by the R.A.F. Medical Service. Much has been heard of the effect of constant flying at great altitudes by aeroplane pilots, and it has been said that a species of temporary paralysis is caused by an excessive amount of such work. One has ventured to suggest on previous occasions that there may be some analogy between this effect and "caisson disease" from which divers suffer owing to the rapid changes of air pressure which they experience in the course of their work. It seems possible that in the case of a man of Colonel Pollock's age the lesser altitudes reached by the balloons used for training might have even greater effect than the immense altitudes reached by active-service aviators would have on a younger man. Also, it seems probable that effects which would be merely transitory in the cases of younger men possessing youthfully elastic tissues would be permanent in an older man who had passed the age when physical recuperation is possible.

The older members of the Royal Aero Club will ever remember Colonel Pollock as a good friend, as a pioneer of British aeronautics, and as a sportsman of nerve, resource, and determination. The Airship Service will revere his memory as of a kindly and diligent instructor of youth who has deserved well of his King and Country. May he rest in that peace which he went to seek.

C. G. G.

PAY IN THE ROYAL AIR FORCE.

The Air Ministry announcement concerning the pay of R.A.F. officers under the reorganisation scheme appears in its proper place in the Naval and Military section of this paper, on page 370. Therein it will be found that in future R.A.F. officers will, as promised by General Trenchard, be able to live on their pay.

An interesting point is also disclosed in General Seely's statement on page 364, where he states that flying pay, as such, is abolished, as all officers in the future will be flying officers—which is as it should be. On the whole, the pay scheme seems very satisfactory, especially for junior officers.

FLYING BETWEEN LONDON AND PARIS.

The following announcement was received from the Air Ministry too late for publication in the last issue:—

The instructions issued on 12th instant relating to the opening of civil communication by air between London and Paris from July 13th-20th inclusive are now modified by arrangement with the French Government in the following respect:—

During the stated period British pilots and passengers will not require to be provided with passports, and His Majesty's Government have arranged to give the same facilities in regard to French pilots and passengers.

SAUNDERS

Designers and Constructors of MILITARY and COMMERCIAL AEROPLANES, and NAVAL and COMMERCIAL SEAPLANES and FLYING BOATS

Sole Manufacturers of the famous Sewn "CONSUTA" PLYWOOD, the lightest and strongest material yet evolved for Aircraft construction.

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SBAC — THE SOCIETY OF BRITISH AIRCRAFT CONSTRUCTORS

The WORLD of AERONAUTICS

NEWS OF THE WEEK FROM ALL QUARTERS

A Visit from the King of the Belgians.

On July 16th H.M. the King of the Belgians flew from Brussels to Hounslow, en route for Eton College. The visit was unofficial, the object being a visit to Prince Leopold. King Albert returned to Belgium by aeroplane the following day.

Purring over Parliament.

The Glasgow "Evening Times" is disturbed over the possibility of our legislators being disturbed from their slumbers. One of this news-sheet's contributors has written :—

"It would not be surprising, I think, if the Speaker, or whoever the authority be, were to issue an order prohibiting aircraft flying over the Houses of Parliament. Speakers in either Chamber are never interrupted by the noise of outside traffic, not a murmur of which penetrates the sacred precincts, but it happens occasionally nowadays that an aeroplane purrs directly overhead, causing momentary interruptions."

One certainly agrees that the practice of flying over the "sacred precincts" should cease. The profane purr of an aeroplane might remind our legislators that, in spite of all their efforts, they have not yet succeeded in killing civil aviation, and further repressive measures might be taken. Commercial aeroplanes should purr quietly like Pussyfoot if they are to escape further attention from Parliament.

Truthful.

An ex-pilot who had applied for a civil flying job was having his knowledge of aeronautical matters tested by the manager of the firm. When asked to describe the method of lubrication of a certain well-known engine he replied : "Drip feed onto the pilot's right foot." He obtained the vacant post.

A Journalistic Break.

The "Evening Standard" announced on July 16th that Lieut. Madon would carry the French Air Service flag in the Victory March. The newspaper favoured its readers with the following priceless information :—

Lieut. Madon in August last had 40 air victories to his credit. One of his most thrilling exploits was an enforced landing behind the enemy lines in 1917, when he was attacked by a German patrol of twenty men. He leaped into his seat, loosened the brakes with his feet and one hand, adjusted his machine-gun with the other, and charged the patrol at ever-increasing speed. After mowing them down he headed for the French lines in safety.

One would have liked further information about the brakes which he loosened with his feet and one hand. It is true that the old Voisins had hand brakes on the hubs of the landing wheels, but why were feet necessary to release them?

The Flying Coach.

A writer in the "Oxford Chronicle" is responsible for the following :—

"The prospect opens up new vistas of Eights Weeks and Commemorations. The flower-laden barges and the parasols and the brilliant dresses will still stand out in clumps; the canoes will be dexterously manœuvred amid the heavier river-craft, and the forest of punt-poles will sway and wave as the course is cleared for the eights; the perspiring rowers will still swing to and fro, and the banks will still have their sweltering runners, causing the air to reverberate with their yells and their rattles and their bells and their pistols.

"But the coach will have come into his own. Comfortably flying above his boat, his megaphoned instructions will be conveyed to his crew, and above the din stroke will be told to quicken or to lengthen out; and the heavy man at 'six' will hear again the phrases he is so tired of hearing about 'pulling his weight'; and the cox who has just missed his bump will be able to complain that the moment for that twitch at the rudder which spoilt everything was not the moment of his own choosing."

There are, however, obvious difficulties. The sight of aeroplanes flying sufficiently close to the boats to enable the crews to hear megaphoned instructions above the roar of the exhaust would be exciting, but one fears that there might be some unintentional bumps. Also, there might be some difficulty in inducing the aeroplanes to fly at the very low speed required.

If the writer of the article really wishes to see brighter rowing, he should suggest that the eights should tow behind them small kite-balloons carrying the coaches.

When the Divers Dove.

According to the American "Aerial Age," "the 'Guardian Angel' parachute, officially adopted by the British Royal Air Force as the most certain aerial life preserver yet invented, was demonstrated at the Atlantic City Airport on June 19th by Major Ordo Loos, R.A.F., and Miss Sylvia Boyden, of England (*sic*).

"They ascended to a height of one thousand feet in an aeroplane piloted by Eddie Stinson. After circling for a moment both Major Loose and Miss Boyden dove head first from the machine."

After they had "dove" they controve to make good descents and arrove safely on the aerodrome. "Major Ordo Loos," afterwards referred to as "Major Loose," appears to have had a slight accident to his name during the descent, but has recovered sufficiently to identify himself as Major Orde Lees.

The Engines in R.34.

One was amused last week to see in the public newsheets large advertisements of the particular brand of chewing gum that was used to stop a small leakage from one of the water-jackets of the Sunbeam-Coatalen "Maori" engine on the starboard wing car of the R.34 during the historic Atlantic flight.

As is the custom with advertisements in which self-praise is a recommendation, it is stated that the chewing gum in question proved a big factor in the success of what are inaccurately described as the "world's greatest airship flights."

This suggests some appalling advertising possibilities in the future, and we may live to read claims that the success of the first flight from Britain to Australia was entirely due to the superb quality of the scented toilet soap with which a member of the crew cured a minute leakage of petrol, and that the accomplishment of the first aerial circumnavigation of the globe was made possible by the resilient qualities of Dobb's Doughnuts, which were used to replace some broken shock-absorber elastic.

The true story of the much-advertised chewing gum incident has been told by Mr. J. T. Irving, of the Sunbeam Motor Car Co., Ltd., who writes :—

"On my arrival at Pulham, I immediately examined the starboard wing car expecting to find the engine covered by pounds of chewing gum which had been thoroughly chewed previously by the crew before application. To my surprise I could not find a piece of chewing gum anywhere, and, at my request, the mechanic in charge of the engine showed me where this remarkable repair had been effected.

"The water-jackets on the 'Maori' engine are largely composed of flat aluminium plates which are held onto the cylinder by means of a large number of small set screws. It seems that one of these screws was also used to carry a clip supporting a copper pipe, and that in flight it was noticed that this clip was loose. When the mechanic tightened up the screw he twisted off the head of the bolt. This allowed a very small leakage of water —this leakage being in the nature of one drop of water per minute. As the mechanic had so little to do, owing to the steady running of the engine, he set to work and fitted a small plate over this, the plate being secured under the heads of the two adjacent screws, and, just before tightening the screws, he had a brain-wave, and took the piece of chewing gum out of his mouth and slipped it under the plate. Evidently, General Maitland did not see this repair before making his famous log entry, which was probably based on some remark of Lieut. Shotter's.

"The five engines between them have put up a total of approximately 900 hours' running, on this trip only, to which must be added over 600 hours' previous running."

With regard to the failure of one of the engines in the rear car, Mr. Irving writes :—

"The failure of the studs in the big-end bearings of the connecting rod was caused by allowing the engine to run after the white metal had run out of the bearing. This, of course, renders a failure of this description inevitable.

"The reasons for the white metal 'running' at present are somewhat obscure, as the crew state that the oil pressure was correct at the time of the breakdown, but a point which may have some bearing on the failure is that previous to the actual breakdown of the engine, the engine was caused to race to a high speed owing to an accidental declutching. It is probable that this cracked the white metal in the bearing, and it would, of course, only be a matter of time before this broken metal was hammered out. Up to the time of this mishap the engine had run somewhere near 300 hours."

"IT'S A WALK OVER!"

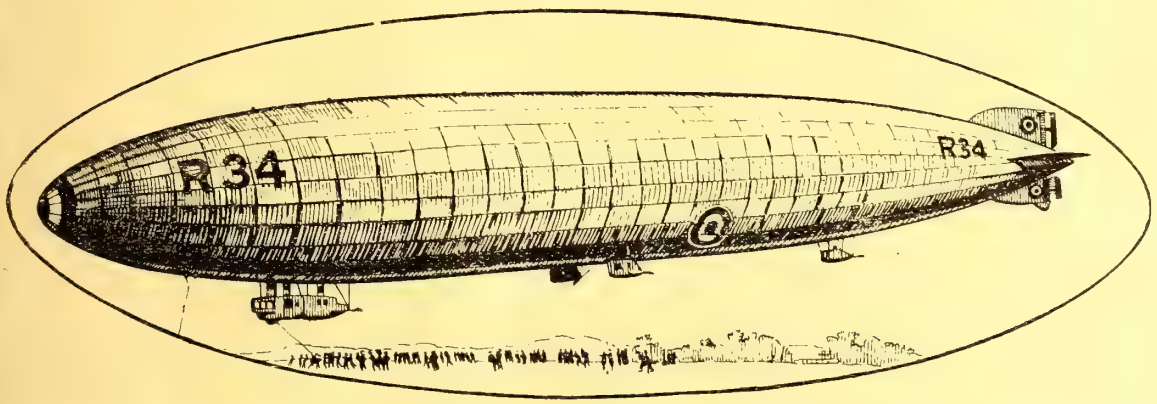
That's the only way to describe the superiority of

EMAILLITE

AIRSHIP DOPING SCHEME "P"

USED FOR PROOFING
OUTER COVER OF

TRANS-ATLANTIC AERIAL LINER R.34.



THE BRITISH EMAILLITE CO., LTD.,

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5, HYTHE ROAD, WILLESDEN, N.W. 10.

Wire: "Ridleypren, London," **'Phone: Willesden 2346 & 2347.**

The WORLD of AERONAUTICS (continued)

The Trans-Atlantic Martinsyde.

Mr. Raynham and his navigator, Lieut. Biddlecombe, made another attempt to start on the Atlantic flight on July 17th. The attempt ended as the previous attempts have done.

The Martinsyde rose to a height of 40 ft., then sagged down and crashed, completely wrecking the machine. The axle of the under-carriage snapped and both wheels wrenched off. The air-screw was splintered, the radiator torn out, the aluminium tanks split, and the lower planes shattered at their junction with the fuselage; the latter is also badly damaged. The aviators were unhurt.

The cause would appear to be failure to lift the weight of fuel required for the voyage.

Mr. Raynham has now decided not to attempt the flight. The Martinsyde is now being packed up preparatory to sailing for England. The voyage will be made in s.s. "Grampian."

The Dramatic Instinct.

There is something indescribably ludicrous about an airship, her ungainly bulk, her clumsy manœuvring, and crab-wise progress in a breeze, making her a fit subject for the often ponderous wit of ignorant observers. The aeroplane, on the other hand, conveys an impression of speed in flight and venom in war, inseparable from the noise of the engine. There is a thrill in the crossing of the Atlantic by an aeroplane which is unaccountably absent in the accomplishment of the same feat by an airship, although there can be no question which is the more valuable performance for the immediate future of aerial transport.

Notwithstanding the air of aloofness assumed by technical people, public interest and a good "Press" must play a big part in the development of commercial aviation, and the only way to attract that necessary vulgar attention is by providing material for thrilling headlines, either intentionally or otherwise.

The Air Ministry are to be congratulated upon the extraordinary concatenation of circumstances brought about by a kindly Fate, which have served to raise the magnificent scientific feat of the R.34 from the level of a technical experiment to the giddy pinnacle of fame represented by "scare" headlines in the evening papers. A stowaway, electric storms, distress signals, and a final berthing on the last (almost) drop of petrol, "sweeping the bunkers," as a seaman would say, all made excellent material for the lay Press.

Without such good fortune, the "swinish multitude" might have remembered the voyage of L.59 last year into the heart of Africa, and made, in its ignorance, derogatory comparisons. The quite unintentional publicity might, however, have been augmented by a little deliberate forethought, and this suggestion is worthy of note by other aviation concerns who have sinned in the same manner recently. The week-end is a "dead" time from the newspaper point of view, and should be avoided. Very few people see the Sunday evening papers, and by Monday morning the news tends to become stale.

It is most surprising that the Air Ministry should have overlooked this point, because, under the present régime of Business Government, it has hitherto shown a keen appreciation of the great uses of advertisement. Its skill in appropriating much of the credit of Mr. Hawker's sensational failure, after repudiating all responsibility with indecent haste when things looked black, was a stroke of business which would have delighted the heart of a shady company promoter.

That the dramatic instinct is not dead is obvious, but it is to be hoped, both in the interests of journalists and the Ministry's reputation, that the week-ends will be avoided as times for the provision of good "copy."—Ex-Pilot.

Trans-Pacific Flight Prize.

A prize of £10,000 has been offered by Mr. Thomas H. Ince, of Los Angeles, California, for the first trans-Pacific aeroplane flight by an aviator of any nationality. If the attempt is made from the east, Venice, California, must be the starting point, and the landing must be on the mainland of Australia, Japan, or Asia. If made from the west, a start may be made from any of the latter places, and a landing on the mainland of the United States.

The contest will be open from next September to February, 1920. The flight must be completed in 12 days.

Aeroplanes and Forest Fires.

It is reported from the United States of America that after some preliminary reports concerning the possibility of using aeroplanes as an auxiliary in the work of protecting forests by fire, it is now definitely announced by the U.S. Forest Service that the Air Service and the Forest Service will co-operate in work of this character during the coming summer in portions of the national forests of California, Arizona, New Mexico, and other states. Army aerodromes and bases will be used for the undertaking, which will be largely experimental during the coming season. Besides supplementing the work of the forest rangers in locating forest fires, attempts will be made to utilise aircraft in connection with fire-fighting. One plan to be tried is the use of bombs filled with suitable chemicals as a means of extinguishing fires from the air. It is also suggested that fire-fighters may be carried to the vicinity of fires in dirigibles, and lowered to the ground by means of ladders. Aeroplanes will use wireless for reporting the location of fires.

A Warning.

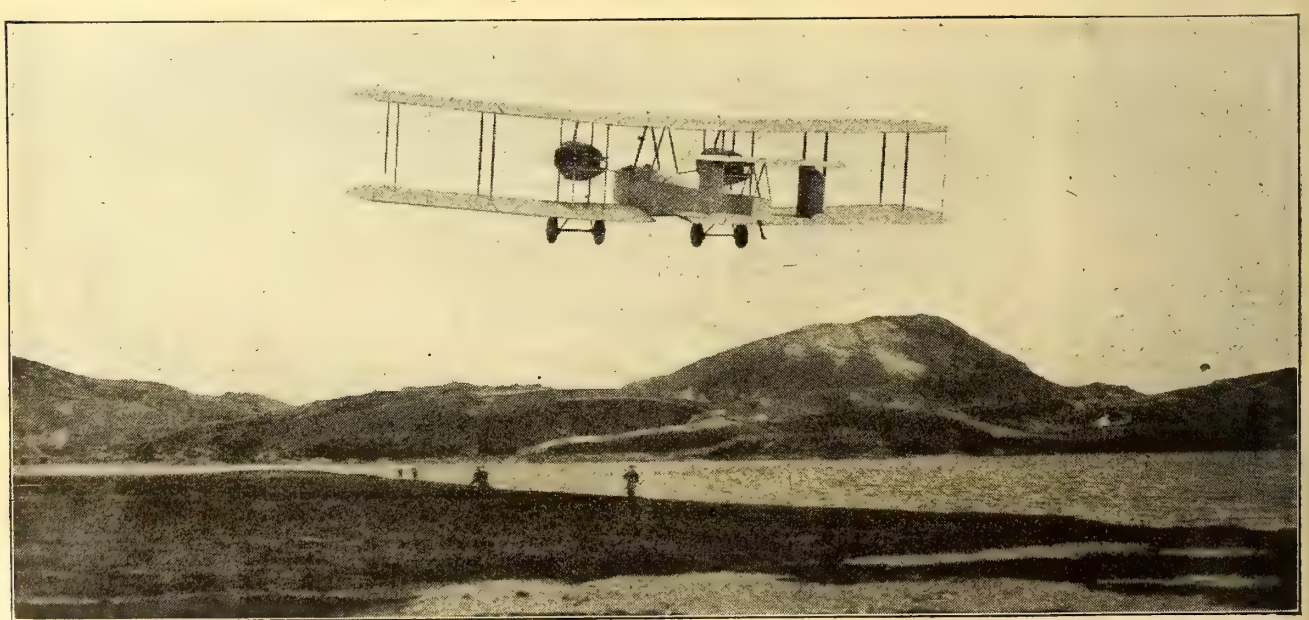
Apropos tennis at Wimbledon, an ex-R.A.F. officer, who is also a keen tennis-player, writes:—

"The Air Force greatly distinguished itself there. During the final of the all-comers single between Kingscote and Patterson, a Bristol Fighter (I think it was) came and stunted round the centre court at about 200 feet to such an extent that play had to be stopped, and then, to crown things, it dropped Victory Loan leaflets, some of which actually fell on the court! Kingscote, who, of course, was an 'Archie' gunner, looked as though he would have given half his kingdom for an 'Archie' at that moment."

The Airship Officers' Club Dinner.

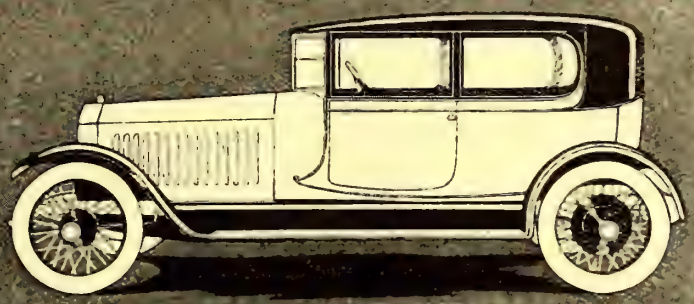
The Airship Officers' Club is giving a dinner at 7.45 p.m. on July 26th at the Connaught Rooms, Great Queen Street, W.C.2. General Maitland, President, and Major Scott and Major Cooke and the other officers of R.34 will be present.

Anybody desiring information should write to Captain C. P. Herron, Hon. Sec., Airship Officers' Club, 4, Dean Stanley Street, S.W.1.



OFF!—A Rear View of Captain John Alcock and Lieut. Arthur Brown leaving the ground in Newfoundland on the Vickers "Vimy" with Rolls-Royce Engines.

COLE COUPÉ CABRIOLET



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The WORLD of AERONAUTICS (continued)

The R.A.F. City Luncheon Club.

The members of the ex-R.A.F. Officers' City Luncheon Club held a special Victory Luncheon Party on July 17th to celebrate the part played by the R.A.F. in the war.

Major Modin, the chairman and founder of the Club, in proposing the success of British Aviation, said that this was the Club's first official function, and that they had met to celebrate that victory to which each had contributed in his own sphere.

Major-General Sir Sefton Brancker, replying, reminded those present that Great Britain held the paramount position in the air. This country had led the world in its air policy, first of all in giving aircraft the position warranted by its effect during the war, and later by being the first nation to create an Air Ministry and an Air Force, though he added in an aside, "Some of them might think this a doubtful blessing." Great Britain had followed up her success in the war by success in peace, in that a British aeroplane was the first to cross the Atlantic without a stop, and that a British airship was the first to cross the Atlantic and the first to do the journey across the Atlantic and back. He further said that we owed our success to the courage and initiative of our pilots, and he believed that in commercial aviation British pilots would lead the way in the air as British sailors had done at sea. Not only were we good at organising schemes in this country, but we were good at executing them, and the life-blood of commercial aviation would be organisation. Our success in the war was due to our policy of constantly changing our designs. [One may perhaps interpolate the remark that, if the official people had had their way, designs would hardly have been changed at all, and our rapidity in changing designs was largely due to continual agitation.]

General Brancker remarked that the situation to-day was extremely difficult. Much preparation was needed before the world's air routes could operate. The Air Ministry was torn between the demands of those who believed in aviation and the Treasury, which, as he said, had not yet been bitten by the aviation bug. Much money was needed for the formation of air stations all over the world, and private enterprise could not find that money, therefore the Government must assist. Other countries were waking up and doing their best to overtake us in aircraft affairs. He was certain that the Advisory Committee under Lord Weir, which was recently formed, would be most valuable, and it was up to the various members of Parliament who were present to see that aviation got its due allotment of the public money. He felt sure that this Club would do much to affect the Air Force Reserve whenever it came into being.

Lieut.-Colonel Moore-Brabazon proposed the success of the Club in a very humorous speech, and said that the next time the Club met he hoped that he and other members of Parliament would not be placed above the salt, but would be distributed among the other members of the Club. He thought the Club would be an excellent thing, because now that they were all civilians, senior and junior officers would meet on equal terms for once. He hoped that all members then present would in a year's time have induced at least two ex-R.A.F. officers to join. The essence of the Club was to get as many members as possible and so keep the Air Force people together.

Mr. Leslie Guyer, secretary of the Club, said that the Club was formed because it was thought that it would be advisable for them to have some sort of a reminiscence of the old R.A.F. mess. It would be a good thing to have a nice quiet place where they could lunch in peace as they did in an R.A.F. mess before people thought fit to make peace, instead of having to take part in the mid-day lunch struggle in the City. Another ulterior motive was that they hoped it might be possible in time to provide a certain amount of flying for the members, and he thought that this might well be arranged if the biggest proprietors of secondhand aeroplanes in the country were properly approached.

Among those present, in addition to those already mentioned, were:—Lieut.-Col. L'Estrange Malone, M.P., Mr. A. Baldwin Raper, M.P., Colonel W. D. Beatty, R.A.F., Sir Edward Mountain, Sir Charles Wakefield, Bart., and Mr. W. Joynson-Hicks.

It is earnestly to be hoped that the Club will be keenly supported by all ex-R.A.F. officers now engaged in work in the city. In the first place, it is obviously a good thing that officers of the Air Force should keep together to maintain their old comradeship. In the second place, there can be very few ex-officers who would not be pleased to have such an opportunity of meeting day by day those with whom they served during the war, and it is not every ex-R.A.F. officer who has either the time or the inclination to go to a club in the West End, whereas everybody has to have lunch somewhere, and a lunch-hour spent in congenial company is the best possible break in the day's work. Thirdly, if the Club grows to a sufficient size it will be possible for the members to lunch very much less expensively at such a club than they could possibly do at any restaurant.

Purely as a business proposition any of the large catering firms will give very special terms to members of such a club if a sufficient number of meals per day can be guaranteed, and one imagines that the more enterprising caterers would willingly make a specially-cut price for a club of this sort knowing that even if there are only a few members at the start, the fact that they provide good value will rapidly increase the demand, with the result that it will be possible for members of the Club to have a first-class lunch at a third-class price, seeing that the objection to the third-class lunch is generally the company and not the catering.

Therefore from every point of view it is worth the while of ex-R.A.F. officers in the city to join the Club, and all such are invited to write forthwith to the Secretary, Mr. Leslie Guyer, at the ex-R.A.F. Officers' City Luncheon Club, Mansion House Station Restaurant, E.C.

A Curious Position.

At the Wandsworth County Court, on Monday last, before His Honour Judge Harington, an interesting case was heard under the Workmen's Compensation Act.

The action arose out of an agreement between Whitehead Aircraft (1917) Ltd., aeroplane manufacturers, of Richmond, and Horace John Roberts, a sawyer, formerly in their employ.

An application was made to his honour for an order directing Mr. E. S. Salaman, the company's solicitor, to pay into court forthwith £225, being the amount agreed upon as compensation in respect of an accident sustained by the applicant while in the company's employment. Mr. Roberts' left hand was practically rendered useless through being caught in a circular saw. Afterwards the company agreed to pay £175 as compensation. The Registrar of the Wandsworth County Court (Mr. Willoughby), however, did not think that this sum was adequate, and recommended that £225 should be paid in settlement. An agreement to this effect was filed, and a request had since been made by the applicant that this sum should be paid into court. That had not been done, and the judge was now asked to direct that the money should be paid into court forthwith.

Mr. Hartley read an affidavit by Mr. Salaman stating that he (Mr. Salaman) had received a sum of £225 in banknotes from the Whitehead Aircraft Company for payment. In view of the financial position of the company, Mr. Salaman was of the opinion that he ought not to part with the money, as it might be considered a fraudulent preference. On June 26th a receiver and manager of the business of the company was appointed on behalf of the trustee for first mortgage debenture holders, and Mr. Salaman's firm now acted for the receiver and manager appointed under the order of the Court. He (Mr. Salaman) had since received instructions from the receiver and manager not to part with the £225 without the directions of the High Court.

His Honour said that it certainly seemed very hard on the workman that this money had not been brought into court. There was, however, no suggestion of contempt, as there had been no order. What authority had he to order Mr. Salaman to pay over this money?

Mr. Hartley: Your honour is entitled to make an order on the ground that Mr. Salaman received this money before the receiver and manager was appointed by the High Court. If the company had paid the money into court, this position would not have arisen.

His Honour: It is a pity that they did not do so. It will be grievously hard on the workman if he cannot get the money. As the case was to come before the High Court, the matter was allowed to stand over to see what was done.

Congratulations.

FLANDERS.—On June 30th, at 27, York Gardens, Clifton, Bristol, to the wife of Mr. L. Howard Flanders, a son.

Coming Events.

JULY.

Saturday, July 26th.—July Meeting at Hendon.

Saturday, July 26th.—The Airship Officers' Club Dinner at the Connaught Rooms.

AUGUST.

Friday, August 1st.—Amsterdam Aircraft Exhibition opens.

Saturday, August 2nd, Sunday, August 3rd and Monday, August 4th.—Tenth London Aviation Meeting at Hendon.

Tuesday, August 5th.—Handley Page Social and Athletic Club's Sports. Starting at 12 midday at Cricklewood Lane.

Thursday, August 21st.—R.A.F. Annual Athletic Meeting at Stamford Bridge.

Sunday, August 24th to Sunday, August 31st.—The "Avenir's" Tour de France Aérien.

SEPTEMBER.

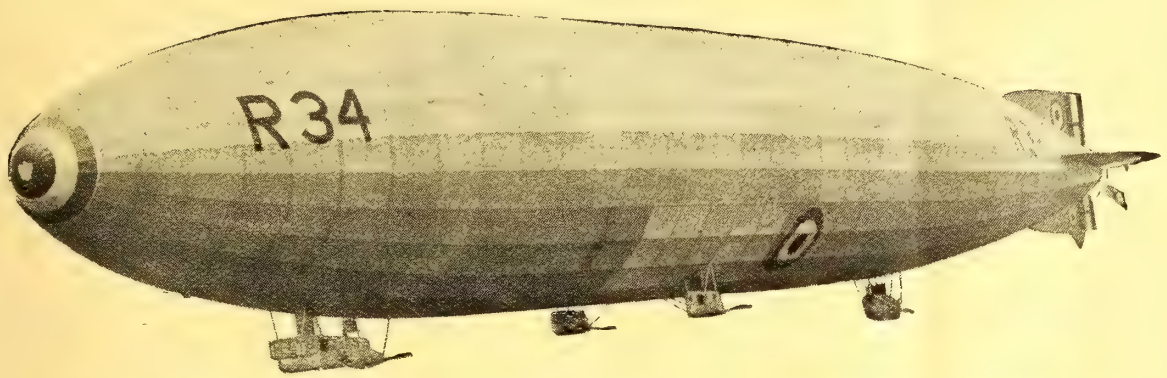
Wednesday, September 10th.—Schneider Cup Competition, Bournemouth.

DATES TO BE ANNOUNCED LATER.

Hendon—Birmingham—Manchester Air Race.

Hendon—Paris—Hendon Air Race.

Hendon—Brighton—Hendon Air Race.



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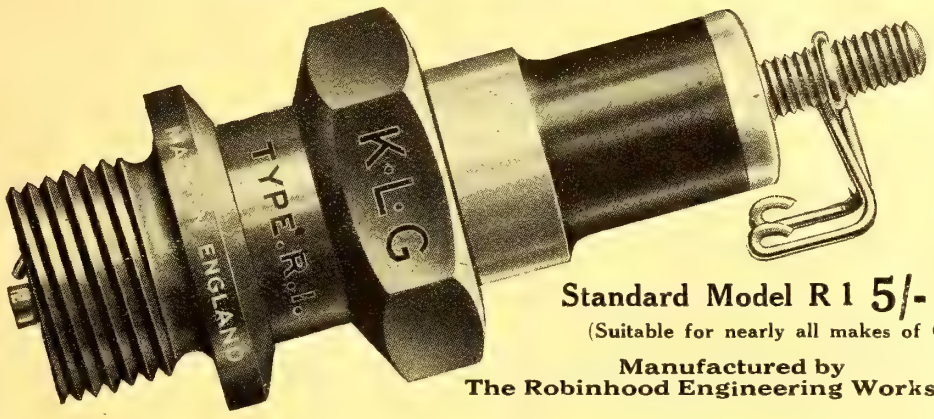

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MORE AIRCRAFT AT THE ACADEMY.

No. 286. "A British Aeroplane Being Pursued by German Machines after Photographing their Positions, August, 1917." Lent by the Imperial War Museum. Captain Louis Weirter. I deny the title as a fact, and I dispute it as a statement. Something will have to be done about this. I must be serious. It is no laughing matter. Well, yes, perhaps it is. I do not know anything about this picture, but I will say of it, as my Lord Macaulay said of Mr. Montgomery's poems, that it "exceeds all human compositions." Honestly I never saw anything like it. Nor, I will wager, did Captain Weirter. But he is a braver man than I. This is a large canvas, and every bit is covered with paint. By rolling over to an angle of 45 degrees a large something (assumed to be a British aeroplane) is got within the confines of the frame. "The light that never was on land or sea" is present. It casts what appears to be shadows on the lower wings of a lurid biplane. But there is some doubt as to this, as closer inspection reveals the fact that there appears to be a similar deposit of dirt at each wing tip. The estimated dimensions of the aeroplane (no wonder the pilot looks worried) are—span, 180 ft.; chord, 12 ft.; length of fuselage, 10 ft. Longitudinal stability is not marked, but very large empennage surfaces are fitted, and to simplify control the rudder is in one piece with the fin. Screw, 10 ft. diameter, revolving in what may be described as an extra geometrical figure. Aeroplane being severely Archied by shells which discharge large consignments of dirty cotton wool which has, one supposes, got through the leaky blockade. Bracing, 1½ in. steel rods. And it is wanted, too. Several shells have transfixed the planes; the fabric has erupted, and its ragged edges are *sticking up*. There's verisimilitude for you! There's proof conclusive that there is a vacuum on the top of the planes! Section of the latter appears to be very nearly truly semicircular. The machine has no landing gear. This, in common with similar fittings on all the other planes in this picture, has been shot away. A feature of the design is that the right lower wing has an overhang of about 25 ft. Left ditto has none. This is considered to be very good for coasting round mountains. The pilot has crushed himself close up against an engine which is in imminent danger of melting and running out of the fuselage!

IS IT A GERMAN TOAST RACK?

He may well try to efface himself, for what is this villainous object that presses on his heels? A German toast rack? Perish the thought! It is a super-Albafokkerstadtschafen driven by—heavens, not our stolen Rolls-Royce! No! It is driven by a pulmonary rotoscope! Realising his awful position, the British pilot urges his machine forward! In order to save weight he hurls his perspective overboard, and attaches his tail plane to the trailing edge of his upper wing. Alas, too late! The Boche has also jettisoned his perspective, which falls with a horrible crash on an uprising consignment of cotton waste. By this manœuvre he gains tremendously! He is enabled to cock his engine up at a sharp angle, and by very clever work he fires his fixed gun sideways through his screw. Has he hit? No, no, no! British pilot tucks his tail even closer in, and sits on the magneto! All will yet be well! The attacking machines are all aerodynamically inefficient. The nearest one has a span about 15 times the gap and the strain is beginning to tell on it. The German pilot has already discarded his tail. But nothing can avail him! Another two inches and he will have to swerve to avoid a solid lump of compressed Manchester goods. England wins! Floreat Etona! God save Ireland!

But what of the other side of the picture? Gawd knows. But I warrant it isn't half as amusing as the front.

No. 326. "Ronald Morgan, 2nd Lieut., South Wales Borderers, 55th Squadron R.F.C." Solomon J. Solomon, R.A. A fine portrait and a good impression of an aeroplane on the ground. This machine would fly after the riggers had put in new struts and a yard or two of bracing wire.

No. 325. "The German Fleet after Surrender, Firth of Forth, November 21st, 1918." James Paterson. No you don't, James! You have put in a nice solid Blimp, envelope encloses a lump of cast lead, but your aeroplanes won't pass. "They shall not pass." Why not read THE AEROPLANE? You would then realise that machines designed in about 1893 are no longer regarded as serviceable.

No. 324. "British Tank Attacking German Strong Point." Lieut. F. Leist. Two enormous (unrecognisable) aeroplanes securely secured to the sky. I would attack them, but they are not the artist's strong point. Leist said, soonest mended. They need mending.

A BASSETT-LOWKE BADLY GAMAGED.

No. 353. "Cavalry of the Air." W. B. Wollen. Inscription: "Our low-flying machines attacked enemy troops and transport. . . ."—*Official Dispatch*. Our low-flying machines missed the Huns in the picture by, according to my estimate, one mile. Our low-flying machines are not full-sized aeroplanes. They are models. I presume them to be Bassett-Lowke Fighters—one of them badly Gamaged. They are neatly fixed in the air by invisible rafwires. Nothing doing, Mr. Wollen. I refrain from the pun. But the Boche would never be worsted by your planes.

No. 364. "Help from U.S. Destroyer." Bernard F. Gribble. Positively a genuine oleomargarineograph. Colour as per Christmas supplement. Turgid, muddy, house-decorator colouring. And no wonder the machine came down in the sea. Look at the bracing, man!

No. 388. "Mobile Veterinary Dressing Station near Bullecourt." Algernon Talmage. Dear old long-faces! In background two very untidy kite balloons, calculated to drive any spinster frenzied. They do so want mothering. And the smallest aeroplane in the whole of the R.A. The dinkiest, weeest little thing. You could wear it on your watch-chain. The only drawback to its picturesqueness is that it stands out about a foot in front of the sky!

No. 756. "H.M.A. R.34." W. Russell Flint. JOLLY GOOD! A real painting by a real artist, who has got a pair of real eyes. If the Royal Aero Club wants something good, here it is. As R. L. S., the only R. L. S., says in "Treasure Island," p. 115:

"Ah!" cried another voice, that of the youngest hand on board, and evidently full of admiration, "he was the flower of the flock, was Flint!"

And he is!

There are several other pictures with aeroplanes in them. No. 733 (Charles Dixon), usual seascape; No. 621 (W. L. Wyllie, R.A.), all the "guts" taken out of the machine, and the details carefully shirked, etc.

But, after seeing No. 756, I got bored stiff with them and packed up.—W. G. ASTON.

THE GUNNER OFFICER'S OUTLOOK.

People who have served in the Air Force may or may not have a working knowledge of the point of view of the people who went through the war on the ground. Those who pertain to the people in the Air Force, such as admiring relatives or interested friends, would do well to acquire a knowledge of the kind of thing that the Air Force has escaped. Hence one recommends both to Air Force people and their belongings a small book called "Plain Impressions," written by one A. S. G. Butler, some time Lieutenant, Royal Field Artillery.

Mr. Butler's book consists of twelve short sketches of the work of an artillery officer, in turn as Forward Observation Officer and as Brigade Staff Officer. These sketches were written at odd times in 1915, 1916, and 1917, and six of them were published in periodicals. They are utterly different in their treatment from the work of the ordinary professional war writer.

Here, for example, is the first paragraph of the book describing existence in an observation post:—

> "5.15 a.m.—I am in a trench with two signallers. It is not in the front line, but a little behind it, and naturally in view of the enemy. There are two dug-outs: one for the signallers from which we observe, and the other for myself. They are about 4½ feet high, and quite dark, except for the doors and the hole to look through. We have been here since yesterday evening. It is not quite light yet. My feet are cold in spite of two socks, a puttee, a thigh boot, and five sandbags on each; but a coat and two blankets have kept the rest of me warm. I am lying on a duckboard with sacks on it about a foot below the roof. Have slept a little like you do in a railway carriage."

Mr. Butler's description of "Shell Shock" in the fifth sketch and his description of "Being Killed" (as he actually was, for a period) in the twelfth are something quite out of the ordinary, and in their grim simplicity remind one of Ambrose Bierce's stories of the American Civil War.

The curious contrast between moods is shown in the final paragraph of a very convincing description of an artillery barrage as seen from behind the guns, and not at the barrage end of them. The barrage apparently had been exceedingly successful. Here is how the mood changes:—

> "It was very soon over. The enemy retaliation was weak; so, after tidying up and mounting guard for the night, we went in to dinner. I enjoyed it after my ride to the waggon-line, and the new port was quite good. Then the letters were brought in, including my yesterday's paper. We looked at the news for a bit, and discussed the murder case that is making rather a stir in London at present. We thought on the whole it was rather a brutal one."

For all our talk about a League of Nations, other wars are still to come, and, for the matter of that, other wars are still going on, though only as a species of side show after what the unthinking journalist is pleased to call "Armageddon." Therefore it is well to read what is really in the minds of the men who do the fighting while they are fighting.

"Plain Impressions" can be had from The Aeroplane and General Publishing Company, Ltd., 61, Carey Street, W.C.2, price 2s. 9d. post free, and one believes that readers of the book will thank one for introducing them to it.

To "Aeroplane" Subscribers.

Since the Armistice, the subscription list of the AEROPLANE has steadily increased: an eminently satisfactory development which we are anxious to encourage.

Of the many books published on the war on the Western front, none conveys a more realistic impression of the work of a particular arm than FLYING COLOURS by Captain H. M. S. Saundby, A.F.C., R.A.F., M.C., published at **£2 2s.** net (Edition de luxe) and **15/-** net (Popular Edition).

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If the subscriber already has a copy of FLYING COLOURS, and would wish to take advantage of this offer, then he may secure McCudden's "Five Years in the R.F.C." **(7s. 6d.)**; Richthofen's "Red Air Fighter" **(3s. 6d.)**, and Gill's "The Aerial Arm" **(6s. 6d.)** at half price, *i.e.* **8s. 9d.** the three, plus the year's subscription to the AEROPLANE.

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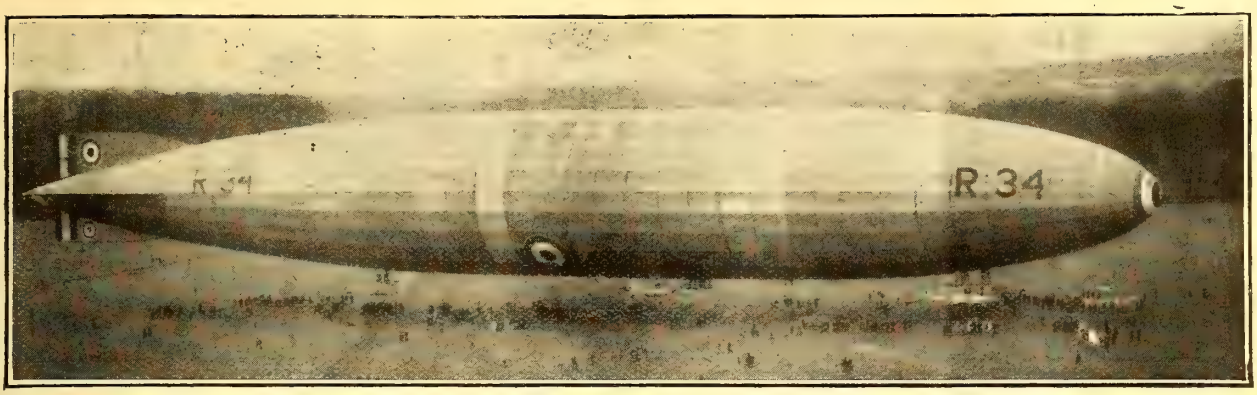

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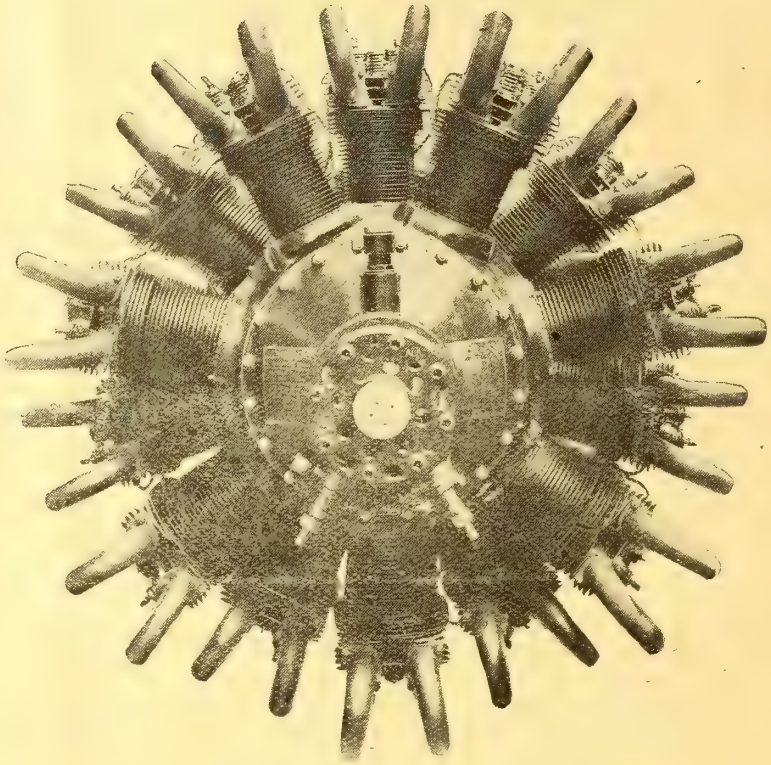

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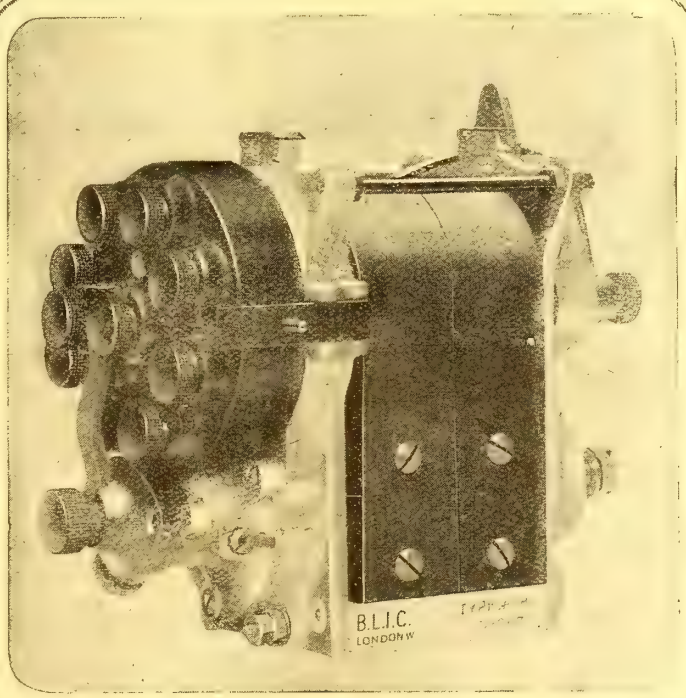

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THE WEEKLY COMMENTARY.

Below will be found a first instalment of a series of articles written for THE AEROPLANE by M. L. P. Frantzen and dealing with the work which has been done in France in developing parachutes for use from aeroplanes.

M. Frantzen is well known in France as an authority on this particular subject, and is in a position to give an accurate account of what has been and is being done in that country.

Machines designed and built by Boulton and Paul, Ltd., of Norwich, are described in this week's issue in the series of articles on "Modern British Aeroplanes."

Amongst them the twin-engined "Bourges" bomber deserves particular attention on account of the excellent performance and high manœuvring qualities which it possesses.

Mr. T. S. Harvey continues his account of the Taliedo Aero Show in this number.

AERIAL SAFETY AND THE AEROPLANE PARACHUTE.

Written Specially for "THE AEROPLANE" by L. P. FRANTZEN.

The safety of an aeroplane at this present time depends essentially upon the skill and the prudence of its pilot, beyond all question; but for the complete success of Civil Aerial Transport it is necessary to protect both pilots and passengers, one might almost say, quite independently of their own wills.

Aerial travellers, particularly business men and merchants, demand not merely relative but almost absolute safety. Let us therefore begin by giving them each their own parachutes whilst waiting for such time as the aeroplane has itself developed the life-saving qualities of the parachute.

The distrust of the public is due to its attaching vital importance to accidents. The facts—vividly revealed by brutal statistics of aviation accidents—confirm this view.

All aviation experiences leads to the conclusion that accidents throw serious discredit upon every aerial enterprise. Let us therefore impartially admit the facts and draw the logical conclusions thereupon.

An English aeronautical paper states that many people, although themselves believers in the utility of parachutes, would hesitate to throw themselves out of any aerial vessel. To this one would reply that:—

(1) It is essential that one should know how to use the parachute, and

(2) In any aircraft in danger the instinct of self-preservation is such as would prevent anyone from hesitating to use a parachute when one understood its method of use.

That this is the case is shown by the experiences of kite balloon crews during the war, and civilian aerial passengers will not be faced with the doubled risk of machine-gun fire during their descent.

Aeroplane pilots are not as indifferent to the value of parachutes as one might believe, but they are keenly aware that to throw oneself from an aeroplane making 200 kms. per hour is a hurried performance representing a rather more complex problem than that of leaving by parachute a balloon, whether captive, free, or dirigible.

To cast oneself, attached to a parachute, from a kite balloon—which may be considered as a fixed point in space—or even from a free or a dirigible balloon, where there is small risk either of entanglement or of upset caused by the speed of the balloon, has been an almost daily occurrence during the war.

With an aeroplane parachute it is a quite other matter, and that is why aeroplane pilots, knowing the difficulties, will not rely upon parachutes until such time as the parachute complies with all those conditions essential to safety which the author has already laid down. (See "L'Aerophile," March, 1919.)

One may divide into three classes the types of parachute which have so far been tried for use from high-speed aeroplanes:—

(1) Parachutes carried upon the back of the aviator, so that he has merely to leap overboard and then operate a releasing gear which allows the parachute to emerge.

(2) Parachutes which are carried on the machine at some suitable spot and are attached to the aviator's harness by a rope.

(3) Parachute systems in which the aviator is thrown out of the machine by some form of special mechanism.

The French "Conade" system of pre-war days was of this last type, and similar systems have been worked upon in the United States.

The first system is that which the Germans used on all their fast fighting machines during the last few months of the war.

The British "Calthrop" parachute is of the second type.

In France it is the "Robert" type of parachute which has been found most satisfactory.

The idea of using the ordinary Juchmès parachute, as used from balloons, for aeroplane work was considered, but was rejected because it was recognised that the conditions were totally different.

The French Section Technique de l'Aéronautique are engaged upon the design of a special parachute of which they have great hopes, and at some time soon France will have the pleasure of seeing the first official application of a parachute to the aeroplane.

It is well to recall here the pre-war parachute systems which gave promising results. These were the Robert, Hervieu, Jean Ors, Bonnet, Cayat de Castella, Od Kolek, Lommatsch-Kotelnikoff, and Blériot. Alone amongst these many inventors MM. Robert and Jean Ors have continued their efforts to perfect their systems and have produced types of parachutes of rational design. A résumé of the results obtained by Robert parachutes since 1912 will first be given:—

TEST OF ROBERT PARACHUTES.

First Type (1912-14).—Automatic release and certainty of inflation secured by elastic projecting arrangements.

Dec. 23rd, 1912.—From the first platform of the Eiffel Tower.

1st Test: Dropped with sandbag of 45 kgs

2nd Test: Dropped with sandbag of 90 kgs.

Tests both satisfactory.

Sept. 21st, 1913.—M. Emil Brodin threw himself from the top of the transporter bridge at Nantes (60 metres). The parachute was released by M. Brodin half-way down in view of ultimate tests by dropping from an aeroplane. Test very successful.

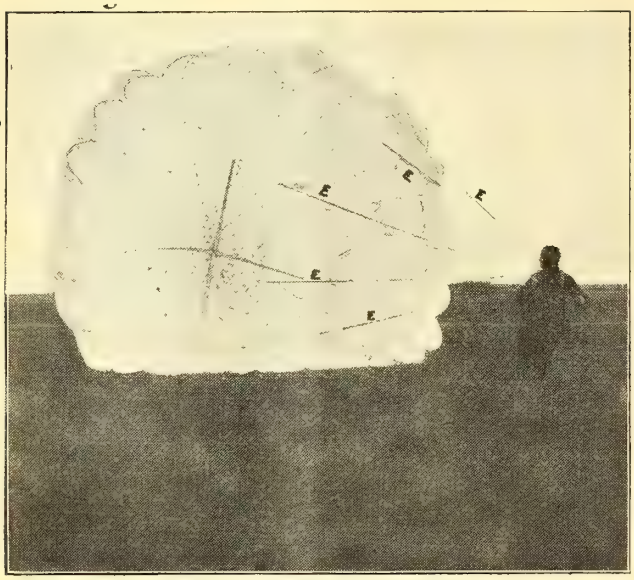
June 10th, 1914.—Concours de la Securité en Aéroplane, at Buc. M. Champel released an 80 kgs. sandbag from less than 50 metres height, with satisfactory results. Awarded a prize of 2,000 francs.

Second Type (1916-1919).—Greatly reduced stowage, automatic release, steerability. Surface variable at will, allowing more or less rapid descent. Shock absorbers. Rapid and certain unfolding.

(4) At Villacoublay. Sapper Lallemand descended from an R.4, piloted by Adjudant Dussot, at a height of 600 m., and made a normal landing.

(5) May 5th, 1918.—At Pulham (Norfolk), under the control of Major Mostyn, this type of parachute was launched from 35 metres under the roof of an airship shed, opened in 15 metres and landed normally.

(6) Sept. and Oct., 1918.—American Aviation Camp at Orly (Seine et Oise). Series of successful tests under the super-



A Robert Parachute after landing.

vision of Lieut. Starcq, of the American Technical Aviation Service. Results: Orders for the manufacture of 1,000 parachutes. Owing to the Armistice only a few were actually delivered and the order was cancelled. A new order has, however, recently been given.

Official Explanation of the Death of Roger Lallemand, July, 1917.

Upon the representations of the French military aviation authorities that the Robert parachute carried on the aviator's back might inconvenience him in certain manœuvres, it was decided to place it in a drum placed in the fuselage below the aviator

This drum was provided with an automatic release operated by the pull on the cord attached to the aviator when he fell.

Twelve preliminary tests with sandbags were made successfully with this arrangement.

Corpl. Lallemand then undertook to descend with this arrangement.

Preparing to leave the aeroplane, he held the suspension cord in his right hand, with his left hand upon the side of the body, and jumped out sideways and backwards, without letting go the suspension cord, thus prematurely pulling out the parachute, and falling into it.

It was concluded therefore that, instead of letting himself fall like a sandbag, as was intended, Lallemand, instead of being in the proper position below the parachute at the end of the suspension rope, was actually above and wrapped up in the parachute like "a stone in a pocket-handkerchief." This has been confirmed by the Adjudant Pilot Dussot and other eye-witnesses.

This last unfortunate adventure of Robert Lallemand with the Robert parachute in no way reduces the value of the system.

Since this accident the inventor has taken steps to prevent the effect of such imprudences on the part of the parachutist.

The accompanying illustration of a Robert parachute landing shows this parachute at the moment the parachutist is releasing himself from his harness.

The shock absorbers E can be seen plainly. These produce two effects. At launching they reduce the stresses on the pilot's back caused by suddenly opening of the parachute, and on landing they similarly absorb the effects of wind gusts and prevent the parachutist being dragged over the ground whilst he is releasing his harness.

(To be continued.)

PARACHUTES.

The following letter has been received:—

In a recent most interesting article describing the "Autochute," Lieut.-Col. H. S. Holt, the writer, most pertinently draws attention to the fact that for a parachute to be of substantial service in saving life from aeroplanes it is essential that the apparatus should not be liable to entanglement with the machines, nor should there be any risk of the man falling inside the parachute in the event of an inverted opening caused by the machine falling faster than the man.

Parachutes that require extension of the silk body and rigging (some 40 ft. or 50 ft.) before becoming detached from the aeroplane may be successfully used for exhibition drops or to escape from a burning machine, although even with the aeroplane flying level it is not an uncommon occurrence for the silk body of such parachutes to be torn by the tail of the machine.

But with an aeroplane out of control, additional to the danger of the silk body being sucked into the tail, or of the man falling onto the parachute, there is, in the case of a spinning dive, the risk of the silk body being wrapped round the machine.

Lieut.-Col. Holt, however, is not correct in his premise that these disadvantages are inherent to all types of single, or simple, parachutes. The "Salvus" Parachute, which we are now manufacturing, is so constructed that at the first tightening of the sling the parachute entirely leaves its case as a compact mass of silk, and only when it is completely detached and several feet away from the aeroplane does the inflation of the silk body begin.

The opening of the parachute is rendered absolutely certain by the mouth of the silk body being held open to a definite area, until its whole length is partially inflated.

When the pull of the "filled out" silk body reaches a pre-determined amount, the lines are extended, and by a simple patented device the initial swing (hitherto experienced with parachutes when launched from aeroplanes) is practically eliminated, and important and carefully made tests have proved the shock of opening to be very slight, so that the weight, complication and expense of special "spring" slings is unnecessary.

One feature which we are sure Lieut.-Col. Holt will appreciate is that the opening of the "Salvus" Parachute is always normal to its line of motion through the air after complete detachment, so that in the case of a machine falling faster than the man, although the detachment from the aeroplane will be upwards relative to the machine, the inflation and subsequent complete opening will be actually downwards, rendering it impossible for the man to fall into the parachute; another point is that the whole apparatus is so simple that without any special gear it can be packed in less than half an hour by any person of average intelligence.

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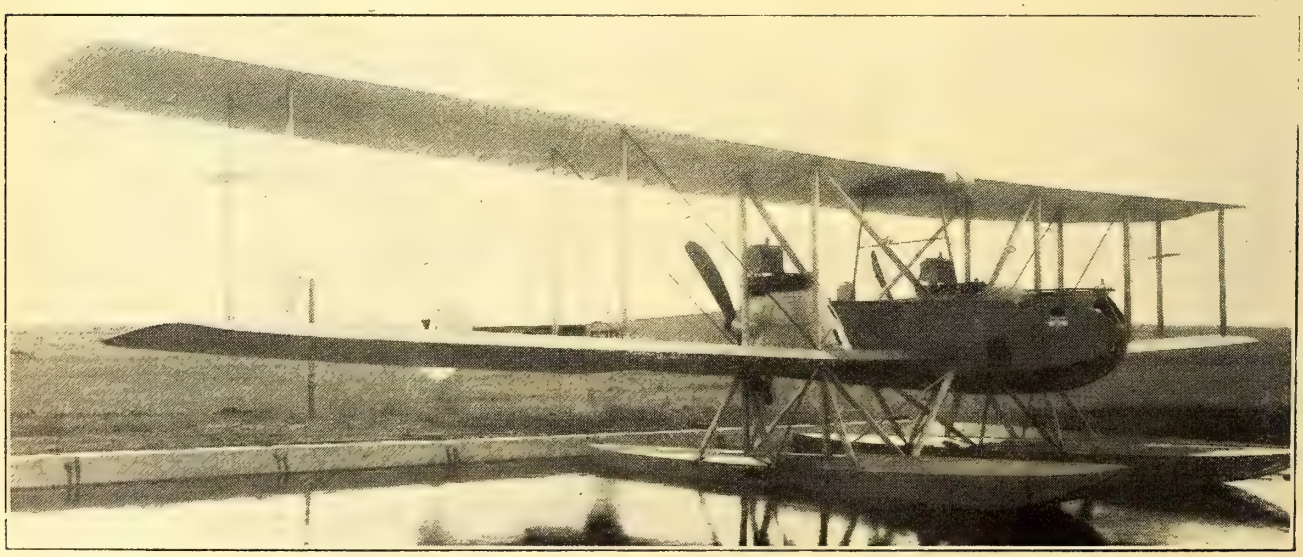

A Two-seater Seaplane belonging to the Royal Danish Navy.

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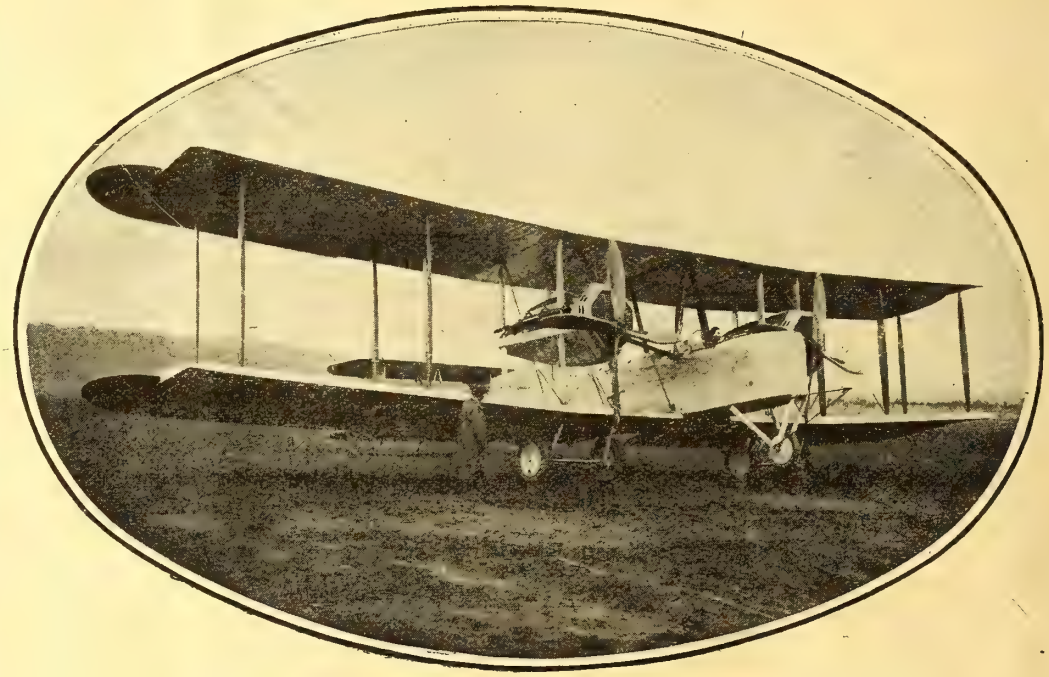

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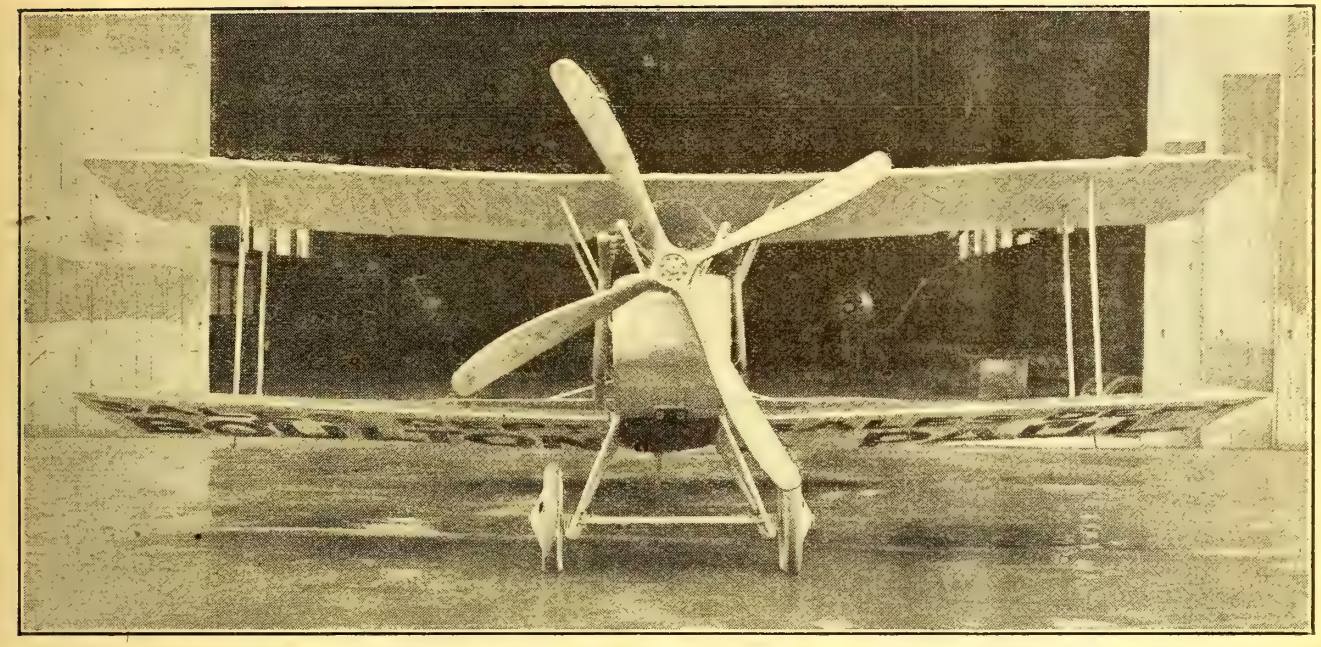


Front View of a Boulton and Paul "P.6" two-seater (100 h.p. R.A.F. Engine).

Boulton and Paul, Ltd., are a well-known firm of structural engineers, who took up the manufacture of aircraft during the war and who propose to continue that activity in the future.

They acquired a reputation for excellent work, and were encouraged by their success to undertake experimental design work which has led to the production of the machines hereafter illustrated and described.

Their experimental and design department is in the charge of Mr. J. D. North, whose experience of aircraft design dates back to very early times.

THE BOULTON & PAUL P.6 and P.9.

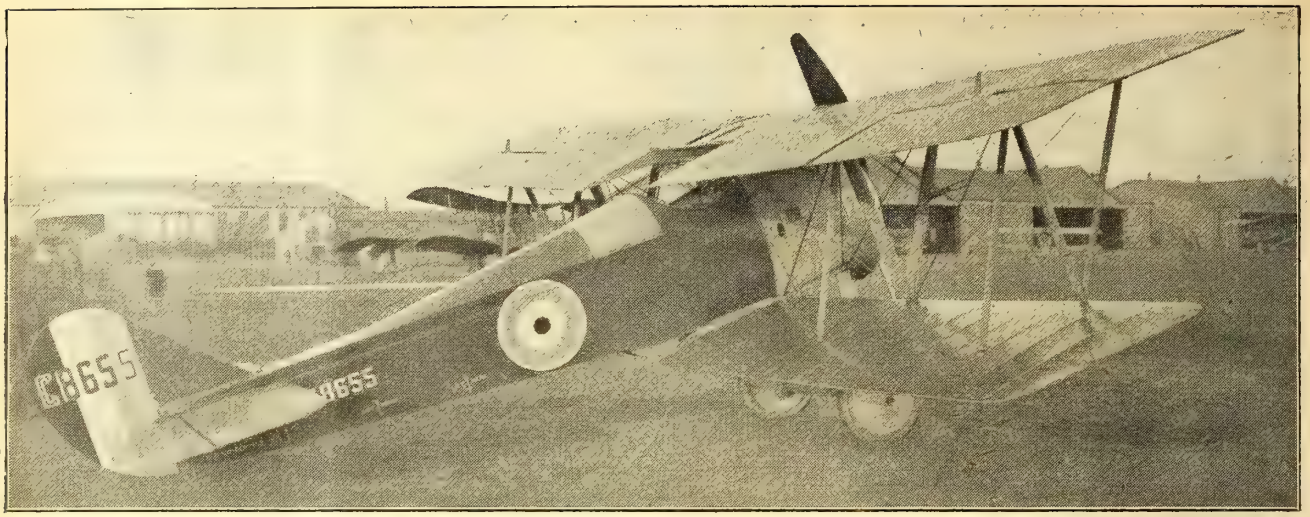
These two machines are generally very similar, although there are appreciable differences in the overall dimensions.

Both are simple and robust two-seater machines fitted with the 100 h.p. R.A.F. engines, and are suitable for training and touring purposes. The staff of Boulton and Paul, Ltd., have used this type of machine for the purposes of their own business and have found them distinctly useful.

"P.6."—SPECIFICATION.

Type of machine	Tractor biplane
Name or type No. of machine	P 6
Purpose for which intended	Air travel
Span	25 ft.
Gap, maximum and minimum	5 ft.
Overall length	19 ft.
Maximum height	8 ft.
Chord	5 ft.

Three-quarter Rear View of a Boulton and Paul "P.6." As may be seen by the legend upon the fuselage this machine is used for business purposes by Messrs. Boulton and Paul.



Three-quarter Rear View of the Boulton and Paul "Bobolink" (230 h.p. B.R.2 engine).

Total surface of wings	235 sq. ft.
Span of tail	11 ft.
Total area of tail	40 sq. ft.
Area of rudder	9 sq. ft.
Area of fin	2.5 sq. ft.
Area of ailerons	7.5 sq. ft.
Maximum cross section of body	7.8 sq. ft.
Horizontal area of body	27 sq. ft.
Vertical area of body	44 sq. ft.
Engine type and h.p	100 h.p. R.A.F.
Airscrew	9 ft. 3 in. Diam.; 1,000 r.p.m.
Weight of machine empty	1,100 lbs.
Load per sq. ft.	7.35 lbs.
Weight per h.p.	17.25 lbs.
Tank capacity in hours	2.37 hours
Tank capacity in gallons	20.1 gals.
Performance :—	
Speed at 1,000 feet	103 m.p.h.
Landing speed	45 m.p.h.
Climb—	
To 5,000 feet in minutes	9 mins.
Disposable load apart from fuel	400 lbs.
Total weight of machine loaded	1,725 lbs.

THE BOULTON & PAUL "P 9."

SPECIFICATION.

Type of machine	Tractor biplane
Name or type No. of machine	P 9
Purpose for which intended	Air travel
Span	27 ft. 6 in.
Gap, maximum and minimum	5 ft. 6in.
Overall length	25 ft.
Maximum height	10 ft.
Chord	5 ft. 6 in.
Total surface of wings	285 sq. ft.
Span of tail	12 ft.
Total area of tail	40 sq. ft.
Area of rudder	9 sq. ft.
Area of fin	2.8 sq. ft.
Area of ailerons	9.45 sq. ft.
Maximum cross section of body	7.8 sq. ft.
Horizontal area of body	37 sq. ft.
Vertical area of body	56 sq. ft.
Engine type and h.p.	100 h.p R.A.F.
Airscrew	9 ft. 3 in. Diam.; 1,000 r.p.m.
Weight of machine empty	1,244 lbs.
Load per sq. ft.	6.3 lbs.
Weight per h.p.	17.7 lbs.
Tank capacity in hours	3 hours
Tank capacity in gallons	24 gals.
Performance :—	
Speed at 1,000 feet	104 m.p.h.
Landing speed	42 m.p.h.
Climb—	
To 5,000 feet in minutes	8½ mins.
Disposable load apart from fuel	400 lbs.
Total weight of machine loaded	1,770 lbs.

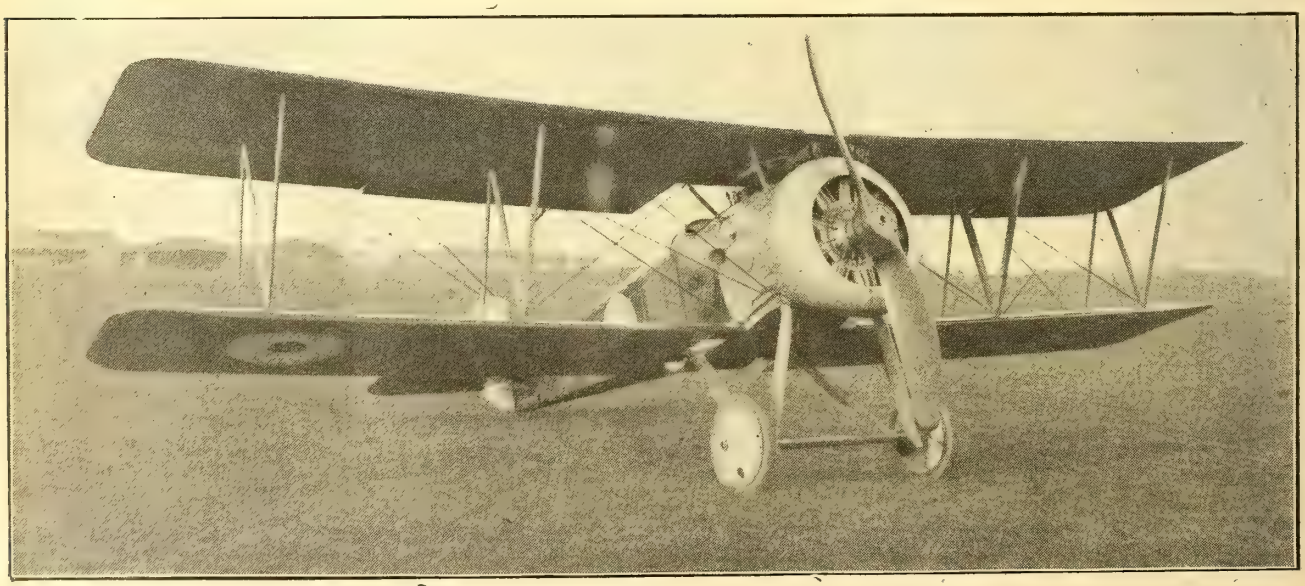
THE BOULTON & PAUL "BOBOLINK."

A small, high-performance single-seater, designed and built towards the end of the war. Like many other excellent machines of similar date, this was never manufactured in quantity.

The illustrations give a very good idea of the general features of the machine.

SPECIFICATION.

Type of machine	Single-seater biplane
Name or type No. of machine	Bobolink
Purpose for which intended	Fighting Scout
Span	29 ft.



Three-quarter Front View of the B. and P. "Bobolink."

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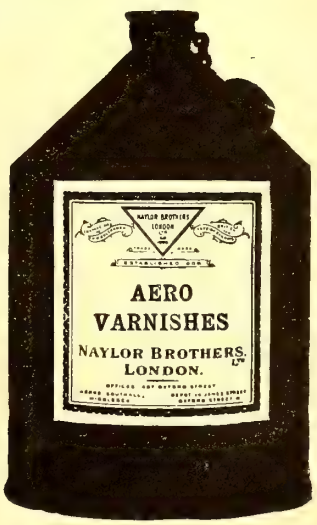

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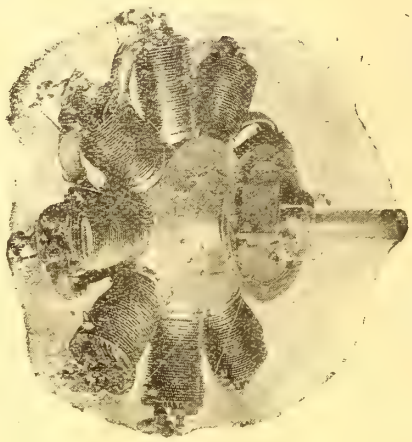

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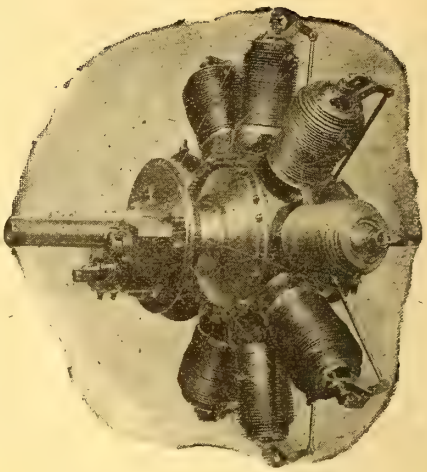

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Short & Mason, Ltd., Macdonald Road, Walthamstow, E.17. "Aneroid, Phone, London." Walthamstow 180.

Insurance—
Aviation Insurance Association, 1, Royal Exchange Avenue, E.C.3 London Wall 9044.
Bray, Gibb & Co, Ltd., 166, Piccadilly, W.1
S Sackville & Sons, Duchy Chambers, 4, Clarence Street, Manchester.
Harold Townend, Ltd., 13-14, Abchurch Lane, King William Street, E.C.4. "Carinsur, London." Central 156 (2 lines).
Percy Wingfield, 22, Newgate Street, E.C.1. City 4672.

Leather Cloth—
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Lubricating Oil Refiners and Merchants—
W. B. Dick & Co, Ltd., 90, Fenchurch Street, E.C.3 Telegrams, Dicotto Fen, London. Avenue 7854 (2 lines.)

Magneto Driving Pieces—
Herbert Terry & Sons, Ltd., Redditch. "Springs, Redditch." Redditch 61.

Magnetos—
The British Lighting & Ignition Co., Ltd., 204, Tottenham Court Road, W.1. "Vicksmag, Phone, London." Museum 430.
The British Thomson-Houston Co., Ltd., Lower Ford Street, Coventry. "Asteroidal, Coventry." Coventry 278.

Metal Casement Manufacturers—
Henry Hope & Sons, Ltd., 55, Lionel Street, Birmingham. "Conservatory, Birmingham." Central 999 (2 lines).

Metal Manufacturers—
Clifford, Chas, & Sons, Ltd., Birmingham. "Clifford, Birmingham." Central 42-43. Avenue 1432.

Metals in General—
Samuel Mercer & Co., 198, Upper Thames Street, E.C.4 "Reconciled, Cannon, London." City 6342.

Metal Parts and Fittings—
Accles & Pollock, Ltd., Oldbury, Birmingham. "Accles, Oldbury." Oldbury 111 (4 lines)
Arnott & Harrison, Ltd, Hythe Road, Willesden Junction. Willesden 2207.
Bayliss, Jones, & Bayliss, Ltd., Wolverhampton. (Bolts and Nuts.) "Bayliss, Wolverhampton." Wolverhampton 1041.
Blackburn Aeroplane & Motor Co., Ltd., Olympia, Leeds. "Propellors, Leeds." Roundhay 345 (3 lines).
British Metal (Kingston), Ltd., Kingston-on-Thames.
Brown Bros., Ltd., Gt. Eastern St., E.C.1.
Mann, Egerton & Co., Ltd., 177, Cleveland Street, London, W.1 "Installing, Eusroad, London." Museum 70.
Rubery Owen & Co., Darlaston, South Staffs.
Sankey, Joseph, & Sons, Ltd., Wellington, Shropshire. "Sankey, Wellington, Salop." Wellington 66.
The Pulvo Engineering Co., Ltd., 10 to 16, Dane Street, High Holborn, London, W.C.1. "Pulvipult, Phone, London." Holborn 410.
The Selsdon Aero & Engineering Co., Ltd., 1, Albemarle Street, Piccadilly, W.1. "Selaero, Phone, London." Regent 1181.
The Rotax Motor Accessories Co., Ltd., Victoria Road, Willesden Junction, N.W.10. "Rodynalite, Phone, London." Willesden 2480.
Thompson Bros., Ltd., Bradley, Bilston. "Thompson Bros., Bilston." Bilston 10.

Metric Bolts—
Cashmore Bros, Hildreth Street, Balham, S.W. Battersea 415.
Rubery Owen & Co., Darlaston, South Staffs.

Miscellaneous—
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Brown Bros., Ltd, Great Eastern Street, E.C.1 "Imbrowned, Bethroad, London." London Wall 6300.
Herbert Frood Co., Ltd., Chapel-en-le-Frith. "Frodobrake, Birmingham." Central 793
MacLennan, J., & Co., 30, Newgate Street, E.C.1., and at Glasgow. Tapes, Cords, and Threads. City 3115.

Motor Cars—
Arrol Johnston, Ltd., Dumfries. "Mocar, Dumfries." Dumfries 281-282.
Mann, Egerton & Co., Ltd., 379/381, Euston Road, London, N.W.1. "Manegecar, Eusroad, London." Museum 70.
Standard Motor Car Co., Coventry. "Flywheel, Coventry." Coventry 530 (4 lines).

Nameplates and Labels—
British Metal (Kingston), Ltd, Kingston-on-Thames.
The Clegg Metal Engraving Co., Ltd., Worthing. "Clegg, Worthing."

Observation Panels—
Triplex Safety Glass Co., Ltd., 1, Albemarle Street, Piccadilly, W.1. "Shatterlys, Piccy, London." Regent 1340.

Oils—
C. C. Wakefield & Co., Ltd, Wakefield House, Cheapside, E.C.2. "Cheery, Cent, London" Central 11305 & 13466.

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The North British Rubber Co., Ltd., Castle Mills, Edinburgh. "Weba, Edinburgh." Edinburgh 3880 Central. (5 lines.)
C. G. Spencer & Sons, Ltd. (See under "Balloons").

Piston Rings—
The Standard Piston Ring and Engineering Co., Ltd., Don Road, Sheffield. "Ocean, Sheffield." Sheffield 2149

Presswork—
Rubery Owen & Co., Darlaston, South Staffs.
Terry, Herbert, & Sons, Ltd., Redditch. "Springs, Redditch." Redditch 61.

Propellers—
The Aircraft Improvements Co., Mornington Works, Arlington Road, Camden Town, N.W.1
Blackburn Aeroplane & Motor Co., Ltd., Olympia, Leeds. "Propellors, Leeds." Roundhay 345 (3 lines).
Boulton & Paul, Ltd., Rose Lane, Norwich. "Aviation, Norwich." Norwich 851.
Ebora Propeller Co., 11 & 12, Surbiton Park Terrace, Kingston-on-Thames "Ebora, Kingston." Kingston 672.
Integral Propeller Co., Ltd., "Aviprop, Hyde, London." Hendon 9. Kingsbury 104.
Lang Propeller, Ltd., Weybridge. "Aerosticks, Weybridge." Weybridge 520-521.
Oddy, W. D., & Co., Leeds. "Airscrews, Leeds." Leeds 20547-8.
Westland Aircraft, Yeovil. "Aircraft, Yeovil." Yeovil 129.

Pyrometers—
The Foster Instrument Co., Letchworth, Herts. "Foster Instruments, Letchworth." Letchworth 26.

Rawhide Hammers—
Ira Stephens, Whitelands Leather Works, Ashton under-Lyne. "Stephens, 709, Ashton." Ashton 709.

Rigging for Aircraft—
Cradock, Geo., & Co., Ltd., Wakefield, England. "Cradock, Wakefield." Wakefield 466.

Rubber Tubing & Accessories—
Hancock, James Lyne, Ltd., 266, Goswell Road, London, E.C.1 "Masticator, Isling, London." City 3811 & 3812
The North British Rubber Co., Ltd., Castle Mills, Edinburgh. "Weba, Edinburgh." Edinburgh 3880 Central. (5 lines.)

Safety Belts—
C. H. Holmes & Son, 38, Albert Street, Manchester. "Semloh, Manchester." City 4432.

Screwing Die Heads—
Voucher, Co., Auto Tool Works, Walsall. "Voucher Walsall." Walsall 0196.

Screw-driving Machines—
Russell Bros. (Redditch), Ltd., Littleworth, Redditch. "Inventors, Redditch." Redditch 74.

Seaplane Manufacturers—
Blackburn Aeroplane & Motor Co., Ltd., Olympia, Leeds. "Propellors, Leeds." Roundhay 345 (3 lines).
Phœnix Dynamo Manufacturing Co., Ltd., Thornbury, Bradford. "Dynamo, Bradford." Bradford 3700 (7 lines).
Short Bros., Rochester. "Seaplanes, Rochester." Chatham 627.
Supermarine Aviation Works, Ltd., Southampton "Supermarin, Southampton." Woolston 37.

Searchlights & Landing Lights
Brown Bros., Ltd., Great Eastern St., E.C.1.
Imperial Light, Ltd., 123, Victoria Street, London, S.W.1. "Edibrac, Phone, London" 3540 Victoria (3 lines).
The Rotax Motor Accessories Co., Ltd., Victoria Road, Willesden Junction, N.W.10 "Rodynalite, Phone, London." Willesden 2480

Shock Absorbers—
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Tubbs, Lewis & Co., Ltd., 29 & 30, Noble Street, E.C.2. "Elastics, London." City 22.

Sheet Metal Pressings—
Accles & Pollock, Ltd., Oldbury, Birmingham. "Accles, Oldbury." Oldbury 111 (4 lines)
Blackburn Aeroplane & Motor Co., Ltd., Olympia, Leeds. "Propellors, Leeds." Roundhay 345 (3 lines)
British Metal (Kingston), Ltd., Kingston-on-Thames.
Rubery Owen & Co., Darlaston, South Staffs.

Sheet Metal Work—
The Acetylene Corporation of Great Britain, Ltd., 49, Victoria Street, S.W.1. "Flamma, Vic, London." Vic 4830
British Metal (Kingston), Ltd., Kingston-on-Thames. [Staffs.
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Imperial Light, Ltd., 123, Victoria Street, London, S.W.1. "Edibrac, Phone, London." Victoria 3540 (3 lines).

"The Aeroplane" Buyers' Guide.—*continued.*

Solder Manufacturers—

Samuel Mercer & Co., 198, Upper Thames Street, E.C.4. "Reconciled, Cannon, London." City 6342.

Sparking Plugs—

Brown Bros., Ltd., Great Eastern St., E.C.1
Lodge Sparking Plug Co., Ltd., Rugby. "Igniter, Rugby." Rugby 235.
Ripault, Leo., & Co., Ltd. (Oleo Plugs), 64a, Poland Street, W.1. "Ripault, Reg, London." Gerrard 7758.
The Robinhood Engineering Works, Ltd., Newlands, Putney Vale, S.W.15. Makers of KLG Plugs. "Kaelgee, Phone, London." Putney 2132-3.

Springs—

Dart Spring Co., West Bromwich. "Dart, West Bromwich." West Bromwich 322.
Terry, Herbert, & Sons, Ltd., Redditch. "Springs, Redditch." Redditch 61 (3 lines).

Steel—

Allen, Edgar, & Co., Ltd., Sheffield. "Allen, Sheffield." Sheffield 4607.
Brown Bros., Ltd., Great Eastern St., E.C.1.
Firth, Thos., & Sons, Sheffield. "Firth, Sheffield." Sheffield 3230 to 3237.
Nicklin, Bernard, & Co., Birmingham. "Bernico, Birmingham." Smithwick, 224.
Spear & Jackson, Ltd., Ætna Works, Sheffield. "Spear, Sheffield." Central 4522-3-4.

Steel Tubes for Aeroplanes—

Accles & Pollock, Ltd., Oldbury, Birmingham. "Accles, Oldbury." Oldbury 111 (4 lines)

Tapes and Smallwares—

MacLennan, John, & Co., 30, Newgate Street, E.C.1. And at Glasgow. City 3115.
C. E. Matthews & Co., Ltd., Castle Works, Bermondsey Square, S.E.1. "Webbance, Berm, London." Hop 4058.

Timber—

Hopton & Sons, George Street, Euston Square, London, N.W.1. "Hoptons, Eusquare, London." Museum 496.
Also at Market Harborough, Leicestershire. "Hoptons, Market Harborough." Market Harborough 13.

Time Recorders—

Gledhill Brook Time Recorders, Ltd., 26, Victoria Street, S.W.1. Victoria 1310.

Tools—

Richard Mather & Son, Shoreham Street Works, Sheffield Sheffield 4349

Turnbuckles—

Brown Bros., Ltd., Great Eastern St., E.C.1.
Rubery Owen & Co., Darlaston, South Staffs.

Tyres and Wheels—

The North British Rubber Co., Ltd., Castle Mills, Edinburgh. "Weba, Edinburgh." Central 3880 (5 lines).
The Palmer Tyre, Ltd., Shaftesbury Avenue. "Tyricord, Westcent." Gerrard 1214 (5 lines).

Undercarriages—

Thompson Bros. (Bilston), Ltd., Bradley, Bilston, England. "Thompson Bros., Bilston." Bilston 10.

Varnishes—

The British Emaillite Co., Ltd., 30, Regent Street, S.W.1. "Ridleypren, Piccy, London." Gerrard 280.
Thomas Parsons & Sons, 315 & 317, Oxford Street, London, W.1. "Varjap, Phone, London." Mayfair 6347 (3 lines).
Robt. Ingham, Clark & Co., Ltd., West Ham Abbey, E.15. "Oleotine, Strat, London." East 955.
Harland, W., & Son, Merton, London, S.W.19. "Harland, Wimbledon 45" Wimbledon 45 and 1305.
Naylor Bros., Ltd., Southall, Middlesex "Naylor, Southall." Southall 30

Washers—

Terry, Herbert, & Sons, Ltd., Redditch. "Springs, Redditch." Redditch 61.

Welding and Cutting Plant—

Acetylene Corporation of Great Britain, Ltd., The, 49, Victoria Street, Westminster, S.W.1. "Flamma, Vic, London." Vic 4830
Imperial Light, Ltd., 123, Victoria Street, London, S.W.1. "Edibrac, Phone, London." Victoria 3540 (3 lines)

Welding Repairs—

Imperial Light, Ltd., 123, Victoria Street, London, S.W.1. "Edibrac," Phone, London." Victoria 3540 (3 lines).

Wind Shields—

Auster, Ltd., 133, Long Acre, W.C. "Winflector, London." Regent 5910
The Rotax Motor Accessories Co., Ltd., Victoria Road, Willesden Junction, N.W.10. "Rodynalite, Phone, London." Willesden 2480.
Triplex Safety Glass Co., Ltd., 1, Albemarle Street, Piccadilly, W.1. "Shatterlys, Piccy, London." Regent 1340.

Wire Gauze—

Greening, N., & Sons, Ltd., 16, Finsbury Street, London, E.C.2. "Setscrew, Finsquare, London." London Wall 1082.

Wire and Cables—

Bruntons, Musselburgh, Scotland. "Wiremill, Musselburgh." Musselburgh 28.
Cradock, Geo., & Co., Ltd., Wakefield, England. "Cradock, Wakefield." Wakefield 466 (3 lines).

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Terry, Herbert, & Sons, Ltd., Redditch. "Springs, Redditch." Redditch 61.

Woodworking Machinery—

Robinson, Thomas, & Son, Ltd., Rochdale, "Robinson, Rochdale." Rochdale 467.
Sagar, J., & Co., Ltd., Halifax "Sawtooth," Halifax." Halifax 136.
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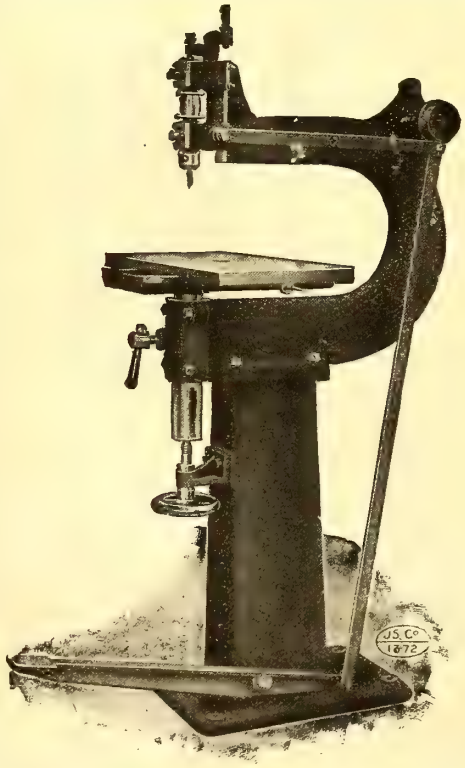

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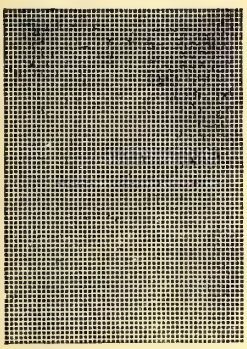

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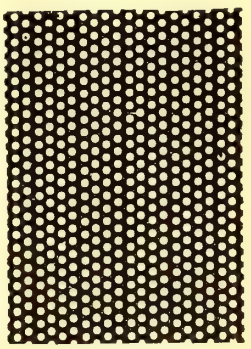

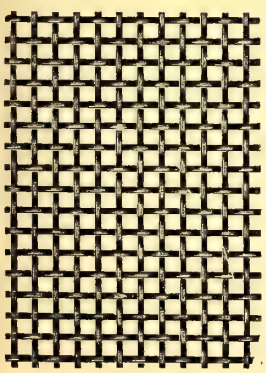

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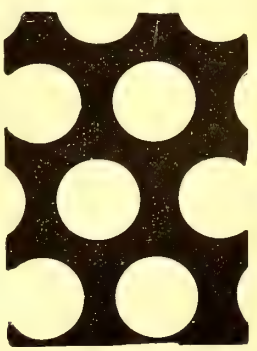

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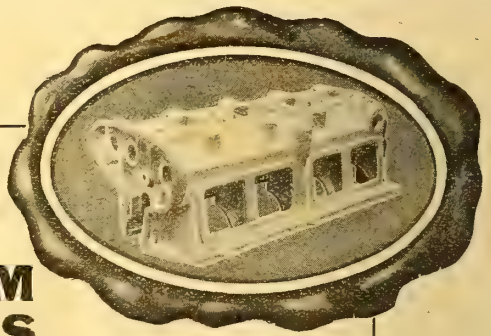

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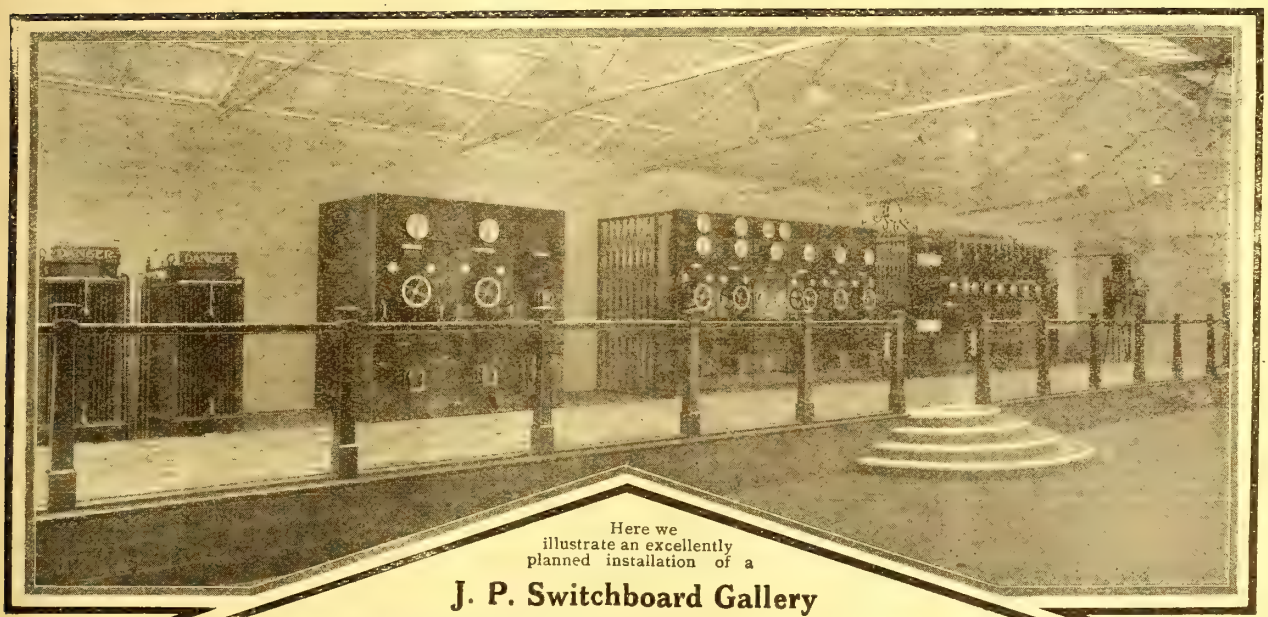

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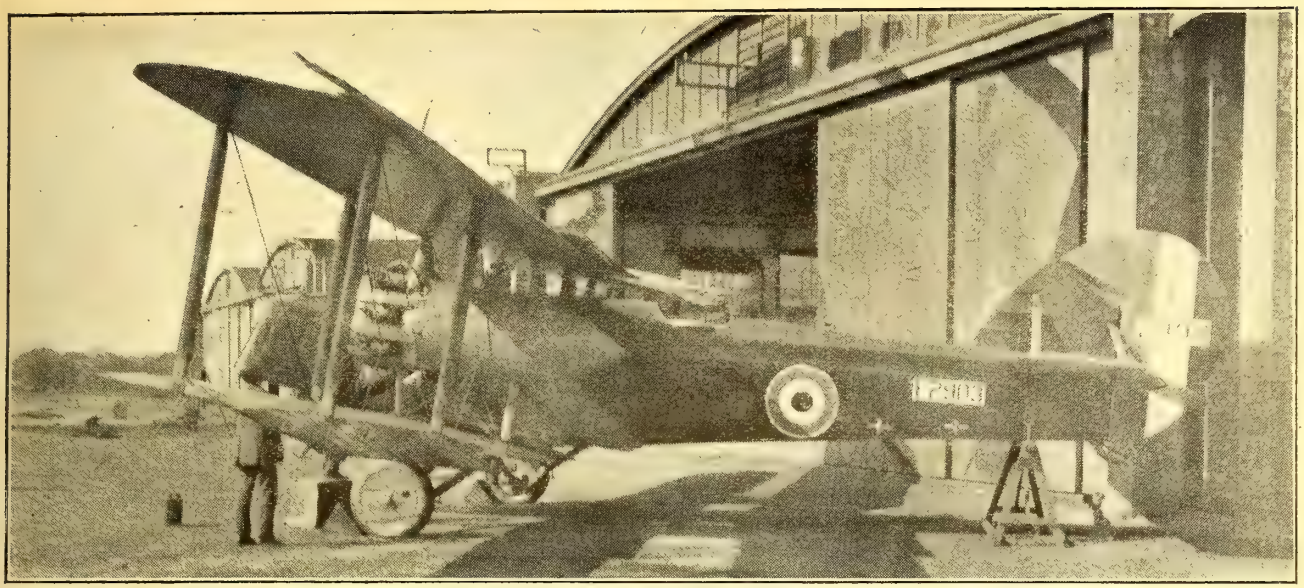


The Boulton and Paul "Bourges" fitted with two 320 h.p. A.B.C. "Dragonfly" Engines.

Gap, maximum and minimum	3 ft. 10⅝ in.
Overall length	20 ft.
Maximum height	8 ft. 4 in.
Chord	Top plane, 5 ft. 4½ in.; bottom plane, 4 ft. 1½ in.
Total surface of wings	266 sq. ft.
Span of tail	9 ft. 2 in.
Total area of tail	30 sq. ft.
Area of rudder	10 sq. ft.
Area of fin	2 sq. ft.
Area of ailerons	7.5 sq. ft.
Maximum cross section of body	7.5 sq. ft.
Horizontal area of body	30 sq. ft.
Vertical area of body	41 sq. ft.
Engine type and h.p.	230 h.p. B.R.2.
Airscrew, diameter and revs.	9 ft. 0 in. Diam.; 1,350 r.p.m.
Weight of machine empty	1,220 lbs.
Load per sq. ft.	7.25 lbs.
Weight per h.p.	8.35 lbs.
Tank capacity in hours	2.65 hours
Tank capacity in gallons	38 gals.
PERFORMANCE :—	
Speed at 10,000 feet	125 m.p.h.
Speed at 15,000 feet	110 m.p.h.
Landing speed	50 m.p.h.
Climb—	
To 10,000 feet in minutes	9½ mins.
To 15,000 feet in minutes	18 mins.
Disposable load apart from fuel	430 lbs.
Total weight of machine loaded	1,920 lbs.

THE BOULTON & PAUL "BOURGES."

One of the most successful of the twin-engine fighter bomber class yet produced. As twin-engine machines go, the "Bourges" is of quite small dimensions, and of very clean design.

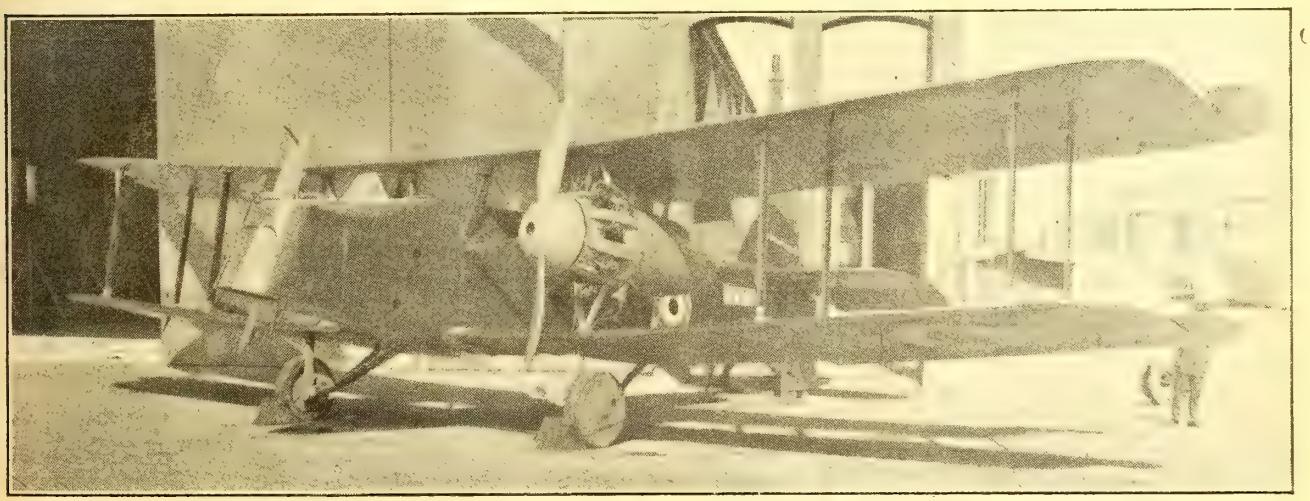
As is more or less standard practice in this class, the accommodation provided is for a front gunner-observer in the nose of the central fuselage, with pilot's seat behind that but in front of the main planes, and a rear gunner's seat just aft of the upper rear spar.

The performance of the "Bourges" approaches that of the single-seater fighter class, and for a large machine the manœuvrability is extraordinary, and the machine can be looped and spun with ease.

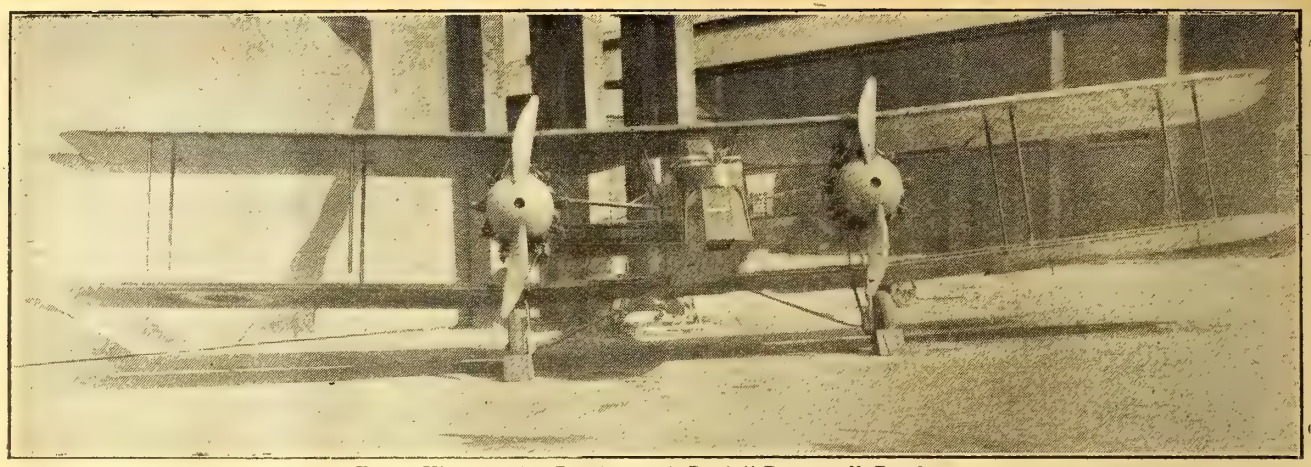
Some early specimens of this type were fitted with the B.R.2 engine of 230 h.p., but in the later machines the A.B.C. "Dragonfly" is used.

SPECIFICATION.

Type of machine	Twin-engined biplane
Name or type No. of machine	Boulton & Paul P 7 "Bourges"
Purpose for which intended	Bomber-fighter
Span	54 ft.
Gap, maximum and minimum	6 ft. 6 in.
Overall length	37 ft.
Maximum height	12 ft.
Chord	Top plane, 8ft.; bottom plane, 6 ft. 6 in.
Total surface of wings	738 sq. ft.
Span of tail	16 ft.
Total area of tail	96 sq. ft.
Area of elevators	96 sq. ft.
Area of rudder	21 sq. ft.
Area of fin	14 sq. ft.
Area of ailerons	27 sq. ft.
Maximum cross section of body	5.3 sq. ft.
Horizontal area of body	73 sq. ft.
Vertical area of body	140 sq. ft.
Engine type and h.p.	2—320 h.p. A.B.C. "Dragonfly"
Airscrew, diameter and revs.	9 ft. 6 in. Diam.; 1,650 r.p.m.
Weight of machine empty	3,420 lbs.
Load per sq. ft.	8 lbs
Tank capacity in hours	9.25 hours
Tank capacity in gallons	190 gals.



Three-quarter Front View of the "Bourges" twin-engine Bomber (two 320 h.p. "Dragonfly").



Front View of the Boulton and Paul "Bourges" Bomber.

PERFORMANCE :—
- Speed at 10,000 feet ..... 124 m.p.h.
- Speed at 15,000 feet ..... 118 m.p.h.
- Landing speed ..... 50 m.p.h.

Climb—
- To 10,000 feet in minutes ..... 11 mins.
- To 15,000 feet in minutes ..... 21 mins.

Disposable load apart from fuel ..... 1,200 lbs.
Total weight of machine loaded ..... 5,920 lbs.

THE BOULTON & PAUL COMMERCIAL TYPE.

Generally speaking, this machine is an enlarged edition of the "Bourges," fitted with engines of greater power and equipped for commercial and passenger-carrying purposes.

As may be seen by the specification, a very high performance is expected from this type. This is an important feature—not because Messrs. Boulton and Paul expect to run commercial services at 149 m.p.h. with this type of machine; but because with this machine it should be possible to run at 120 m.p.h. at, roughly, half full power, and to approach this speed with one engine only.

It should thus be possible to run really high-speed services without keeping engines continually all out, and to maintain schedule times even if one engine fails completely.

SPECIFICATION.

Type of machine ..... Twin-engined tractor biplane
Name or type No. of machine ..... Boulton & Paul P 8
Purpose for which intended ..... Passenger and commercial
Span ..... 59 ft.
Gap, maximum and minimum ..... 6 ft. 6 in.
Overall length ..... 40 ft.
Maximum height ..... 12 ft. 4 in.
Chord ..... Top plane, 8 ft.; bottom plane, 6 ft. 6 in.
Total surface of wings ..... 770 sq. ft.
Span of tail ..... 16 ft.
Total area of tail ..... 96 sq. ft.
Area of elevators ..... 96 sq. ft.
Area of rudder ..... 21 sq. ft.
Area of fin ..... 14 sq. ft.
Area of ailerons ..... 27 sq. ft.
Maximum cross section of body ..... 22 sq. ft.
Horizontal area of body ..... 108 sq. ft.
Vertical area of body ..... 180 sq. ft.
Engine type and h.p. ..... 2—450 h.p. Napier "Lion"
Airscrew, diameter and revs. ..... 9 ft. 6 in.; 1,450.
Weight of machine empty ..... 4,000 lbs.
Load per sq. ft. ..... 9.75 lbs.
Weight per h.p ..... 8.34 lbs.
Tank capacity in hours ..... 4 hours
Tank capacity in gallons ..... 210 gals.

PERFORMANCE :—
- Speed at 10,000 feet ..... 149 m.p.h.
- Speed at 15,000 feet ..... 142 m.p.h.
- Landing speed ..... 54 m.p.h.

Climb—
- To 10,000 feet in minutes ..... 8 mins.
- To 15,000 feet in minutes ..... 15 mins.

Disposable load apart from fuel ..... 2,000 lbs.
Total weight of machine loaded ..... 7,500 lbs.

THE DEATH OF MR. A. VICKERS.

Mr. Albert Vickers, late Chairman of Vickers, Ltd., died on Saturday, July 12th, at Eastbourne, at the age of 80. It was owing to his far-sighted policy that his company was able to meet the immense demands which were put upon it by the war.

The Vickers' business was established by Mr. Vickers' forebears in the eighteenth century, and when he entered the works at the age of 16 it was a comparatively small steel-making concern.

He built up the business, his policy being to centralise the control of factories engaged on making the various parts of one complicated piece of machinery, until the capital reached over eight millions sterling.

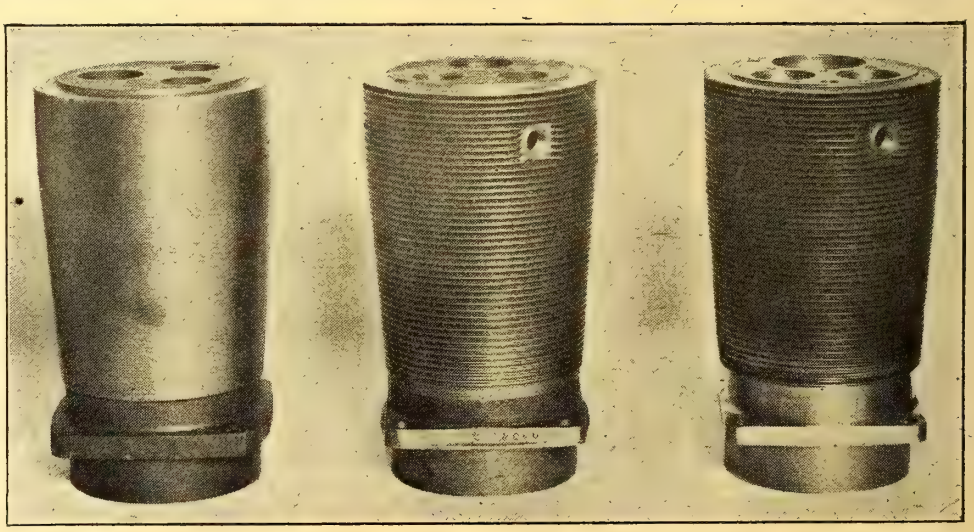
Sir Hiram Maxim brought him his idea for a machine-gun in 1883, and it was Mr. Vickers' financial help and energy which enabled the gun to be planned, patented and made. This machine-gun was afterwards improved and known as the Vickers-Maxim.

In 1911 Vickers, Ltd., formed an aviation department under the late Major H. F. Wood, and the department has also been of very great value to the Nation during the war.

AUSTIN WORKMANSHIP.

The accompanying photograph, which was supplied by the Austin Motor Co., Ltd., shows three successive stages in the process of manufacture of a cylinder for an A.B.C. Dragonfly Engine. From left to right the stages are (1) Blank bored and rough turned outside and valve seatings bored out. (2) Fins machined up and sparking plug socket formed and screwed. (3) The complete cylinder with valve seatings and stud holes finished, and with the fins copper-plated.

The manufacture of cylinders of this type calls for the best of materials and workmanship, and the fact that the Austin Motor Co. carried out the whole process from forging the blank to the finished article shows that they are equipped for the highest class of work.



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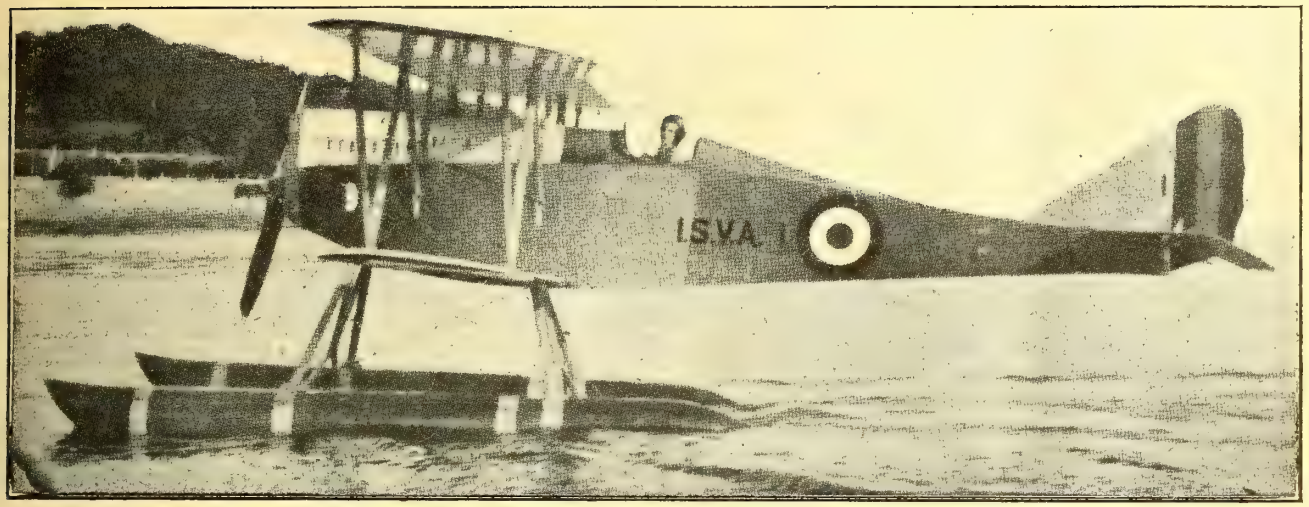


An S.V.A. Seaplane with Guidoni "Palette" Floats, to which reference is made below.

Following on the preliminary notes on the Aero Show at Milan, which was published last week, Mr. T. S. Harvey writes:

Ing. Caproni's Company stage one or more examples of every type of CA still in use, from the "Baby" mono. to the Liberty-engined 1,200 h.p. triplane, with the exception of the seaplane; that is to say, the "Baby," the 300, of '14, the 400, the 600, and the 900, as well as the Pullman-car triplane. The least known of the designer's progeny is the smaller single-engined trench-bombing triplane which was designed for the Fiat 700 h.p. motor and is sulking with a 300 radial engine. The speed was calculated at 220 kilometres, and the machine was to be a terrible scourge to Austrians, entrenched or otherwise.

Perhaps what is most striking in all the Caproni products is the constant progress in detail improvements. It is quite unusual to find two machines of the same type and identical construction in every way.

One will have, say, a new kind of mudguards, another an unexpected bit of streamlining, or something bettered about the landing gear or radiator fittings, which things point to the continuous study and experiment of a mind ever hunting progress.

E.g., onen oted the narrow dumpy body on the level of the lowest plane of the latest 900 triplanes, combining a bracing-up of the lower regions of the machine with a degree of side surface apparently desirable low down. The retractable steps into the Pullman give an impression of completeness not obtained by any amount of fine upholstering and recessed roof lighting. The triplane shown has no forward two-wheeled skid; sixteen wheels instead are to be counted in the central landing gear.

One was assured on next-to-highest authority that the 100 passenger hydro-triplane is well on its way to its first unsticking. The big barges needed for floating such a large thing are not being turned out by the CA works, contrary to the firm's custom. Messrs. Zari, I believe, make the triplane's floats, which are merely the size of your houseboats.

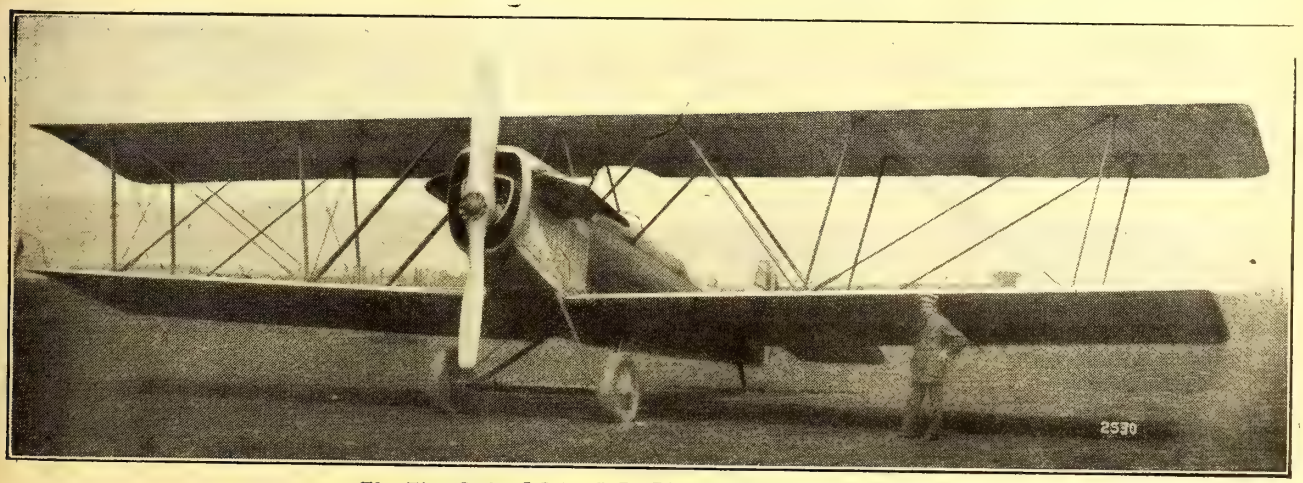
The Ansaldo Company's various types are all over the Show, being present in every section of the exhibition and in the air above it. In fact, they are almost unbecomingly omnipresent! The firm's Balilla, designed, as was not the S.V.A., by their own Ing. Brezzi, and differing from this latter most perceptibly by the absence of the open V struts, is shown, as several other small fast machines are shown, cocked high up in steep banking positions on two misfit posts. Interest naturally centres in the latest Ansaldo machine, up till now unseen and unheard of, at least by the general public. This is a 300 h.p. biplane with ear-shaped balancing areas to the ailerons protruding from the ends of the upper plane in an ugly if distinctive fashion. The streamlining of the double cables has been more carefully attended to than is usual here. The short stumpy four-leaf metal skid is fitted under the tail of this as of all the Ansaldo machines. Unfortunately only the Guidoni-cum-Forlanini-palette floats for the Ansaldo seaplane are exhibited. It is true that these are the machine's most striking feature, being metal cylinders pointed at both ends, the forward of which turns heavenwards, the latter —contrariwise. The four-leaf tail-skid mentioned above as standerd on Ansaldo and Sva machines seems to be responsible in a large degree for their unusually rapid pull-up, which makes them more suitable for passenger work than might be expected. The braking effect of the skid directly weights gets down to it is very noticeable—even to the ear!

The Ansaldo engine in its latest type, No. 4 E 284, is a 12 cylinder V of 60 degrees water-cooled.

The steel cylinders, separately detachable, have a bore of 140 mm. and stroke of 180 mm. The water-jackets are of pressed steel, and each cylinder has four valves. Two double Zenith carburetters, two magnetos, two water and two oil pumps are fitted.

The connecting-rods of the rank of cylinders on one side are specially strengthened to carry the rods from the pistons of the other, which are connected up to them directly. The cylinders are flanged and bolted to the aluminium crankcase, which is unusually long at the propeller end, forming a sump and allowing the propeller to be set well out and on an abnormally long bearing.

The power developed at normal revs., 1,650, is 520 h.p. By "reving" up to 1,800, 570 h.p. has been obtained. Weight per



The Fiat Co.'s (S.I.A.) B.R. Biplane (700 h.p. Fiat Engine).

normal h.p. works out at 0.98 kilograms. Oil consumption per h.p.-hour, 15 grams. Petrol ditto, 220 grams.

Also used by Macchi for seaplanes. The engine is built at S. Giorgio works at Turin

The Fiat Company's great attraction is naturally the BR, on the data from which machine the trans-oceanic space-annihilator is being built. In appearance the BR is not as handsome as it performs handsomely, but is, owing to its enormous single-engine-developed horse-power, in a class by itself. The machine has been loaded with nearly one and a half thousand kilograms instead of the nine hundred for which it is designed, without feeling the load abnormally.

The Fiat A.14 12-cylinder V gives 685 h.p. at 1,559 revs. per minute, and weighs 730 kilos. sans propeller shaft and exhaust piping. Four Dixi magnetoes are fitted and two Fiat carburetters.

With normal load of 900 kilos. Brach-Papa has got 255 kilometres per hour out of BR, and 261½ with two passengers on a straight course, while the rate of climb is to 3,000 metres in 9 minutes, 4,000 metres in 16 minutes, and 5,000 metres in 25½ minutes.

In her successor metal bulkheads to ensure floating are formed in the central section of the fuselage, which carry reserve fuel supplies and are provided with ripping panels to ensure rapid release when their contents become unnecessary.

Messrs. Nieuport-Macchi present for public study various Nieuports and Hanriots, as well as their very efficient seaplanes, which did excellent work during the last four years in the Adriatic and elsewhere. Nos. M.7, M.8, M.9, M.14, and M.15 are staged, which makes the absence of M.12 even more noticed. The first three are oft-described developments of the earliest Macchi efforts.

M.9, however, is shown with a limousine body, the which covers a multitude of sins nowadays.

M.14 is a small single-seated chaser biplane of about 17 sq. metres surface, doing 188 per hour, with a Le Rhône 110 h.p. engine, and climbing to 5,000 metres in 21 minutes with useful load of 200 kilograms. It is armed with two Vickers guns, and the upper plane is nearly twice the size of the lower, with a very considerable stagger.

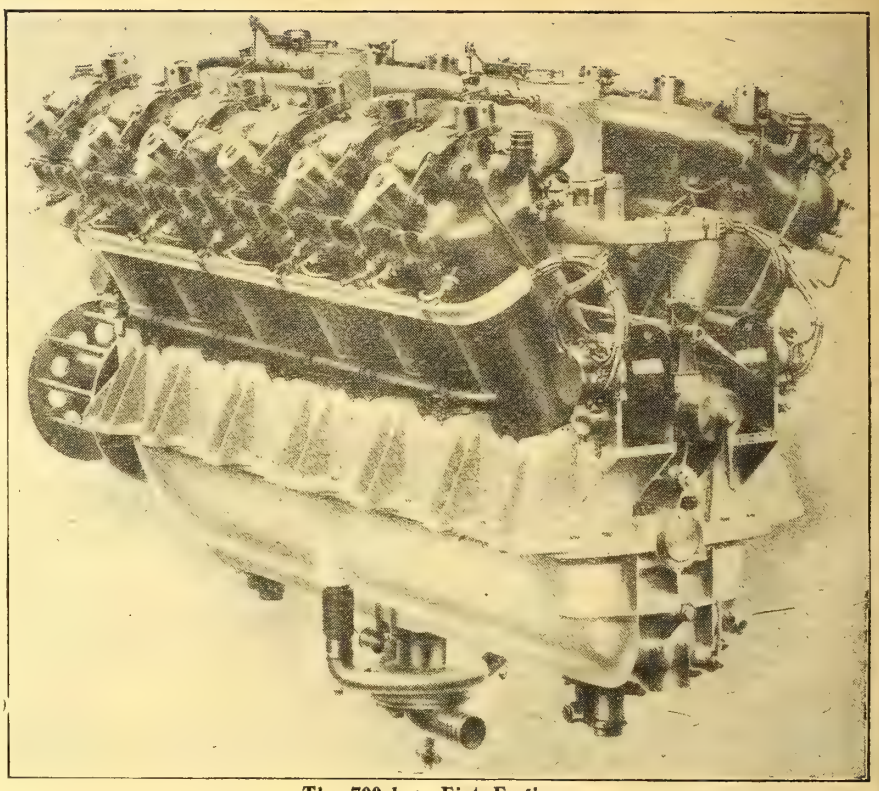
M.15 is a large biplane with Fiat 300 motor, with certain good points still being loudly called for when the Armistice upset war aims. The total surface is 42 sq. m., and the planes are directly super-imposed, the upper being nearly double as large as the lower one. Three mitrailleuses are carried which weigh, with ammunition therefor, 70 of the 500 kilos. of useful load.

Pilots are enthusiastic about the narrow flat-topped body giving plenty of standing and moving-about room for the observer and space for all his tackle, and observers like the nearness of the pilot. To all this one can add that the petrol tank is at the centre of gravity, and that both the rear-firing guns may be aimed parallelly to the line of flight of the machine, one being mounted in the floor of the fuselage, which tapers to a horizontal knife-edge at the tail

Apparently the less said of the absent M.12 the better.

The Press here, technical and non-so, are frankly disappointed in the section devoted to the Trophies of War.

This section gives a wonderfully poor idea of Italy's takings in the fight. One writes "wonderful" because one wonders if it is possibly an intentional affront perpetrated by some still unconvinced admirer of the Hun.



The 700 h.p. Fiat Engine.

Allowing for difficulty of transport and the strongly contested terrain in which the crashed enemy craft came to rest, one could reasonably expect to have found Italy's air forces glorified by a more numerous display of captured seaplanes, of which there must be a number intact. Not many more enemy planes are on view than at the 1917 show, and these, though more varied, are in less eyeable and therefore less educational condition.

Of these fragments the enormous K.G. 338 three-seater seaplane tops the exhibit. It is a single cellule construction of 100 sq. m. surface (in itself remarkable), and the struts to which are at a very open angle, and, as is the case with the wing tip floats, very well streamlined and, like them, calculated to add a very perceptible amount of lift to the craft.

In the boat body is a 12 cyl. V. 350 h.p. A. Daimler, and the total weight is 1,990 kilos. Speed is given as 140 kilometres per hour, and climb to 1,000 in 14 minutes.

Capt. Banfield's hydro-chaser, with Hiero 230 h.p., a single pair of interplane struts parallel to the line of flight, a speed of 176 kilometres the hour, climb to 1,000 in four minutes, and weight of 776 kilos, does not impress one exceedingly.

Brumowsky's scout, with Mero 160, is more interetsing, with great wing flexibility and much striving after weight-reduction. If my memory serves me worthily, these machines were highly thought of by fighting men on account of their good climbing and general manœuvring at extreme altitudes.

Facilities for examination of these and the other remains were inexplicably absent nearly a month after the Show was opened.

Among other departed, whose identity could only be guessed at, was a very mangled thing of enormous span, labelled "Gotha," which occupied the horizon line in the dim depths of the shed where the nine enemy trophy machines reposed.—T. S. H.

(To be continued)

INTERNATIONAL METEOROLOGICAL ARRANGEMENTS.

It is understood that the International Hydrographical Conference, which has been sitting under the presidency of Rear-Admiral Sir J. F. Parry for some weeks, has now concluded.

This Conference has been largely concerned with an effort to standardise the form in which meteorological information is supplied to mariners.

The adoption of a uniform system of units has been discussed, and it is understood that the Conference will record a resolution in favour of the use of the metric system.

It is hoped that as a result of this Conference an International organisation for the dissemination and exchange of meteorological information may be established.

It is hoped that the use of aircraft will in the future provide much valuable meteorological data, and that the International Meteorological Bureau, when established, will reciprocate by supplying aircraft with more accurate and more useful weather forecasts than has been the case heretofore.

OLEAGINOUS COURTESY.

American officers deeply appreciated the courtesy shown by Britain in connection with the trans-Atlantic voyage of the R.34. They said that England had given them all information, and even samples of the oil for engine bearings, which they wanted to analyse for their own purposes.

The oil referred to was Wakefield's Castrol R., which was used on the voyage of the R.34 and on the historic flights of Sir John Alcock and Mr. Hawker.

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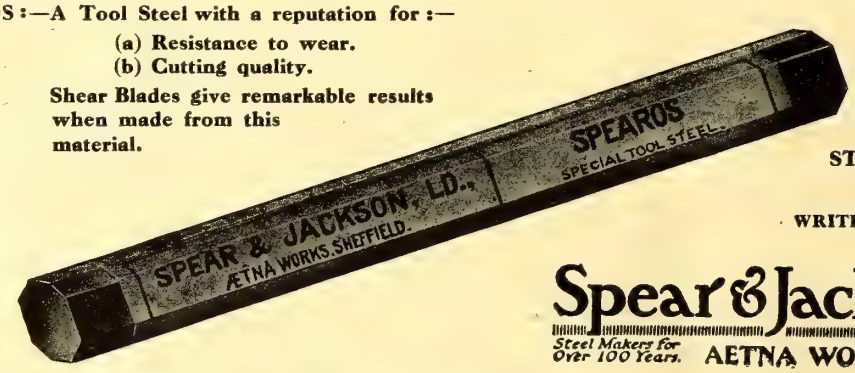

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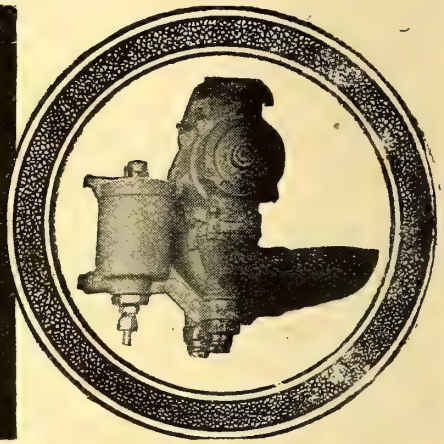

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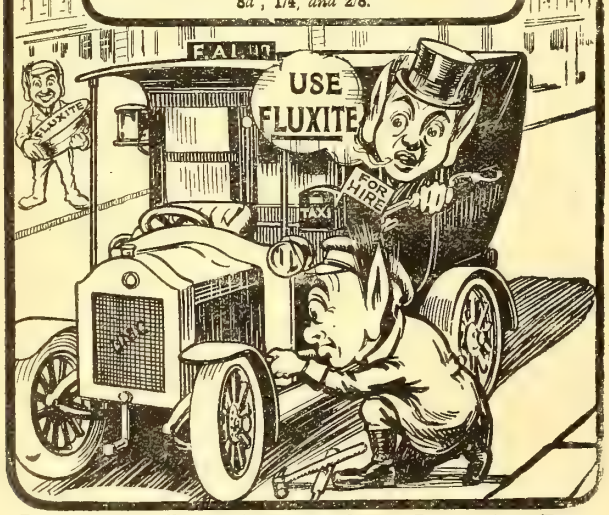

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"FINE AND WARMER?"

By "MEDWAY."

A week or so ago I took up my morning copy of the "Times" and read, at the head of the column to which I always refer first, the ominous words, "There is a depression over the wash."

Personally, I have been suffering from this depression for the last two or three years. It has been growing more and more severe with every fluctuation of the labour market, and I fear that, when Germany and America have time to import their latest shirt-destroying and collar-lacerating machinery, the thing will reach an acute stage.

I am, however, digressing. What I took at first to be a statement of a mere platitude, well known to every possessor of a dress shirt, I found to be an intimation of an absolutely new state of affairs. The wash referred to was the one in which some early king—I forget who—lost his luggage. The depression was atmospheric and not mental.

The Depression That Failed.

A further statement announced that the depression in question was growing in intensity and was on its way to London. The column was therefore headed, "Rain or Showers. Colder." In point of fact, that particular day was one of the hottest and most oppressive experienced this year. Not a cloud was to be seen, and the English climate did not even turn on its common stunt of producing rain from a chunk of sky containing no clouds whatever.

That morning, no doubt, the weather experts faced the elements with mackintoshes and umbrellas, contemptuously sorry for the mere man who took things as he found them and neglected any particular precautions.

I am not certain, however, that I am right about this. I question whether the expert meteorologist does not still tend to trust his eyes rather than his logical faculties when he comes to consider the weather from a purely personal standpoint. On some occasions he is more or less bound to do so. For instance, the other day, when the forecast summed itself up as "fine and warm," it rained steadily from six in the morning till eight at night.

Before the war the weather expert merely posed as a prophet; but did not attempt to explain on what he based his prophecies. He generally served up his views in the guise of a lady in Grecian drapery being blown to bits, struggling with an umbrella or garbed in a sunny smile. You could take her advice if you liked.

The Realisation of Ignorance.

Now we are told that the experts know a great deal more about the weather than they did five years back. My own idea is that they have reached that stage in learning at which the student realises he knows nothing. If so, they have certainly made an advance. Having reached this stage, they prefer not to prophesy blindly, but to draw a pretty map crossed by a lot of curly lines with figures at the ends. They argue round this map until they have convinced themselves and their audience that it is quite likely that the weather may do what is expected of it. They generally contrive to give you a forecast which is a fairly accurate description of what it was like yesterday. This is all right so long as the weather is settled, but it is not infallible in a climate like ours.

Thus, I notice in to-day's paper that "the optimistic view that was taken of the meteorological situation yesterday proved within a very short time to be ill-founded." There is something confiding about this sort of statement. It is as though the expert said to the reader, "You and I were quite wrong after all."

I am sometimes inclined to go back to the old device which G. P. Huntley ascribed to a "bwainy" friend of his. "You take a piece of board—about so long—and you put the end of it out of the window, then you close the window down on it. Half an hour later you go back and take in the board, and if it is wet you know it has been waining." The device at least has the merit of simplicity.

The Weather and Commercial Aviation.

I am afraid that there is nothing particularly illuminating in these remarks. The majority of readers of The Aeroplane have had good reason to know on more that one occasion to what extent they could or could not trust the weather expert. I should, however, like to suggest that any member of the outside public who thinks of going bald-headed into commercial aviation schemes should take a preliminary course of weather instruction from the "Times" or any other morning paper. He will find in the appropriate column quite a lot of good information, but if he follows the thing day by day he will also find that we are as yet very far from being able to forecast the weather even over our own country, much less in the middle of the Atlantic.

Let him, coupled with this, recognise the fact that a proper understanding of meteorology is almost the first essential to the untrammelled development of long-distance aerial services, and he will see the need for hastening slowly. I do not mean for a moment that things have got to stand still until we know all about the weather, but only that one must be very cautious of accepting vague generalities which would give us falsely to understand that we have already completely solved problems upon which the perfect solution of other problems in course of solution is at least to an extent dependent.

"SURPLUS."

The Director of Publicity, Ministry of Munitions, publishes under the above title and at the price of 3d. a fortnightly descriptive guide to the sales of surplus Government stores.

In many sections fairly comprehensive lists of surplus parts available, together with the fixed prices at which they are to be sold are given.

The publication deals with goods varying from complete rolling mills to articles of domestic furniture, from aerodromes complete to surgical implements, and may reveal a possible source of supply in the most unexpected place to anybody who needs anything.

"Surplus" is published on the 1st and 15th of each month, and can be obtained at all bookstalls.

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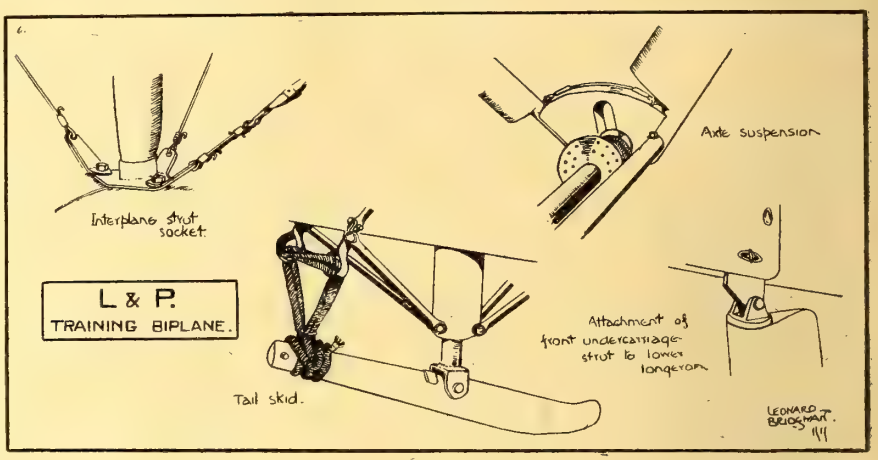
Most men who wanted to fly before the war, and who did not, owing to the instability of the machines or the cost, were able to avail themselves of the free instruction offered by the R.F.C. or the R.N.A.S. when the war got going; and nowadays, although many ex-pilots have little desire to "flip" any more, many still wish to continue; but not being able to obtain jobs as civilian pilots and not wishing to stay on in the R.A.F., they slide back into the groundwork of civil life.

It is unfortunate for the Schools of Flying that there are so many pilots on the market, for few people will want to learn to fly now, but in a few years when the present schoolboys have grown up there will be quite a rush, and with the progress of civil aviation many more pilots will be required than are wanted at the present time.

The L. and P. School of Flying was established at Hendon before the war, and built their school aeroplanes in their own workshops, giving the pupils an opportunity of gaining inside knowledge of the machine and engine they were to fly. In the first month one pupil was trained, in May, 1918, 54 pilots gained their certificates, and a total of 550 were trained during the war.



When the Government took over the Hendon aerodrome, a move was made to the present site at Stag Lane, just off the Edgware Road, past Hendon. It is a very good spot for an aerodrome, as there are no tall trees or other obstacles to interfere with landing. It is 120 acres in extent.

Previous to this year, flying was taught on Caudron machines fitted with 50 h.p. Gnôme engines, but now a new two-seater tractor biplane has been designed which can be looped, half-rolled and generally stunted.

This machine was designed primarily as a dual-control training machine, but machines of the same type constructed since then have been used quite a lot as passenger-carriers, and since last Easter they have made about 500 flights without so much as a piece of broken wood or bent metal work.

The whole construction of the machine is extremely sturdy and absurdly simple. As a solo machine it has climbed to 9,000 ft., and with two up it has reached 7,000 ft. It has a maximum speed of 65 m.p.h., with a landing speed of something like 30 m.p.h.

The general arrangement of the machine can be seen in the accompanying scale drawings, which also give the principal overall dimensions.

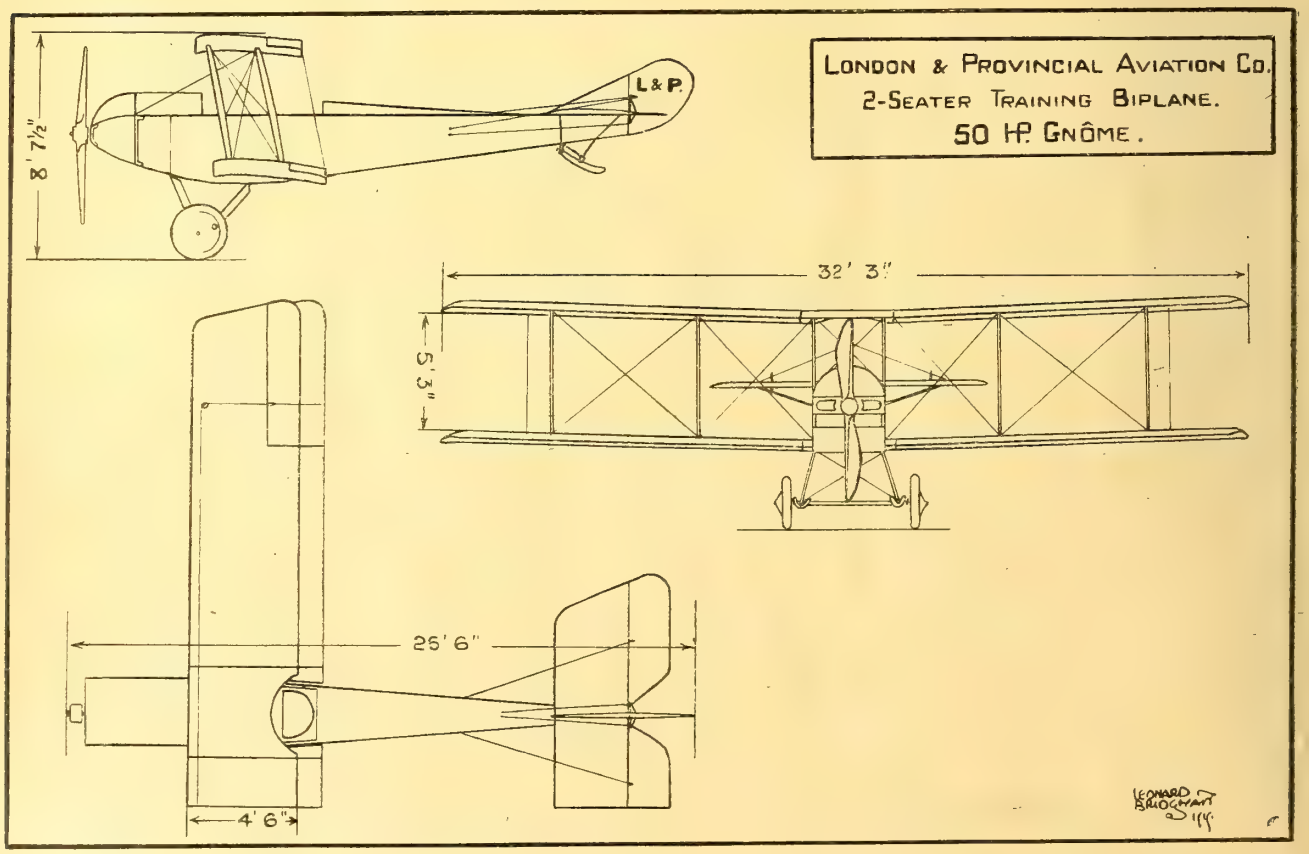
For £400 a pupil is taught to fly, and is then given one of these new machines to take home with him.

The engine is the 50 h.p. Gnôme, and though it cannot be called reliable and wants a mechanic to look after it who has specialised in that engine, and though it must be taken down after every 18 hours' flying, it is nevertheless capable of doing much good work.

If only a little four-cylinder stationary engine were fitted, the pilot, if he was a pretty fair mechanic, could look after it himself. If he had the rigging overhauled when necessary, here is the ideal little machine to keep on your back lawn to fly yourself and your friends for business or pleasure.

The Air Ministry refuse to license this machine with its 50 h.p. engine, except temporarily and under irksome restrictions, as they do not consider its power sufficient to carry two people successfully, shutting their eyes to its actual performance.

A machine is being built which is designed for an 80 h.p. engine.



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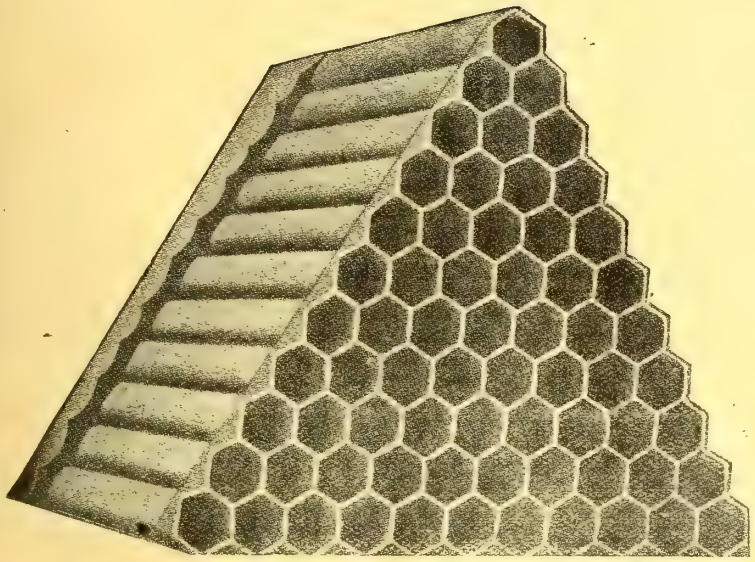

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SERVICE PEOPLE IN CIVIL AVIATION.

It is obviously desirable in every way that firms in the Aircraft Industry should fill up any vacancies which occur in their businesses with people from the Flying Services. In the first place those who have served the King during the war have a greater claim to any jobs that may be going than have those who have merely stayed at home and made money. And, secondly, people who have come straight out of the Air Force naturally know more about the needs of aviators than do the stay-at-homes.

Quite apart from any question of patriotism, or one's duty to people who have served in the war, it certainly does pay any firm to engage ex-R.A.F. people whenever possible, simply because they come out of the Service with the very latest practical knowledge of the care and maintenance of machines and engines, or, if they happen to be pilots, with the latest knowledge of flying under difficult conditions.

R.A.F. Personnel at H.P.'s.

One of the first firms to engage ex-officers and men of the R.A.F. on a large scale was Handley Page, Limited, whose machines have been so largely used by the R.A.F. that one might almost say a special class of Handley Page specialists was developed in the R.A.F. during the last year of the war.

So many former R.A.F. people are employed by the firm that one cannot very well give a complete list of them without more or less giving away the whole of the firm's works and business organisation, but one may perhaps note the names of a certain number who have already been more or less in the eye of the public.

Lieut.-Col. Stedman, who was the first engineer officer of the R.N.A.S. to be detailed specially for work on Handley Page machines, and who flew in the very first Handley Page machine with Squadron Commander, now Major, John Babington, D.S.O., went to Newfoundland in charge of the machine which was to attempt to fly the Atlantic.

Major Brackley, one of the most famous Handley Page pilots in the R.A.F., is the pilot of the said machine.

Major Gran, better known perhaps as Lieut. Trygve of the Norwegian Navy and of the Scott's South Polar Expedition, and later as Capt. Grant, R.F.C., went to Newfoundland as the navigator of this machine.

Among those permanently employed in this country in connection with the flying of Handley Pages is Lieut.-Col. Edwards, late Assistant-Director of Flying Operations in the Air Ministry.

Lieut.-Col. Noel, who will be remembered as having a machine of his own at the Acton Aerodrome with Messrs. Beney and Lascelles in the very early days of aviation somewhere about 1909, is also with the firm.

Among the firm's regular pilots are Lieut.-Col. Sholto Douglas and Major Foot, both of whom were famous as Handley Page pilots in the R.A.F. during the war.

Major Park and Capt. Stewart, who recently flew the Handley Page round Britain, are also with the firm.

Many other R.A.F. officers are either working for the firm in this country or have gone abroad on special missions, and a number of R.A.F. airmen are employed as mechanics on the machines. It certainly seems that the Handley Page firm is doing all in its power to find adequate employment for the demobilised personnel of the R.A.F.

Short Bros. and Service Aviators.

Yet another firm which is giving worthy employment to ex-Service people are Messrs. Short Brothers. The most senior of all their Service aviators is Mr. E. B. Parker—the firm's London representative—who was a flying officer in the Naval Wing, R.F.C., before the R.N.A.S. was founded, and incidentally was one of the finest pilots the Navy ever had. He was invalided out of the Navy some time before the war, and on his recovery from what was considered to be a fatal illness he joined Short Brothers and has done excellent work for the firm ever since.

Another distinguished Naval pilot now with the firm is Major S. V. Sippe, D.S.O., one of the three heroes of the famous raid on Friedrichshafen in 1914. Major Sippe was at the end of the war in command of the Northern Seaplane Acceptance Depot at Brough, and throughout the war has been intimately concerned with R.N.A.S. work.

Another pioneer of British aviation who is now with Short Brothers is Major O. T. Gnosspelius, who is in fact the first man who ever flew an aeroplane off British water, Windermere being the site of his adventure. Major Gnosspelius has been doing valuable technical work in connection with seaplanes during the war and should be of great value to this pioneer firm.

Yet another R.N.A.S. officer now with Short Brothers is Lieut. W. P. Kemp, who has had considerable seaplane service during the war.

A Good Start.

Among the firms who are doing their best to provide employment for ex-R.A.F. people credit must be given to the Central Aircraft Company, which firm, after doing very good work in the way of aircraft production during the war, entirely on machines of other people's design, has now come forth not only as a designing firm, but also as the proprietors of a well-organised flying school at Northolt Aerodrome.

The aerodrome manager of the firm's school is Capt. N. C. Riddell, late R.A.F., and the pilots are Capt. A. H. Gearing and Lieut. F. B. Goodwin Castleman. Capt. W. Brian Long has also been flying the firm's machines with success.

The firm has quite an ambitious programme in the way of producing multiple-engined passenger machines as well as school machines and two-seater sporting machines at a moderate price, and it is to be hoped that the enterprise shown by the Messrs. Cattle, who are the proprietors of the firm, will meet with the reward which it deserves, and will thus enable them to provide considerably more employment ere long for demobilised officers and men.

The Central Aircraft Company have made arrangements with the Air Ministry to have the use of the R.A.F. Aerodrome at Northolt, which is certainly one of the finest in the country as regards its suitability for training work, and has an area of about 350 acres, nearly all of which provides decent landing ground. The firm is already training its pupils at this aerodrome, and commencing from June 28th they are also giving daily passenger flights.

Northolt Aerodrome is very easy to reach, being close to Northolt Junction on the Great Western and Great Central railways. It is within about half-an-hour's railway journey of London, and the aerodrome is only five minutes' walk from the station, so that actually it is probably the easiest to reach of all London aerodromes, therefore the firm should find its passenger trips well patronised.

The Martinsyde Staff.

Another firm which is doing its duty thoroughly well to the R.A.F. in the way of finding employment for ex-officers and men is the firm of Martinsyde, Limited. Among those who have been actually engaged by the firm are the following:—

Major C. W. C. Wheatley, who will be remembered in the early days at Brooklands as an Avro pupil, and who has since been on technical work in the R.A.F.

Capt. R. Nisbet, an R.A.F. pilot, who was second in the Aerial Derby.

Capt. C. W. F. Morgan, R.N.A.S. pilot, who was engaged as Mr. Raynham's navigator.

Messrs. P. Stimpson and R. Reyer, R.N.A.S. pilots; and Messrs. E. F. Gill, H. C. Kirby, J. H. Clarke, J. Refoy, and A. Wells, all R.A.F. pilots.

Mr. W. F. Savage, late Chief Inspector, A.I.D., has also joined the firm in a technical capacity.

The L. and P. Engagements.

It is encouraging thus to find that so many firms are doing their best to give employment to ex-officers and airmen of the R.A.F. One of the first firms to make a move in this direction was the London and Provincial Aviation Company, who run the Stag Lane Aerodrome at Edgware as a school of flying, and also for the purpose of giving exhibition and passenger flights.

The following officers have already been engaged by this firm:—

Capt. Robert Oxspring, M.C., who is the assistant aerodrome manager.

Lieut. W. T. Warren, jun., who, though of junior rank in the Service, is the aerodrome manager, having been engaged in aviation long before the war.

Capt. Leslie Brake and Lieut. T. Neville Stack, who have both had long experience of Service flying.

The firm has also two ex-N.C.Os. from the R.A.F. employed in their works.

The L. and P. Company has always had a high reputation for honest, straightforward work in its machines and for good, sound instruction at its school, and one hopes that with the growth of Civil Aviation, after the Air Ministry has been brought to a proper sense of its duties, this firm, together with all those previously mentioned, will find it necessary to engage many more of the former personnel of the R.A.F.

Super-Mariners.

The Supermarine Aviation Works, Ltd., of Southampton, have also taken on quite a number of officers of the Flying Services, though their Civil Transport Schemes are not actually in operation at the moment. Here is the list of their officer personnel:—

Squadron Commanders James Bird and B. S. Hobbs (late R.N.)

Captains F. J. Bailey, P. Brend, and J. E. A. Hoare (late R.A.F.)

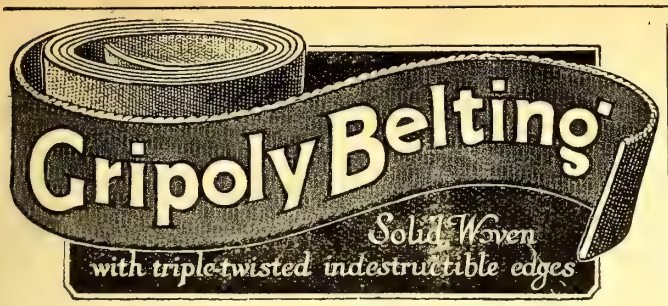
Lieut. H. G. Horsey, late R.A.F.

Sec. Lieut. H. C. Biard, late R.A.F.

All these officers were originally in the Royal Naval Air Service.

A Big Avro List.

One of the most imposing lists of ex-R.A.F. people now employed in civil aviation is that pertaining to the Civil Aerial Transport firm which is known as "Avro Joyrides" and operates from Hounslow Aerodrome under the direction of Lieut.-Col. G. L. P. Henderson, M.C., A.F.C. The firm is entirely con-



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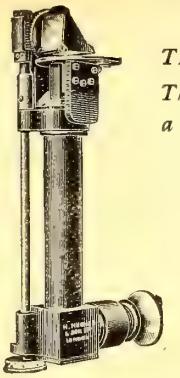

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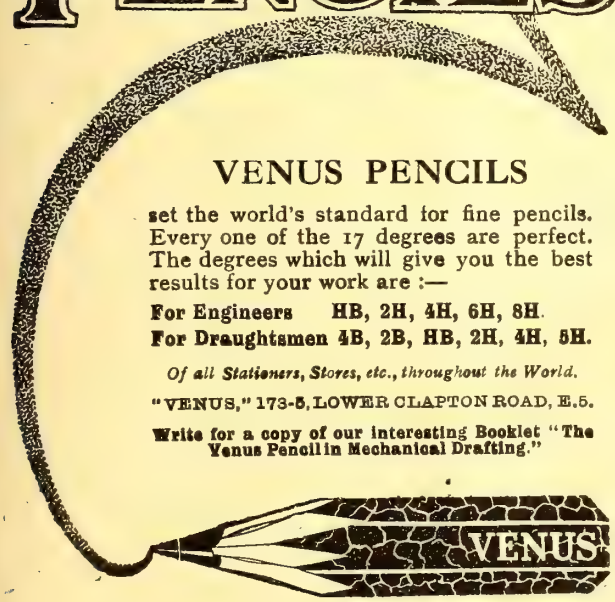

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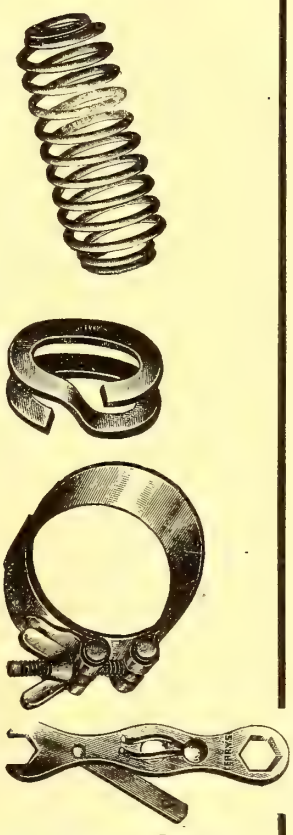

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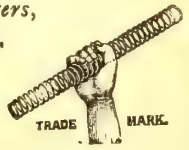

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

cerned with running passenger trips in various parts of the country on Avro machines, and it has been extraordinarily successful since it began work, as those who read the weekly reports of civilian aviation in this paper will realise.

Everybody in the firm's employ has been a soldier or sailor, with the exception of a few casual labourers who are merely employed in hauling the machines about, and the pilots are not merely good pilots, but are "A.1 at Gosport" instructors, so that the firm has a very good claim to having the most skilful staff of pilots in the world.

The list of those at present employed is as follows :—

Lieut.-Col. G. L. P. Henderson, M.C., A.F.C., late Wing Commander R.F.C. and R.A.F.—general manager.

Captains R. T. Fagan, D.F.C., A. M. West, and D. I. M. Kennard, late Flight Commanders and R.F.C. and R.A.F. Instructors.

Capt. S. H. Twining, M.B.E., late Wing-Adjutant, R.F.C., and R.A.F.

Lieuts. H. R. Hastings, A.F.C., R. S. Park, A.F.C., E. A. Sullock, A.F.C., A. C. Weeks, and Sparkes, late Flying Officer Instructors R.F.C. and R.A.F.

Airmen R. W. Amey, late W.O., R.F.C. and R.A.F.; A. C. Ayling, late Cpl., R.N.A.S. and R.A.F.; P. Tew, late R.N.A.S. and R.A.F.; A. J. Whittington, late Serjt., R.N.A.S. and R.A.F.; T. A. Badger, late Flt. Serjt., R.F.C. and R.A.F.; E. F. Gordon, late Flt. Serjt, R.F.C. and R.A.F.; H. Rogers, late Serjt., R.F.C. and R.A.F.; H. J. Phillips, 1st Air Mech., R.F.C., and Sec. Lt. R.F.A.; C. F. Lacey, late R.F.C. and R.A.F.; Hughes, late Serjt. R.F.C. and R.A.F.; Field, late 1st Air Mech. R.F.C. and R.A.F.; Sadler, late Flt. Serjt. R.F.C. and R.A.F.; C. V. Jeffreys, late 1st Air Mech. R.F.C. and R.A.F.

Also Miss E S. Smith, late Chief Section Leader, W.R.A.F.

That certainly is a list of which any firm may well be proud.

A. V. ROE & Co.

In addition to the firms already mentioned as having found employment for ex-R.A.F. people, A. V. Roe and Co. have—as might have been expected—done very well in this direction. Here, for example, is the list of those employed by the firm direct, chiefly in connection with the Avro joy-ride undertakings at Blackpool, Manchester, and Hamble :—

BLACKPOOL.

Major W. G. McMinnies.

Captains E. Maitland-Heriot and B. R. Collison.

Lieuts. H. A. Brown, E. P. Adams, E. F. Rogers, G. B. Moxon, J. F. Macrae.

Flight Cadet H. T. Dewhurst.

Flight Serjts. I. Humphreys and M. Hargreaves.

Serjts. E. Neale, W. Plant, W. Appleton, W. W. Smith, A. Magowan, I. Harker, and E. Braithwaite.

Cpls. W. Ringham and T. A. Brophill.

1st A/Ms. H. Yates and I. Shan.

3rd A/Ms. H. J. Carter and A. M. N. Martin.

MANCHESTER.

Flight Cadets P. Linton and T. Hampson.

Serjt. R. Dale.

Cpl. Thompson.

Leading Aircraftsman Parry.

1st A/Ms. Clifford Lucas and V. Downey.

2nd A/Ms. E. Haward, F. Fleming, and G. Makereth.

HAMBLE.

Capts. H. A. Hamersley, M.C., T. Warren Merriman, A.F.C., A. Storey, D.F.C., and R. L. Truelove.

Lieuts. D. H. Sadler, West, R. A. Seaton, R. Freemantle, and J. Gulf.

Serjt. Observer B. C. Freemantle.

Serjt. Mechanics H. G. Gale and G. Warren.

P.O. R.N.A.S. L. Parmenter.

1st A/M G. H. Roberts.

2nd A/M F. Pert.

THE AIRCRAFT MANUFACTURING COMPANY'S LIST.

As would be expected, the Aircraft Manufacturing Company includes amongst its staff a large number of ex-R.A.F. officers, and the following list gives an idea of the widespread ramifications of Mr. Holt Thomas's organisation :—

Foreign Representatives :—Major K. E. Clayton-Kennedy, Colonel H. Delacombe, Major S. G. Kingsley, M.C., Lieut. S. B. Bradley, Lieut.-Colonel R. G. Blomfield, D.S.O., Captain H. H. Shorter, Major F. C. Atkinson.

O.C. Flying Operations :—Major C. Patteson, M.C., A.F.C.

Pilots :—Major H. de Havilland, Captain H. J. Saint, D.S.C., Captain W. G. Gathergood, A.F.C., Lieut. H. Shaw, A.F.C., Lieut. E. H. Lawford, A.F.C., Lieut. C. R. McMullin, Captain C. W. Carlton, A.F.C., Captain Carroll.

Business Organisation :—Captain D. M. Greig, O.B.E., Major H. Jones.

O.C. Photographs :—Captain F. R. Logan.

BOULTON AND PAUL'S LIST.

Boulton and Paul, Ltd., give the following long list of their ex-R.A.F. employees, and deserve congratulations thereon.

Major ffiske, London Manager.

Major K. S. Savory, D.S.O., and Captain R. D. Simpson, D.F.C., Special Pilots.

Captain J. H. Woolner, A.F.C., Special Pilot and Navigator.

Captain A. L. Howarth, Wireless Expert.

Lieut. J. E. Jones, Experimental Research Department, Aerodynamics Section.

Experimental Department, Wind Channel :—Lieut. W. H. Sawyer, 1st A.M. H. D. Foulger, and Cpl. L. A. Crickmore.

Experimental Research Department :—Lieut. Mackinolty, Flight Cadet D. Dove, Serjt. R. R. Riley, Capt. E. L. Simonson, 2nd A/M G. E. Morton.

Experimental Workshops :—C/M E. W. Martin, Serjt.-Major Howes, Serjt. Taylor.

C.E. Drawing Office :—2nd A/M G. Pegg.

Production Drawing Office :—2nd A/M R. W. Mallett.

Experimental Research Department, Aerodynamic Section :—A. Zaiman, B.A., Sapper, R.E., attached to Anti-Aircraft Experimental Station at Shoeburyness.

EMPLOYING BY DESTROYING.

In the first report of the Select Committee on National Expenditure, which was issued as a White Paper on June 12th, there is some severe criticism of the Air Ministry. The committee seem to be greatly disturbed by the continuation of the use of high-powered motor cars by officials.

The number of motor cars kept for the use of the Air Ministry at the present time, the committee state, is 48. Of these, 33 are allotted to 33 officials for their own use, and 15 are pooled for the use generally of the staff. Many of the cars are very large and powerfully engined, consuming a quantity of petrol and wearing out many tyres.

Each of the following officials is said to have a car for his own use :—Mr. Churchill (Rolls-Royce limousine), Maj.-Gen. Seely (Rolls-Royce cabriolet), Maj.-Gen. Trenchard (Rolls-Royce landaulette), Maj.-Gen. Sykes (Rolls-Royce cabriolet), Maj.-Gen. Ellington (Rolls-Royce car), Sir A. Duckham (Crossley landaulette), Sir J. Hunter (Crossley landaulette), and Lord Londonderry (Crossley landaulette).

Except that the publication of this list is a very good advertisement for the Rolls-Royce and Crossley firms, one does not see that it serves a useful purpose. There are certain newspapers that cater for the less intelligent section of the community and which during the war found it more profitable to foster distrust between the authorities and the public than to continue their old policy of fanning the flame of class hatred. These will, of course, flaunt the fact that a few Secretaries of State, Cabinet Ministers, and highly-placed officials and such lumber go about their business in cars, while the energetic, highly efficient and virtuous plumber travels in an L.C.C. tram to fetch the tools he leaves behind when he goes to do a job. These journals doubtless would like to see British Secretaries of State, Cabinet Ministers, and distinguished generals riding on the humble pedal cycle or donkey chaise, in order that the resultant loss of time would give further opportunities for criticism.

In spite of all that is said, our highly-placed officials are busy men, and anybody who has any knowledge of affairs is aware that a highly-paid person's time may be worth more than the price of a few gallons of petrol. The commercial world found that out long ago.

One feels that so long as it is kept within reasonable limits the use of motor transport by important chiefs is more than justified, and that it would be more profitable to level criticism at the sinful waste of public money by the scrapping of new aeroplanes of the latest types. Millions have been thrown away in this manner for every few pounds spent on motor cars.

The Select Committee reported that :—

Following the Armistice, the Air Council met and decided to inform the Ministry of Munitions that they required no more aeroplanes. This decision was, however, not adhered to, and in December last they wrote to the Ministry of Munitions stating that they appreciated "that labour and other considerations may prevent the Ministry of Munitions from arranging a complete cessation of further deliveries, and for this reason the Air Council are prepared to continue to accept aircraft and engines of which continued production is required by these considerations."

"Accordingly," proceeds the report, "machines were taken from contractors which were not wanted, and as national factories were also to be kept going, it was necessary to find work for the people there, with the result that machines taken from contractors to keep the people there employed were sent to the national factories to be destroyed to keep the people there employed."

After Christmas, however, steps were taken to cancel contracts, which were brought down from £150,000,000 to £65,000,000. The number of aeroplanes was reduced from 25,000 to 13,432.

So for about two months after the Armistice it would appear that the country was spending money at the rate of £85,000,000 a month on machines which were scrapped as soon as delivered. The idea of keeping contractors busy on the construction of aeroplanes which were "sent to the national factories to be destroyed to keep the people there employed" would be comic if it were not so sad.

It would have been almost as sensible to give the machines to the Germans to encourage them to keep on fighting for the benefit of trade.

THE

LONDON AND PROVINCIAL AVIATION COMPANY,

who have just closed their
Works and Aerodrome,

have the following Aircraft for disposal:

One brand new H. type Avro 2-seater machine (H. 5173) fitted with 110 H.P. Le Rhone Engine and all instruments. Rigged and tested £480

One brand new H. type Avro 2-seater machine (H. 5172) fitted with 110 H.P. Le Rhone Engine and all instruments. Rigged and tested £480

One brand new J. type Avro 3-seater machine (2 passengers and pilot) (J. 5499) fitted with 110 H.P. Le Rhone Engine and all instruments. Will be rigged and tested within a few days £500

All these machines are fitted with streamline wires, and are of the very latest type, built since the Armistice.

CIVIL AERIAL TRANSPORT NOTES.

GREAT BRITAIN.

BIRKDALE AND SOUTHPORT.

The hum of the Avro Air Fleet attracted a huge crowd to the Birkdale Palace Aerodrome, near Southport, last Saturday. Ten thousand people ringed the aerodrome, swarmed on the sand-hills, and thronged the enclosures. The roads approaching the flying ground were blocked with traffic—in fact, no such crowd had been seen at Southport since King Edward VII. visited the city.

The occasion was Lancashire's first aerial fête and gymkhana. Machines came from Morecambe, Manchester, Blackpool, Liverpool, and Preston to compete in the events. Punctually at three o'clock the Avro band, which had flown over from Manchester, struck up a tune as two flights took the air and flew round Southport in formation. The first flight of five machines, led by Capt. E. Maitland Heriot, D.S.C., landed in formation, making a very pretty spectacle.

The next event, a landing competition, in a space of about fifty yards square, gave the spectators some idea of what a modern machine is capable. An imitation fence had been planted in the sand, and competitors had to land as near over it as possible. One or two pilots landed on the near side, and demolished part of the hedge which the officials and judges quickly repaired.

This event was very exciting, both for competitors and spectators, as two or three machines would land side by side within a few seconds of each other.

An acrobatic display followed, all the usual stunts being performed in order, so that the spectators had an opportunity of distinguishing between such manœuvres as a continuous vertical bank, a spiral and a spin.

The big event of the day was a twelve-mile race over the sea and sand. This attracted ten entries, all of whom got off within a few seconds of each other. Lieut. Brown led from start to finish, closely pursued by Lieut. Adams and Capt. Heriot. It was surprising the difference in speed between the machines in view of the fact that they were similar in all respects. The aeroplane "Follow my leader" competition concluded the display, a long string of machines imitating the leader's example in such manœuvres as diving, zooming, turning, and landing.

A silver cup, value 30 guineas, presented by the directors of the Birkdale Palace Hydro, was awarded to Lieut. Brown for the best all-round performance of the day. Fitter Rigby and Rigger Gower, mechanics on the winning machine, were also presented with prizes. Lieut. Adams was judged second, and Capt. Collison third on the day's performance. Major Crossley, R.A.F., and Messrs. C. H. Parr and A. Whittaker, of Birkdale, officiated as judges.

After the event ten machines did passenger flying, and were kept very busy for several hours. The whole exhibition was organised by Major McMinnies, late R.A.F., who is running the "Avro" enterprise in the North of England.

FORMATION OF LANCASHIRE FLYING CLUB.

The first meeting of the Lancashire Flying Club was held at the Birkdale Palace Hydro, Birkdale, Southport, last Saturday after the "Avro" gymkhana. Mr. F. C. L. Young, Lindum Lodge, Bowden, Cheshire, was elected hon. secretary and treasurer. Mr. Young already possesses a machine of his own, and has offered to place it at the disposal of the club's members. It was decided that the subscription for the first fifty members be fixed at ten guineas, without entry fee, and that the club be run primarily for the benefit of ex-service pilots who wish to keep up their flying.

Major McMinnies offered free landings and storage for members' machines at the Avro aerodromes at Windermere, Douglas, Morecambe, Fleetwood, Blackpool, Southport, Liverpool, Preston, Rhyl, etc., and this offer was accepted. It was decided to write to the Air Ministry with a view to obtaining a gift of several machines to the club, with a view to assisting ex-service men to keep up their flying, and it was suggested that the club's machines should be fully insured against all accidents and crashes. All communications should be addressed to the Hon. Secretary, Lancashire Flying Club, at the address given above.

LEEDS.

An aeroplane of unknown make left Leeds on July 18th with two passengers and luggage for Scarborough. Despite the railway strike, they were determined to go on their holiday, and paid £7 10s. per passenger.

LONDON.

HENDON.—Only a few people attended the Victory Meeting on Saturday, July 19th. There were seven entries for the cross-country handicap race of twenty miles, which was won by Capt. H. A. Hammersley on the "Baby Avro." He received the Victory Trophy presented by Percy Edwards and Co. Major R. H. Carr and Captain D. H. Robertson, both on 110 h.p. Le Rhône "Avros," were respectively second and third.

A Grahame-White biplane also took part in the race, and all the machines finished the course, which was five times round Bittacy Hill, and the pylons on the aerodrome.

The first flight to Paris, made possible by the temporary withdrawal of the restrictions, was made on Tuesday, July 15th, from Hendon. Mr. Pilkington, the managing director of Pilkington Brothers, left Hendon, on an "Airco" D.H.9, and arrived at Le Bourget, near Paris, in 2½ hours. The business being completed, a return journey was made on the next day in the same machine.

The first civilian flying certificate issued by the Royal Aero Club since the Armistice has been taken by Private J. Hardy, an Australian soldier, at Hendon.

His Highness the Maharajah of Kashmir and Jamma, with Captain Zuloaga, assistant military attaché of the Argentine Legation, flew from London to Paris on July 13th.

On Friday, July 18th, an Airco D.H.9 carried leaflets required in connection with the North-Eastern Railway strike from Hendon to Durham. This machine then flew to Harrogate, where a D.H.6 arrived on the following day. Both the machines then gave exhibition flights in connection with the Peace celebrations in that town.

CRICKLEWOOD.—A four-engined Handley Page aeroplane piloted by Lieut.-Colonel W. S. Douglas, M.C., D.F.C., left the Aerodrome for Brussels at 7 a.m. on Saturday, July 19th, and arrived there at 10 a.m. Lieut.-Colonel Douglas intends to give a flying display over Brussels, and "Professor" Newell, who accompanied him, will make a descent in a parachute.

MARGATE.

Amongst those taken up in Avros at Manston during the week ending July 19th were three youthful passengers aged fifteen months, four years, and six years. The four-year-old insisted on going up again the same afternoon and was looped.

CANADA.

It has been announced in Toronto that an international air race starting simultaneously from Toronto and New York will be held on August 25th, with the Prince of Wales as starter.

BELGIAN CONGO

According to "La Conquête de l'Air" (Brussels), a seaplane service is to be established upon the Congo.

The service is to provide postal and passenger services, and is also to undertake photographic survey work.

The initial costs are to be defrayed by the Royal funds, and a committee of direction for the organisation of the service has been appointed by Royal decree. This committee consists of Colonel A. E. M. van Crombrugge, Major Paulis, and Commandante Jaamotte.

DENMARK.

Oberleut. Göring, the well-known "jagd" pilot and late chief of the Jagdgerschwader of von Richthofen, represented German aviation at the Copenhagen flying week and exhibition. On May 8th he left Schwerin on a Fokker D.VII with a 185 h.p. Bayer motor, and arrived at Copenhagen (250 km.) in the record time of 1½ hour.

According to "Der Motor Wagen" of June 20th, this record and his various exhibition flights made a good impression on the Copenhagen public. The German Aviation Industry can point out with pride the admiration and interest shown for German aerial technique and German Aerial Industry in the first foreign competition in which it enters.

In a report from Copenhagen dated July 17th Reuter states that the Danish Ministry of Justice has issued an order provisionally forbidding flying with passengers, and stipulating that foreign aviators desiring to fly to Denmark must obtain official permission.

A regular air service is intended to be started between Reykjavik, the capital of Iceland, and the eastern ports of the United States.

Two hydro-aeroplanes have already been obtained and will be tested in a flight round Iceland. The route will be from Reykjavik to the southern tip of Greenland, where a station will be established; from thence to Newfoundland, and then on to the United States. The distances of the first and the second stages are roughly 500 nautical miles.

FRANCE.

Captain Marchal left St. Raphael (Var) at 5 a.m. on July 19th on a seaplane, in an attempt to cross the Mediterranean to Bizerta, Tunis, and return on the same day. He followed the Sardinian coast. Five torpedo-boat destroyers were stationed along the route, the total distance of which is about 900 miles. He arrived at Bizerta at 3.30 p.m.

The news given in these notes some weeks since, and afterwards denied in the French Press, was well founded. For personal rea-

Steels of Proved Merit.

When buying a steel, there may be several makers whose claims appear equal. Prices for the same apparent quality may show small differences, but price is not the deciding factor to users of high reputation.

Base your decision on what a steel has DONE.

Two well-known steels have just demonstrated one more argument for their adoption in YOUR engines.

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They proved the reliability of Firth's Nickel Steel for connecting rods, and other important parts, and of Firth's F.C.N. 5 Steel for camshafts, timing wheels and other case-hardened parts.

These and other special steels are at your service NOW, equally carefully made, equally consistent in quality and equally free from defects.

THOS. FIRTH & SONS, LTD.,
SHEFFIELD.

Ever since the R 34 left at frequent intervals the American weather bureau, a most admirable organisation, regarding which you ought to hear the opinions of Mr. Harris, has sent radios giving forecasts based upon more data than are usually available at short notice on your side of the Atlantic. The bureau here works with the utmost personal goodwill, because, to quote its officers, "England has shown the United States remarkable courtesy in allowing an American observer to travel both ways on the first flight, and also given us every information down to samples of the Castrol oil for engine-bearings, which we want to analyse for our own purposes."

OVER THERE
R34 in America

THE "DAILY TELEGRAPH" of July 12th contained the cable reproduced here from its correspondent in NEW YORK.

THE LUBRICANT WHICH HAS AROUSED SUCH GRATIFYING INTEREST IS

WAKEFIELD Castrol (REGD.) 'R'

which was specially selected for the Sunbeam motors on this famous voyage. THIS IS THE OIL USED BY ALCOCK, HAWKER, AND ALL THE WORLD'S LEADING PILOTS BECAUSE IT IS THE BEST.

C. C. WAKEFIELD & CO., Ltd.,
Wakefield House, Cheapside, London, E.C. 2, England.

sons M. Esnault Pelterie has resigned the Presidentship of the Chambre Syndicale des Industries Aéronautiques. His loss will be greatly felt, for he was always one of the most outstanding figures in French Aviation, and had occupied the presidential chair over ten years. Rumour says that there will be no more Rep machines, as M. Esnault-Pelterie proposes to give his patents to the world to develop. This would not be surprising, in view of the fact that he has already sacrificed a great part of his personal fortune in experiments just for the love of the science.

The French Government did not allow flying over Paris during the fêtes, just as flying was not allowed over London last Saturday, July 19th, but the late Lieut. Navarre had intended flying over the heads of the troops through the Arc de Triomphe, a feat requiring a very small machine, and far more skill than that of flying through the Tower Bridge.

In spite of the restrictions, the "Goliath" and several Farman touring machines, as well as a twin-engined Caudron, flew over the procession whilst it passed through the Avenue de la Grande Armeé and the Champs Elysées. Only a few watching the Victory procession in Paris noticed Captain Fonck carrying the Aviation Corps flag, and Lieut. Arondel, with the Aerostation flag, the only representatives of the great part that aviation played in the war.

M. Etienne Poulet, the holder of the duration record, left Paris for London a few hours after the procession had passed, with photographs for the "Daily Mail." Meeting with very bad weather, he did not arrive at Hounslow until late, but his name is reported to be the first on the aerial customs list there. Later he returned to Paris in 3 hrs. 10 min. The machine accompanying him landed at Calais owing to the bad weather, and the "Evening News" photographer completed the journey on the leave boat.

An aerial postage service was started in June between Paris and Le Croisic, with a stop at Le Mans, where the mails are transferred to other machines. Twenty-seven trips were made in June, four machines being in the service.

M. Louis Damblanc has been working for two years on a helicoplane which he has named "L'Alerion," and which *when successful* will fulfil the following conditions:—Fly vertically with variable ascentional speed; fly horizontally at an average speed of 30-60 m.p.h.; remain stationary in the air; and descend vertically at a variable speed as slow as the pilot wishes. In December M. Roidor Seville will publish the second congress of human flight, which studies especially this aspect of aeronautics.

The French Aerial League Cup is reserved for aviators of French nationality, and will be open for two years, the winner being he who holds it on May 15th, 1921. The holder will be the pilot who, starting from France, flies to the French territory furthest from Europe with a sealed barograph. An addition of 10 per cent. distance will be given in respect of each passenger weighing at least 65 kilogs.

Caudrons are reopening their civilian schools on the first week in August. Instruction will be given on small G 3 type machines. All the flying schools in France closed automatically on the outbreak of war.

GERMANY.

The following article appeared in the "Dusseldorfer Nachrichten," of July 8th:—

Although civilian or peace aviation has not turned out as expected, an effort ought to be made to encourage it, since not only the aeroplane works, but also the wood industry, optical works and motor works, and a score of other trades or industries now depend on the success or failure of the aeroplane as a commercial vehicle.

At the moment, of course, the long-course trips, Berlin to Northern coast, etc., are working satisfactorily, but when the train services are again in order, very few people will be left who will pay the very high aeroplane fares, or the expensive aeroplane postage.

The future of aerial transport for Germany lies more with the extreme long-range of the dirigible, and the long voyages. The future lines, for German air traffic are not "inland" lines, but international lines such as Berlin-Athens—which would considerably shorten the London-India line—Berlin-Lisbon, which will shorten the way to South America.

A message from New York dated July 15th stated that it was advertised in certain German newspapers published there that a Zeppelin freight and passenger service between New York and Hamburg would be started on October 18th, and that bookings would be received after September 18th.

The advertisement was inserted by Hans Kahrs, of the Monopol Export and Import Union, which has its office in New York, but it is not believed that the American Government will permit the establishment of such a service even if it were seriously attempted.

Kahrs was appointed by a wealthy American banker, whose name he would not divulge, to act as agent for this trans-Atlantic dirigible freight and passenger service, which was to be financed by American, British, and German capital. He also said that a tentative price of £18 4s per ton was set as the rate for trans-ocean air freight, but he did not yet know the passenger fare.

Germany is making a determined attempt to establish aviation on a commercial basis. Routes from Berlin are in operation to Weimar, Frankfurt, Leipzig, Warnemünde, Hanover, Westphalia, Hamburg, and Breslau. There are also services between Weimar and Frankfurt, Hamburg and Warnemünde, Leipzig and Weimar, and Hanover and Westphalia.

The services are operated by the Deutsche Luftrhederei, a combine of various German aeronautical firms.

Return tickets are issued and are valid for a period of 30 days. Flying kit and motor transport to and from the aerodrome are provided, and are covered by an inclusive charge, of which the following are representative: Berlin-Hamburg, single, 450 marks; (£22 10s.); return, 700 marks (£35). Berlin-Breslau, single, 500 marks (£25); return, 750 marks (£37 10s.). Berlin-Weimar, single, 450 marks (£22 10s.). Serial tickets available for ten flights on any of the routes operated by the combine are issued at 3,600 marks (£180). These tickets are transferable, and work out at an average reduction of 20 per cent.

Luggage is carried free of charge, but the total weight of passenger—who is carried at his own risk—and baggage combined must not exceed a certain limit. Mails and parcels are also carried by the company, which is working in conjunction with the Hamburg-Amerika Line, through whose offices bookings may be effected.

On the Berlin-Weimar route, which appears the most popular, the number of flights from February 5th to the end of April was 538, while between Hamburg and Berlin from March 1st to the end of April there were 262 flights.

The temporarily suspended postal service between Hamburg and Berlin was to be resumed on the 5th inst.

New services were to be run between Hamburg-Westerland, Berlin-Warnemunde-Heiligendam, and Berlin-Swinemunde, with motor-car connections to Tylbeck, Heingsdorf and Bansin. They depart from Hamburg at 9 a.m., and from Berlin at 3 p.m.

Passengers and parcels are accepted up to an hour before starting time.

The German Luftrhederei Berlin advertises week-end trips to the Baltic seaside resort Swinemunde.

Every Saturday a large aeroplane, fitted with a cabin to hold six passengers, will leave Berlin Johannisthal at 4 p.m., and will reach Swinemunde an hour and a half later. The travellers will be able to spend Saturday, Sunday, and up to Monday morning with their families, the aeroplane taking them back in the morning and carrying them to Berlin in time to attend to business there before noon.

HOLLAND.

Germany is not being allowed to exhibit in the Amsterdam Aircraft Exhibition. This is curious, owing to the progress made by aeronautics in Germany and the fact that the peace treaty has been signed.

Aerial Post to Holland.

According to the "Morning Post" of July 17th, the two "Vickers" seaplanes which arrived at Amsterdam from Felixstowe on July 14th, made the flight in connection with an official mission concerning the proposed aerial postage service between England and Holland.

According to the "Nieuwe Rotterdamsche Courant" of July 5th, the directors of the Amsterdam Aviation Exhibition have contracted with Vickers, Ltd., the Aircraft Manufacturing Co., Ltd., the Blackburn Co., Ltd., the Gosport Aircraft Co., and Handley Page, Ltd., for demonstrations on the flying ground of the exhibition. These firms will exhibit both aeriplanes and seaplanes. The Italian Fiat Co. will exhibit their 430 h.p. aircraft engine. The Chairman of the Italian Aero Club has consented to sit on the Exhibition jury.

According to "De Telegraaf" of July 7th, a new single-seater biplane made on a new design by N. V. Med. Antom. en Vllegtuig fabr. at Trompenburg, was successfully put through its tests on the previous day. It is fitted with an engine of 130 h.p. of Clerget type, and develops a speed of 190 km.p.h. The machine has a very strong appearance and is intended to be used as a fighting aeroplane for the Dutch Government.

ITALY.

According to the "Popolo Romano," Signor Gabrieile d'Annunzio is reported to have accepted the post of director of civil aviation in Sardinia.

This is the first time we have heard of the first steps towards an aerial service for the conveyance of fish. Fresh sardines will soon be found at all the fishmongers. One would imagine that it may be difficult to obtain pilots for such an odiferous service.

The envoys of the S.I.T.A., a company for exploiting Italian aero activities in Brazil, have arrived there. The S.I.T.A. is a branch of or from the Macchi Caproni and Gallinari firms and others. Senator Terre and some well-known men are taking active part in the concern.

The newspapers announce the departure for China of a mission which is accompanied by machines and mechanics, and may even start a school there.

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JULY MEETING

Saturday Next, July 26th, 1919

(3.30 P.M.) AT THE

LONDON AERODROME

AND AIR STATION
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FOR THE HENDON TROPHY (4 P.M.)

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Every
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From 3.30 p.m.
Weather permitting.

SPECIAL FLYING
DISPLAYS
Every
Sunday Afternoon.

PROMENADE.
MILITARY BAND.

PASSENGER FLIGHTS DAILY.

TICKETS 21/-

Signor Gabrielle D'Annunzio, who recently resigned his commission in order to be freer for certain propaganda work dear to his heart, is now planning a Rome-Tokio squadron flight for September. One believes that his pilots will be recruited from among the naval party which crossed the Alps to Geneva a few days back on a seaplane—a "Savoia" 13 1-P motor and passenger-Taddeoli.—T. S. H.

ROME TO LONDON IN THE DAY.

Lieut. Brack-Papa, the pilot, and Lieut. Bonaccini left Rome on July 15th on their flight to London with the Fiat-built 700-h.p.-engined biplane, which is claimed to be the fastest machine in the world, with an all-out speed of over 160 m.p.h. The engine is the most powerful yet fitted to an aeroplane.

The journey was actually started from Turin, at the Fiat works, which is, roughly, 360 miles from Rome, and the average speed over that part of the journey was 161 m.p.h.

Owing to bad weather a stop had to be made at Paris, whence they flew to Kenley aerodrome (225 miles) in 1¾ hours. The journey from Rome to Paris (687 miles) took seven and a half hours. Among the letters carried was one from the Italian Prime Minister to Mr. Lloyd George

The Italian pilot Emilio Taddeoli has flown from Sesto Calende to Geneva, crossing the Alps in his journey on a Savoia seaplane, Type 13, fitted with Isotta Fraschini motors.

Signor Taddeoli left the S.I.A.I. firm's establishment at 9.10 a.m. on July 13th, and flying over the Sempione reached Geneva at 10.6 a.m.

SCANDINAVIA.

According to the "Ekstrabladet," a German company is scheming to establish a regular airship service between Berlin, Odense, Copenhagen, and Stockholm. Successful trial flights have been made recently with a giant Zeppelin intended for the service, which is fitted with seven engines and able to carry 100 passengers besides its crew. It is presumed that the route will be opened in two or three weeks.

A regular aerial service was started on June 30th by the Austrian pilot, Dr. Konig, between Goteborg and Stockholm. When the works in Goteborg are ready he hopes to start the following regular services:—Stockholm-Malmo, Malmo-Goteborg, and Christiania-Copenhagen.

U.S.A.

The greatest flying exhibitions ever witnessed in America were announced to take place on Saturdays July 19th and 26th in the police aerial exhibition at Sheepshead Bay, Speedway. Over 100 aeroplanes were available.

During the week ending June 21st the forest patrol stationed at Sacramento, California, made twenty-one flights over the National forests, and discovered four fires, which were reported to the Forestry Service.

The Lincoln (Nebraska) Aero Club has opened a flying ground, and the citizens of Nebraska are very enthusiastic on flying, and want more passenger flights than can be given on the six Curtiss aeroplanes. Three more machines have been ordered.

The Universal Aviation Co. have obtained the Morrow Aviation Field at Detroit, which was opened to the public on June 21st. They have four aeroplanes at present, but six more are expected soon.

There is accommodation for sixty machines, and private owners are making arrangements to keep their machines there. A regular passenger service between Detroit and Cleveland will start at once.

Owing to the success of the aerial mail between Cleveland and Chicago (325 miles), over which fifty-eight trips have been made without a single mishap, it is expected that a mail service will be started in the autumn between Omaha and St. Louis, which will shorten the time taken by letters from the Atlantic to the Pacific coasts by 16 to 24 hours.

Twelve rebuilt De Havilland machines, fitted with Liberty engines, are on the Chicago-Cleveland route, and carry each day 400 lbs. of letter mail, which amounts to about 16,000 letters. The machines land in the heart of Chicago at Grant Park, thereby saving a great deal of time. Experiments are being carried out to enable the aeroplane to take aboard the mail bags whilst in flight, but this is only possible so far with machines carrying 1,000 lbs. of mail or less.

The Curtiss Aeroplane and Motor Corporation has already established agencies in the Far East, Scandinavia, Australia, and Cuba, and is now planning to extend operations to South America, where bases will first be established at Buenos Aires and Rio de Janeiro, and later in Uruguay, Chile, Peru, and Paraguay. Demonstrating machines will also be sent to Columbia, Venezuela, and Bolivia.

Pioneer aeroplane tours are being planned in America by the Aerial League, of which Rear-Admiral Robert E. Peary is president, to use the surplus Army and Navy machines, to popularise aviation and to give the 64,000 ex-service pilots and cadets a chance of keeping up their flying.

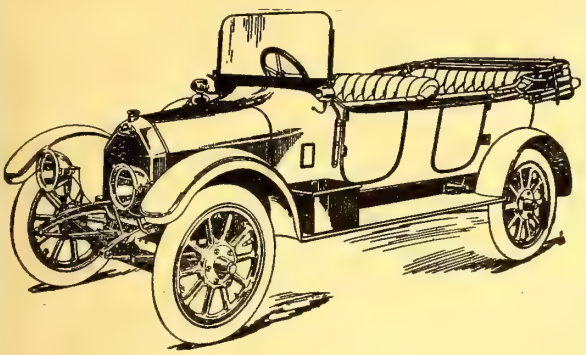
From the canvass made it was found that many wished to participate in these tours for varied reasons, and they are going to start the tours this summer with aeroplanes equipped with motors from 90 h.p., of which the Government has thousands for sale.

Hundreds of cities all over the United States have applied to the Aerial League for assistance and advice in establishing municipal flying grounds. Seaplane tours or cruises will be started as soon as possible.

To begin with, the tours will be divided into four classes:—one-day tours, week-end tours, one-week tours, and three thousand mile tours (ten days). The average travel for one day in these aerial tours will be 250 miles, so as to allow plenty of time for recreation on the ground.

All the tours will start from Atlantic City Airport, in formation, and will pass over and land at New York. The Curtiss Aeroplane and Motor Corporation is planning to enable tourists to hire an aeroplane for one, two, or three months to participate in the tours, at a cost of less than £400 for two people, including insurance.

ROME TO LONDON.—The S.I.A. Biplane (700-h.p. Fiat Engine) on which Lieut. Brack-Papa flew from Rome to London in the day on July 15th.



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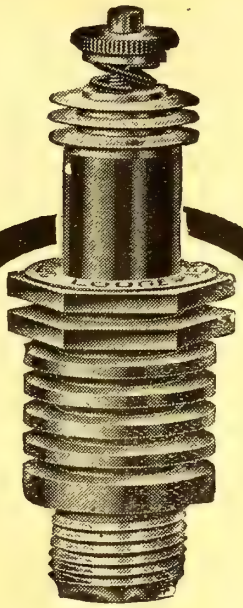
SOUTHAMPTON & DISTRICT, 25-27, LONDON RD., SOUTHAMPTON.



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AIRCRAFT FINANCE

WHERE IS OUR EXPORT TRADE?

It has been remarked facetiously that statistics can sometimes be made to show everything and in reality prove nothing whatever. This is ostensibly true. The political "figure-twister," commonly known as a political economist, can make one pleased or angry or simply muddle-headed according to his book.

The Board of Trade Returns.

Furthermore, it has been said that statistics are as dry as dust. This may also be true, but when one has before one the Board of Trade Returns for June and studies the condition of the export business of the aircraft it is rather different.

A Small Total for June.

During June there were exported to the Colonies and foreign countries "aeroplanes, airships, balloons, and parts thereof" to the value of £41,526. The comparison is with £35,658 in June, 1918, and £14,647 in June, 1917. Even if one is feeling top-hole and is cheered by the return of warm weather, this is not impressive. On the contrary, it seems so trivial—the more so because the total embraces airships as well as aeroplanes and parts thereof, and even a schoolboy ought to know, after reading all about the cruise of the R.34 and the extra twiddly bits served up by the desperate reporter, that one cannot acquire many private airships for the summer holidays with only £41,526. Not that the average schoolboy has that quantity of pocket-money even if his pater is a profiteer. But the point is made.

The Half-Yearly Comparison Better.

One is rather more gratified, however, with the half-yearly results, for the exports during the six months aggregated £293,646. This compares with £163,458 for the corresponding period of 1918 and £247,573 for that of 1917. Admittedly this sounds a little better, and, moreover, one discovers a big drop in the imports, which, of course, is easily explained by the fact that the war is over. June imports of aeroplanes, airships, balloons, and parts thereof amounted to only £1,410 compared with £864,296 in the same month of 1918 and £2,670 in 1917.

Large Purchases Abroad.

Nevertheless, the aggregate imports for the half-year amounted to no less than £1,949,938 in comparison with £1,989,777 in the first half of 1918 and £62,167 in 1917. It is fairly evident, therefore, that some very big contracts could not be cancelled quickly enough, unless, of course, someone had a fancy for foreign stuff. It is a pity. Such a total is formidable, and it would have been better had the production been diverted to domestic industry.

Trivial Re-exports.

However, one still assumes that it could not be helped, but before closing the illuminating volume, which consists mostly of figures, it is worth while discovering how much stuff of foreign and Colonial origin was re-exported. The total under this head for six months was £400 compared with £1,000 in 1918 and £6 in 1917. Had some more of the imported "aeroplanes, airships, balloons, and parts thereof" been re-exported, someone would have made more profit, and possibly British industry would have received more orders. One says this might have happened. It might not have worked out in such a way.

Conclusions.

The conclusion forced on one after an examination of these statistics is that the export business of the aviation industry is as yet a negligible quantity. This is unfortunate. The necessity of enlarging the foreign business is obvious. If properly developed on efficient lines, with due respect to local requirements and local conditions, and without that essentially British characteristic of trying to palm off on the foreigners, not what the foreigner really wants, but what the British exporter wants him to want, there is a good future.

Wait and See.

Happily the industry is more amenable to reason, doubtless because of the disclosure of German business methods during the war. It is pleasant to reflect that certain interests are building up a foreign business on sound lines, and it is to be hoped that with the exceptional experience gained and the degree of perfection attained the results will be satisfactory in South America, China, Europe, and elsewhere, to the discomfiture of rather keen and lively competitors. WM. J. DAVIES.

CURRENT TOPICS.

A Subdued Feeling.

Although the National Loan has been a greater success than most people expected, the Financial World has not run into ecstasies of buoyant activity. On the contrary, business is smaller, which may conceivably be the result of patriotic gluttony in Loan subscriptions, and the feeling is not by any means enthusiastic.

The Position of Vickers.

Aircraft shares are out of favour and out of fashion, too, for the Whitehead affair is not calculated to make a good impression. However, some things look decidedly cheap. Vickers, for instance, are selling under 36s. Assuming the 12½ per cent. tax-free dividend is maintained, the purchaser would get almost 7 per cent. net on the money laid out, equal to almost 10 per cent. on an investment subject to the deduction of tax. No longer does one hear anything of a bonus arising out of the enormous profits that the company must have made and hidden during the war. The amalgamations and consequent rearrangement of the capital has afforded an excellent opportunity for burying these profits in the business for the benefit of posterity.

Some Domestic New Issues.

Petters, Ltd., the oil engine people who have a big interest in aircraft production at Yeovil, are issuing 125,000 7½ per cent. cumulative preference shares of £1 and 12,500 £1 ordinary shares. S. Smith and Sons (Motor Accessories), who are also concerned with aviation, intend to increase the capital to £1,000,000 from £500,000. There will be created 100,000 new £1 ordinary shares and 400,000 £1 6½ per cent. cumulative and participating preference shares. When the ordinary shares receive 6½ per cent. these preference will be entitled to an additional ¼ per cent. in respect of every extra 1 per cent. paid on the ordinary. It is said that two new businesses have been acquired. The English Electric Co., which has a big interest in flying boats, being a combination of the Coventry Ordnance Works, Dick, Kerr and Co., and the Phœnix Dynamo Co., is offering £1,000,000 5½ per cent. debentures at 94.

The Whitehead Aircraft, Ltd.

In the Companies Winding-up Court of the Chancery Division, the petition for the compulsory winding-up of Whitehead Aircraft (1917), Ltd., came up again and was postponed for a fortnight.

Mr. Owen Thompson, K.C., said there seemed to be some prospect of a scheme going through by which all the creditors and debenture holders would be paid, and there would be a surplus for the shareholders. It might be that some scheme would be put forward ennabling everybody to be paid in full.

Mr. Gore-Browne, K.C., said a very powerful combination was negotiating to buy the assets. The prospect of the purchase at a cash price was very satisfactory, but he doubted whether a fortnight would give sufficient time to complete the investigations.

AIRCRAFT IN PARLIAMENT

The following written answer was given on July 9th :—

ROYAL AIR FORCE.—EXPERTS.

Captain WEDGWOOD BENN asked the Under Secretary of State to the Air Ministry whether any steps are being taken to retain for the public service the advantage of the expert designers and craftsmen engaged upon airship and aeroplane construction during the War?

Major-Gen. SEELY: It is for the Admiralty to reply as regards airships. As regards aeroplanes, the position during the War generally was that the expert designers were in the employment of the contracting firms, experts on such general questions as aero-dynamics, strength of materials, etc., being retained by the State. It is hoped to maintain this position under the peace organisation.

* * *

The following written answers were given on July 10th :—

WENDOVER AERODROME.

Mr. BRIANT asked the Under Secretary of State to the Air Ministry if the aerodrome at Wendover is intended to be a permanent training centre for the Air Force; and, if so, for how many men is it intended to provide?

Major-Gen. SEELY: The answer to the first question is in the affirmative. The answer to the second will depend on the Peace strength which may be approved for the Royal Air Force.

BRITISH CELLULOSE COMPANY.

Lieut.-Col. W. THORNE asked the Parliamentary Secretary to the Ministry of Munitions what was the total capital outlay of the British Cellulose Company on August 1st, 1918; how much of this had been provided by the State, either in rebate of Excess Profits Duty or in any other form, and what were the total liabilities of the State in respect to this outlay; whether any further capital outlay has taken place since August 1st, 1918; and, if so, does any liability rest upon the State to recoup the whole or part of any such outlay?

Mr. KELLAWAY: I would refer my hon. and gallant friend to the answer given on July 3rd to his question on this subject. Until the Committee appointed by the Government have reported I do not think it desirable to make any statement.

* * *

The following oral answers were given on July 14th :—

ROYAL AIR FORCE (MAJOR F. C. H. SINCLAIR).

Sir WILLIAM DAVISON asked the Pensions Minister why it is that no decision has been arrived at with regard to the application for a pension of Major F. C. H. Sinclair, Royal Air Force, who was invalided out of the Royal Air Force on June 24th, 1918; and when that officer is likely to have his application dealt with.

Sir J. CRAIG: This officer relinquished his commission on July 24th, 1918, but his papers were not received in the Ministry of Pensions until April 13th, 1919. No application was made by the officer to the Ministry in the meantime. The result of the medical board which has now been held is to find the disability not due to nor aggravated by service, and a gratuity of £225 has been awarded and will be paid immediately The amount may be increased as the result of further inquiry which is being made of the officer.

Captain LOSEBY: Is the hon. gentleman aware that the delays in this and similar cases are causing widespread and intense dissatisfaction?

Sir W. DAVISON: Can the hon. gentleman say if questions of this kind are not dealt with automatically on an officer being invalided out?

Sir J. CRAIG: With respect to the first question, every possible effort is being made to prevent anything of the kind occurring. We are working very hard to overtake the work. The answer to the second question is that the arrangement works automatically, but it has required considerable adjustment between the War Office, the Air Force, and ourselves. We hope, very shortly, to have perfect machinery.

* * *

The following written answers were given on July 14th :—

NAVAL, MILITARY AND AIR FORCE EXPENDITURE.

Commander BELLAIRS asked the Secretary to the Treasury whether the Controller-General has the assistance of expert naval, military, and Air Force officers to assist him in his work of criticising the expenditure of the three Departments.

Mr. BALDWIN: The Controller and Auditor-General has no officers of His Majesty's Forces engaged upon the audit of naval, military, or Air Force expenditure.

AIRSHIP CONSTRUCTION, BARROW-IN-FURNESS.

Mr. T. WILSON asked the Secretary of State for War whether he can indicate the policy of his Department in connection with the building of airships; whether he is aware that, owing to the change over from war to peace conditions, numbers of workpeople are unemployed in Barrow-in-Furness; and whether he can hold out any hope of expediting the construction of airships at Barrow-in-Furness, and thus facilitate the employment of the workpeople now unemployed, and who have in the past been employed on airship construction.

Dr. MACNAMARA: I have been asked to answer this question. As regards the first part, I am not quite sure what information it is that my hon. friend desires. As regards the second and third parts of the question, so far as we are concerned, Messrs. Vickers' airship shed is not large enough for the construction of rigid airships of the sizes now required by the Navy, and it is therefore impossible, under present conditions, to order further rigid airships for construction at Barrow-in-Furness.

WEEKLY HALF-HOLIDAY.

Major-Gen. SEELY (the Under Secretary of State to the Air Ministry), replying to Mr. Waterson, said: The men at Warsash are granted leave from camp on an average of three days out of four, including night leave. There is no Air Ministry weekly order giving the men a half-day on Wednesdays, but at Warsash the men get two free Wednesday afternoons out of three.

STORE BUILDINGS, REGENT'S PARK.

Major-Gen. SEELY (replying to Sir William Pearce) said: The Royal Air Force will make every endeavour to remove their stocks from Regent's Park by September 1st, the date fixed. The buildings will be handed over to the Ministry of Munitions.

* * *

The following oral answer was given on July 15th :—

TECHNICAL PAY.

Sir F. HALL asked the Under Secretary of State to the Air Ministry what amount of technical pay, if any, it has been decided to award to technical officers in Class A of the Royal Air Force; whether the same is to be retrospective from Sept. 1st, 1918, and will include technical officers demobilised before the decision has been arrived at; and, if so, whether an officer who would thus be entitled to additional pay can claim the same together with gratuity based on the larger amount of pay.

Major-Gen. SEELY: I am not yet able to announce the general scheme of pay for the future, but hope to be able to do so shortly, and will my hon. and gallant friend defer his question to a later date?

* * *

The following written answer was given on July 15th :—

DIDSBURY AERODROME.

Major-Gen. SEELY (replying to Major Nall) said: The Didsbury Aerodrome (which is the Whalley-Range Cricket Club premises) will be required for R.A.F purposes until Nov. 30th, and has been available for civilian flying since May 1st. The future use of this and similar aerodromes is receiving careful consideration.

* * *

The following oral answer was given on July 16th :—

WAR MEDAL ISSUE.

Lieut.-Col. MEYSEY-THOMPSON asked the Secretary of State for War whether he was aware that dissatisfaction exists at the delay in issuing the medal for the European War; and whether this medal will shortly be issued to all the men who are clearly entitled to it.

Mr. CHURCHILL: It is hoped very shortly to issue the Army Order authorising the grant of this medal with permission to wear the riband. I have signed the necessary papers issuing the Order to-day, so that it will be possible for the men to wear it on Saturday.

* * *

The following written answer was given on July 16th :—

AIRSHIP CONSTRUCTION AND MANAGEMENT.

Mr. LYLE asked the Under Secretary of State for Air whether he will give the Estimate for 1919-20 for airship construction and management; and whether he will state the policy of his Department in respect to this branch of airwork, either from a military or from a commercial standpoint.

Major-Gen. SEELY: Expenditure on airship construction for the current year is, under present arrangements, borne on Admiralty Votes. The question of future policy is under consideration.

* * *

The following oral answer was given on July 17th :—

CELLULOSE.

Mr. BONAR LAW (replying to Sir D Maclean) said that he would try to have the Report of the committee which was appointed last August to inquire into the cellulose question circulated as soon as possible, it is hoped this month

* * *

The following written answers were given on July 17th :—

ANTI-FIRE DEVICES.

Mr. RAPER asked the Under Secretary of State to the Air Ministry whether his attention has been called to the destruction by fire of a British postal aeroplane in the South of France; and whether he is satisfied that all anti-fire devices are used on such machines.

Major-Gen. SEELY: From the preliminary reports received by the Air Ministry it would appear that the aeroplane in question caught fire after "crashing." The provision of "self-sealing" petrol tanks is a great safeguard against fire accidents of this kind, but the progress with this type of tank has been so recent that it has only been possible to fit them in the very latest design of aeroplane All future designs will provide for "self-sealing" petrol tanks.

AMSTERDAM EXHIBITION.

Captain W. BENN asked the Under Secretary of State to the Air Ministry what steps the Controller of Civil Aviation is taking to assist commercial firms to show machines at the forthcoming exhibition at Amsterdam.

Major-Gen. SEELY: Assistance is being given to private firms by the release of machines and engines, where they have passed the experimental stage, and can be spared from the Royal Air Force. Negotiations have been in progress with the Dutch Government for the opening of civil communication by air between England and Holland during the period of the exhibition.

AEROPLANE CONTRACTS.

Major GLYN asked the Under Secretary of State to the Air Ministry what is the policy of the Air Ministry in regard to either the giving or withholding orders to those small aeroplane manufacturing establishments that are associated with foreign aeroplane companies; whether he is aware that many of these smalled concerns are in an indifferent financial position and are only being kept going in a small way in the hope of later on obtaining a Government contract; and whether it is more in the public interest that these buildings should be used for other purposes whenever definite offers to obtain possession of these factories have been made.

Mr. KELLAWAY: I have been asked to answer this question. I do not quite understand this question, but I may say that the supplies of aeroplanes, contracted for under War conditions, are, and will be for some time to come, sufficient to meet the requirements of the Royal Air Force, without placing further contracts. The use to which the private factories are put is a matter entirely for the owners of the factories.

* * *

On July 17th, in the course of his speech introducing the Civil Services and Revenue Departments Estimates, Mr. ILLINGWORTH (the Postmaster-General) said :—

The question of air mails is one which, naturally, has occupied our attention very much during the war. This has been placed entirely, and quite rightly, under the care of the Air Force. It does not do to have half a dozen people interfering with one thing The results which have been achieved—I believe mainly privately—in flying the Atlantic have been very remarkable.

The first attempt by Hawker, unfortunately, was not a complete success, but he managed to deliver a small number of letters which he was bringing, and they were quite safely delivered in London I received a letter from the Postmaster-General of Newfoundland, to which I replied in suitable terms

The next attempt, by Captain Alcock, was completely successful. He flew in sixteen hours from Newfoundland to Ireland, and managed to deliver his mails in a very satisfactory condition and in a short time

What I consider to be one of the most remarkable achievements was that just accomplished by the R 34—the lighter-than-air ship—which

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went from here to America in an incredibly short time, made a round, and came back to this country again. I sent a letter to the Postmaster-General of Canada by the R 34, and a few hours after she arrived back in this country his reply was delivered to me at the General Post Office in London.

Of course, these things do not make the question of air mails a practical proposition, but it has been shown that there are great possibilities. In the course of time, if the progress made is as rapid as has been made in the flying branch of the Army, before many years the long-distance post, at any rate, will be carried by either lighter- or heavier-than-air machines.

Captain W. BENN: What about internal mails by air in these islands?

Mr. ILLINGWORTH: At present the great difficulty is the state of the atmosphere. I am told there is great difficulty in navigating in a hazy atmosphere and also in landing. I am informed that when that is overcome it will be a practical proposition for the longer distances. I do not know what means are taken to fly and land in thick weather, but I gather that it will not be beyond the resources of the people of this country to do that.

Captain WEDGWOOD BENN, in the course of his speech, said:—

I want now to touch on a matter which is not a complaint, but which, I hope, will have a stimulating effect on the policy of the right hon. gentleman's Department, and that is the question of aerial mails.

The War Secretary made a speech the other day in which he said, proudly, that we were at the head of aviation in the world. I am sure we would like to lead, and I am sure we have got some of the best manufacturers in the world, but I am not at all sure that in practical ways we are at the head of aviation, particularly in this matter of aerial mails.

We all know that developing new aerial routes is a very expensive matter. It will be, in my judgment, a very useful development indeed, and I think the commercial possibilities of an aerial mail service in particular are considerable, because a mail does not weigh very much; it is not like carrying passengers. But you cannot expect private firms to do this out of their own funds; it is too expensive.

The risks are too great, and it is a service which properly should be undertaken by the Post Office, in conjunction, of course, with the Air Ministry. Of course, being, as I am, a most firm believer in the necessity or unity in the Air Service, I should be against the right hon. gentleman in his Department starting a little air service of his own.

It must, of course, be done by the Air Ministry, but then the Postmaster-General should be an employer of the Air Ministry, and use them for this very necessary service. I ventured to interject a remark during the right hon gentleman's speech, touching this matter, and he replied that it could not be done owing to the atmospheric conditions.

I think he has rather overstated the difficulties. It is not necessary for an aerial mail service to fly high. It is not necessary to have very swift machines—it is advisable to have them for long distances—but a sort of machine like the D.H.10, which lands very slowly, and could be used for this purpose, would very much diminish all the dangers of which the right hon. gentleman spoke.

I think you could get a very large measure of success—I will not say 100 per cent., but certainly 90 per cent. of success. I wish the right hon. gentleman would turn his attention to that, because the Air Estimates are very large—£65,000,000—and you can only justify estimates of that size if the Air Ministry sees that we do not fall behind other countries in civil aviation. It would be lamentable if we allowed the great lead we secured during the war to be taken from us.

Let me tell the right hon. gentleman of some of the things that are happening in the world in the direction of aerial mails. In the forefront is the United States. It is more than a year ago since the United States instituted a daily aerial mail between Washington and New York, with one stop at Philadelphia. As people very often say that these islands are not big enough to have an aerial mail, it is interesting to notice that the distance between Washington and New York is about 210 to 220 miles, and the whole of last and during this year this service has been run with very great success.

I want to mention the various countries in which the thing has been done, in order to bring to the right hon. gentleman's notice the possibility of doing it. During the war there was, I believe, a daily mail service between Vienna and Budapesth; in Denmark a daily service between Copenhagen, Gothenburg, and Christiania; in France there were several, including a very constant service, used for Government purposes, between London and Paris; in Germany a daily mail service between Berlin and Munich, with an average time of four and a half hours.

In Greece, a daily mail service has been attempted. In Italy, the submarine difficulty was overcome by sending mails to Sardinia by aeroplane, and, as a matter of fact, there were many other services. As regards Brindisi and Valona, one can see the enormous advantage of sending mails over the neck of the Adriatic. In Spain there are two projected lines. Surely the example of these foreign countries should be sufficient to encourage this country to make a bold start.

It seems really lamentable that even now, with the war over, and with hundreds of surplus machines, we should not make a start. The Air Ministry has got large contracts with the manufacturers, and the manufacturers, I believe, are ordered to continue them. I think I am right in saying that in many hangars in this country machines are pouring in, are being heaped up and are deteriorating, and never see the air at all. Yet the right hon. gentleman has not utilised any of these machines even for an experimental air service.

This is such a fascinating subject that if I did not check myself I am afraid I should weary the whole Committee, but they have even got so far as to have aerial stamps. In Newfoundland they produce stamps for the Atlantic air post. In Tunis they have a converted 35 centimes postage stamp. In Switzerland they have a stamp for the air post between Zurich and Lausanne, and elsewhere, so that other countries are getting to work in every way to develop this air service which we are neglecting.

The right hon. gentleman will no doubt say in reply to this. "It is all very well, but what would happen would be that you would start thing, everyone would send their letters, there would would be a great many failures, and the whole idea would be discredited." That is the sort of answer I anticipate.

Let me give him some figures which I got only a fortnight ago showing the success of the service in the United States. These are not newspaper reports, although those reports are very often more illuminating than official documents, but these figures I am giving have all the sanctity which belong to papers issued by Government Departments. The first annual report of the aerial mail service between Washington and New York has been published, and this is what it says:

"Out of a possible 138,000 miles for flying "(that is the number of journeys added together) "128,000 miles were actually flown—a performance of 92.73 per cent. Out of 1,263 trips, only 55 were abandoned owing to the weather, and during the twelve months there have been only 37 forced landings, and the balance-sheet"—(this will surely induce the right hon gentleman to consider it favourably)—"shows a surplus of 10,000 dollars."

That is all I have to say, but I do think it is much more than merely a wild dream of those who, like myself, are enthusiastic over aviation. I think it is a practical step, which the right hon. gentleman would do well to consider seriously.

The following answer, which was given on July 21st, is taken from the "Times," the Official Report being too late for publication:—

SERVICE CONDITIONS FOR THE AIR FORCE.

Major-Gen. SEELY (Under Secretary of State to the Air Ministry), replying to Mr. Raper, said:—The rates of pay, pension, and allowances for officers of the reconstituted Royal Air Force have now been approved, but, as the details are too lengthy to be brought within the compass of an answer to a question, I will ask my hon. and gallant friend to allow me to circulate the full statement with the votes.

An important feature of the new system is that, whereas at present the various branches have each had their own rates of pay, in future there will be uniform rates for all branches, with the exception that certain branches, such as medical works and schoolmasters, will continue to have special rates as hitherto.

Except for these branches, all officers joining the Royal Air Force in future will pass the flying test. The rates have been fixed with reference to the present high cost of living, and will be subject after five years to change, either upwards or downwards, according as the cost of living rises or falls.

Subsequent revisions will be made at three-yearly intervals on the basis of Board of Trade food prices. The new rates are intended to apply to those officers who are given permanent or short-service commissions in the force as reconstituted or who are seconded to the Royal Air Force from the other Services.

With regard to the pay of other ranks, I hope to be in a position to make a statement during the present week.

THE ROYAL AERO CLUB.

A special meeting of the committee was held on Tuesday last, July 15th, 1919, when there were present:—Brig.-General Sir Capel Holden, K.C.B., F.R.S (in the chair), Major-General Sir Sefton Brancker, K.C.B., Mr. Ernest C. Bucknall, Lieut.-Col. Spenser D. A. Grey, D.S.O., R.A.F., Lieut.-Col. T. O'B. Hubbard, M.C., R.A.F., Lieut.-Col. F. K. McClean, Lieut.-Col. Alec Ogilvie, Col. C. R. Samson, D.S.O., R.A.F., Mr. A. Mortimer Singer, Mr. T. O. M. Sopwith, and Mr. Harold E. Perrin, secretary.

ELECTION OF MEMBERS.—The following new members were elected:—Major Thomas Morgan Barlow, R.A.F.; Capt. John Claude Beddard, R.A.F.; Lieut. Edgar Hastings Cambridge; Lieut.-Com. Kenneth Mackenzie-Grieve, R.N.; Lieut. Albert Charles Guyer, R.A.F.; Lieut. Harold William Hern, R.A.F.; Nicolas Herzmark; James Inglis Ker, J.P.; Francis Martin Luther, Lieut. John Marsden, R.A.F.; Emil Adam Merckel; Lieut. William Thomas Simpson; Capt. Maurice Hugh Stephens, R.A.F.; and Lieut. Bernard Noel Wills, R.A.F.

ROYAL AERO CLUB AND SOCIETY OF BRITISH AIRCRAFT CONSTRUCTORS.—An agreement has been entered into between the Royal Aero Club and the Society of British Aircraft Constructors defining the activities of the respective bodies. A joint committee has been appointed to act as the channel of communication by which the two bodies are kept in touch and to advise generally upon matters affecting their common interests. The following are the representatives of the club on the Joint Committee:—Lieut.-Col. F. K. McClean, Lieut.-Col. J. T. C. Moore-Brabazon, M.P., Mr. J. H. Nicholson, and Lieut.-Col. Alec Oglivie.

N.C.4.—The following letter was read from Lieut.-Com. H. C. Read, U.S.N., commanding N.C.4:—

U.S.S. Zeppelin,
At sea, en route New York, June 18th, 1919.

Royal Aero Club,
3, Clifford Street, W., London, England.

Gentlemen,—I am taking this opportunity, the first peaceful moment since first arriving at Plymouth, to thank you on behalf of myself and the crew of the N.C.4 most heartily for your welcome to us during our stay in London.

As a consequence of the care with which the members of the club looked after our welfare, the visit to London will always remain the brightest spot of the entire trip. Hoping some day to be able to repay you, at least, in part, I remain.—Very sincerely yours,

(Signed) H. C. READ,
Lieut.-Commander, U.S.N., Commanding N.C.4.

R.34.—The following cablegram was sent to Brig.-Gen. E. M. Maitland, C.M.G., D.S.O.:—

"Royal Aero Club sends heartiest congratulations to Major Scott and crew of R.34.—ATHOLL, Chairman."

The following reply was received from General Maitland:—

"President, Royal Aero Club, London,—Scott and crew R.34 much appreciate kind messages congratulation.—GENERAL MAITLAND."

COMMITTEE MEETINGS.—It was decided that meetings of the committee should be held in future on alternate Wednesdays, instead of Tuesdays.

CLUB BANQUET TO BRIG.-GENERAL E. M. MAITLAND, C.M.G., D.S.O., MAJOR G. H. SCOTT, AND THE CREW OF H.M.A. "R.34."

The club will entertain the officers and crew of H.M.A. "R.34" at a banquet at Prince's, Piccadilly, W., on Wednesday, July 23rd, 1919. Particulars are being forwarded to members by post

THE FLYING SERVICES FUND.

(Registered under the War Charities Act, 1916.)
ADMINISTERED BY THE ROYAL AERO CLUB

For the benefit of Officers, Non-Commissioned Officers and Men of the Royal Air Force who are incapacitated while on duty, and for the widows and dependants of those who are killed or die from injuries or illness contracted while on duty.

HONORARY TREASURER: The Right Hon. Lord Kinnaird.

COMMITTEE: H.R.H. Prince Albert, K.G. (chairman), Mr. Chester Fox, Lieut.-Col. T. O'B. Hubbard, M.C., R.A.F., Lieut.-Col. C. E. Maude, R.A.F., Lieut.-Col. R. H. More, C.M.G.

SECRETARY: H. E. Perrin.

BANKERS: Messrs. Barclays Bank, Ltd., 4, Pall Mall East, London, S.W. 1.

Total subscriptions received to July 8th, 1919 ...	£15,066 4 9
Collected at Church of England parade services at Headquarters, South-Western Area, Royal Air Force, Salisbury ...	6 11 4
Lieut. H. A. Turrill, R.A.S.C. ...	2 2 0
Total, July 15th, 1919 ...	£15,074 18 1

PRESENTATIONS TO THE CLUB.

The following books have been presented by the publishers to the Club Library:—

"The Year Book of Wireless Telegraphy and Telephony, 1919." (Published by the Wireless Press, Ltd.)

"Practical Aviation," Including Construction and Operation. By J. Andrew White. (Published by the Wireless Press, Ltd.)

"Les Moteurs à Explosion dans l'Aviation." By A. Masméjean and E. Bérébare. (Published by H. Dunod and E. Pinat.)

"Résumé des Connaissances Scientifiques utiles aux Aviateurs et Mécaniciens de l'Aéronautique." By Ed. Marcotte and E. Bérébare. (Published by H. Dunod and E. Pinat.)

"The Wonder Book of Aircraft." Edited by Harry Golding. (Published by Ward, Lock and Co., Ltd.)

AN OPPORTUNITY FOR YOUNG MECHANICS.

It is difficult to think of a reason why the London Regiment should be so interested in the future of the R.A.F. (T.F.), but it is doubtless a good thing for one well-established Territorial regiment to interest itself in the inauguration of another, however different their ultimate aims may be.

The First Aircraft Construction Wing, which was opened on June 20th by Maj.-Gen. Sir Hugh Trenchard at 25, Camden Rd., St. Pancras, is backed by many well-known and influential people. Most of the biggest aircraft firms have interested themselves in this wing, and have shown their interest and appreciation by giving large sums of money, aeroplanes, engines, spare parts and workshop appliances.

Throughout the war there was never much difficulty in obtaining pilots and observers, but there was a great shortage of good mechanics, for many joined up at the beginning of the war in infantry regiments and many were kept on work of national importance in the factories. There will never be any difficulty in obtaining men who will want to be trained as pilots; but the mechanics who served during the war in the R.A.F. have mostly had quite enough of the Air Force, and find they can earn far more money in factories and in other civil engineering jobs.

This shortage of mechanics shows the necessity for training youths as such, for a R.A.F. (T.F.) cannot consist of pilots alone, and the first step in the right direction is to open these wings to procure the mechanics.

The following article by "Percy Vere" gives the details of the scheme :—

Formation of Sections for Elementary Instruction.

A movement which will have a far-reaching importance in the near future was brought into being recently, when the Chief of the Air Staff (Major-General Sir Hugh Trenchard, K.C.B., D.S.O.) opened the headquarters of the First Aircraft Construction Section in connection with the Cadet organisation of the Territorial Force Association of the County of London.

Soon after the Armistice steps were taken to form an Aircraft Construction Section in connection with the local Cadet battalion at St. Pancras. The Air Ministry were approached with a view to ascertaining what support, if any, would be forthcoming in the event of such a section being formed, as the question of equipment was all important. The response was really splendid. Every encouragement was given to the scheme, and a valuable gift of instructional equipment made.

Various important firms were also approached with a view to obtaining the grant of instructional stores, and the following firms replied with generous gifts :—Vickers Ltd., Sir G. W. Armstrong-Whitworth and Co., the Beardmore Engine Co., the Sopwith Aviation Co., A. V. Roe and Co., W. G. Allen and Co., of Bedford, the British Caudron Co., the Grahame-White Co., Ruston and Hornsby, the North British Rubber Co., and Berwicks of Park Royal. This equipment forms the instructional material used by the section to-day.

It has been proved by the large number of Cadets coming forward for instruction already that the scheme is likely to be popular.

The Classes.

Classes are held from week to week, conducted by qualified ex-flying and other officers and other ranks of the Royal Air Force who have now accepted commissions in the Cadet organisation of the County of London Territorial Force as instructors, assistant instructors, lecturers, and demonstrators. The subjects taught include aero engines, rigging, theory of flight, navigation, instruments, signalling (including wireless), drill and physical training. Sports and games are also freely indulged in.

The strength of the first section is 85 Cadets, 7 N.C.Os., 2 warrant officers, and 7 officers. The organisation is clearly defined on approved lines, and proving quite satisfactory.

The establishment of each section comprises the officer commanding, a chief technical officer, and officers in charge of the various sub-sections. These are assisted by junior officers, and also technical sergt.-majors. The principal qualification for entry as an officer in these aircraft sections is that the applicant should have served in the Royal Flying Corps, Royal Naval Air Service, or later in the Royal Air Force.

The movement has already commenced to expand, and steps are now being taken to bring the whole of the Cadet units in the County of London into line, and sections dealing exclusively with aircraft are being formed in connection with all the Cadet battalions affiliated to the well-known London Territorial battalions.

It is interesting to note that about 50 per cent. of the Cadets now under instruction have served during the war in a civilian capacity in some of the best-known aircraft factories in London, and they are continuing their studies with a view to further advancement. It is found, in this connection, that the Cadets are exceedingly keen, and attend the lectures given regularly. For some time recruiting has had to cease, but arrangements are now concluded whereby lads from seventeen to twenty years of age may enrol.

The Need for Good Mechanics.

The aim of these sections is to prepare the Cadet to be a specialised mechanic, for it is realised by those concerned that a mechanic must know the fundamentals of his own duties thoroughly; no other consideration can compensate for a defect in this. The pilot depends, finally, on his aeroplane; his mechanic, therefore, should know sufficient to see that it is always kept in perfect order. These sections are in being at the moment at any rate for the express purpose of training the Cadet, in his spare time, in all matters relating to aircraft to enable him later in life, without loss of time, to take up responsible duties either in the Royal Air Force or in aircraft manufacturing works almost from the beginning instead of being a drag on his squadron or works for weeks.

In the formation of new sections great stress has been laid as to definitely deciding at the outset on a system to be adopted. Sections have, therefore, endeavoured to organise their system, develop their methods, and set themselves some kind of standard, as well as keep a proper balance for all subjects taken. The individual members of staffs—probably inexperienced in instructional work—may view their particular subjects in false perspective, i.e., they may unconsciously endeavour to produce a first-class mechanic in twenty-four hours. This cannot be done.

Co-operation between all sections will be established, and this should tend to raise the standard of all to that of the best. The civil and military aircraft authorities decide what is wanted in the development of aircraft, and the sections will do their best to comply to the best of their ability in the time. By close co-operation and co-ordination the experience of all the sections is at the disposal of each, and gives rise to a healthy emulation among the various staffs.

Visits to Works and Aerodromes.

Arrangements are made from time to time for Cadets to visit works and aerodromes, and cinematography also plays a very important part as an aid to instruction.

The movement is full of possibilities, and as it is now only in its infancy it is difficult to imagine to what extent it may prove its usefulness. It has, however, been more than proved that recruits can be obtained, clearly indicating its popularity. It has also been seen that Cadets get so keen as to wish to transfer into the Royal Air Force for training as learner mechanics, as quite a number have already done so. Those interested in civil and military aviation realise this, and it is hoped that the lead already given by official and private concerns will be a means of bringing into being a much larger movement for the training of the lads. At the moment, therefore, it deserves every encouragement, and the visit of the Chief of the Air Staff and the Director of Training has already been a means of drawing the right type of lad who is anxious to qualify in one of the most interesting crafts of our time.

ESPRIT DE R.A.F.

A year or two ago, very many members of the R.A.F. looked forward to a future in their Service.

In the words of the average flying officer, "What a hope!"

The Selection Board have shown such dainty discrimination in their selections, that a number of the older members have fled to the friendly cover of civilian clothes, and the gold oak-leaves and banana-adorned badges of their caps grow dim in the recesses of some forgotten cupboard.

And those other old pilots who were oak-leafless murmur "Blow the Bolo," or alliterative words to the same effect, and thankfully retire into private life again.

It seems a pity that many who would have continued in the R.A.F. should have been frightened out of it by the thought of those with whom they would associate; and good traditions for a new Service are not being created by the type of officer frequently seen.

With luck he may occasionally speak comprehensible English, and his clothes would make an excellent lubricant for any engine. In many cases his service overseas dates from the signing of the armistice, and he is receiving a bonus for reaping where others sowed before him. He, in fact, is the soul-inspiring foundation of a new Service, and he is known to the public as "the gallant British airman."

His confrère, who was ass enough to be demobilised and is sorry for it can be seen with the R.A.F. badge in his buttonhole, on his cuff-links, in his tie, or worked on his socks, and perhaps he wears a pair of wings on his waistcoat. This is not necessarily typical, but it is all sufficiently noticeable amongst many of the Selection Board's choice.

Meanwhile, those who once had a pride in their Corps, are rapidly selling their uniforms to old clothes merchants, and wondering what has become of that pride.

Anyhow, God bless the R.A.F.

—— R. R.

NAVAL & MILITARY AERONAUTICS

GREAT BRITAIN.

FROM THE COURT CIRCULAR.

BUCKINGHAM PALACE, July 17th.

His Majesty conferred decorations as follows :—

THE DISTINGUISHED SERVICE CROSS.—Capt. Cecil FitzHerbert, R.A.F.

THE MILITARY CROSS.—Capt. Thomas Lander, Highland Light Infantry, attd. R.A.F.

MARLBOROUGH HOUSE, July 17th

Brigadier-General E. M. Maitland and Major G. H. Scott, Royal Air Force, were received by Queen Alexandra to-day.

BUCKINGHAM PALACE, July 16th.

Admiral Sir James Startin and Brig.-Gen. E. M. Maitland and Major C. H. Scott, R.A.F., had the honour of being received by The King this morning.

BUCKINGHAM PALACE, July 19th.

Their Majesties gave a Luncheon Party in the State Dining Room in honour of the Representatives and Leaders of the Allied Armies, at which the Prince of Wales, the Prince Albert, the Princess Mary and Field Marshal the Duke of Connaught were present, and the following had the honour of being invited :—

The Right Hon. Winston Spencer-Churchill, M.P. (Secretary of State for War and Air), and Major-General Sir Hugh Trenchard.

NAVAL.

ADMIRALTY, July 17th.

The King has been pleased to give orders for the following appointment to the Most Excellent Order of the British Empire, in recognition of the services of the following officer during the war :—

O.B.E. (MILITARY DIVISION).

Flt. Lt. A. W. Cassy, R.N.A.S. (now Capt., R.A.F.).—For valuable services with No. 14 Kite Balloon Section in Mesopotamia from Aug. 1916, to Feb., 1917.

The King has been pleased to approve of the award of the following decoration to the undermentioned Officer :—

DISTINGUISHED SERVICE CROSS.

Lt. D. R. Verey, R.N.V.R. (now Capt., R.A.F.).—For distinguished services with No. 14 Kite Balloon Section in Mesopotamia from Aug., 1916, to Feb., 1917.

Flt. Sub. Lt. M. Lyon, R.N.A.S. (now Capt., R.A.F.).—For distinguished services with No. 14 Kite Balloon Section in Mesopotamia from Aug., 1916, to Feb., 1917.

ADMIRALTY APPOINTMENTS.

The following appointments have been made :—

JULY 16th.—Surgn. Lieut. (Temp.).—E. D. Granger, temp commission and appt. terminated on transfer to R.A.F., Oct. 1st, 1918.

JULY 17th.—Surgn. Lieut. (Temp.).—A. Ritchie, M.B., to "Vindictive."

BOSN.—W. C. Hawkins (actg.), to "Ark Royal," July 18th.

* * *

On July 15th H.M.A. N.S.11 was lost at sea with all hands owing to an explosion. N.S.11 left Pulham Airship Station shortly after midnight on July 15th to assist in mine-sweeping operations, and the explosion, which was heard along the coast, occurred near Sheringham at about 12.30 a.m. No official statement has been issued regarding the cause of the accident.

The names and address of officers and ratings of N.S.11 are as follows :—

Capt. W. K. Warneford (commander), Lansdowne House, Huyton, Liverpool.

Capt. A. S. Elliott, who had recently been staying with his wife at Harleston, Norfolk.

Flt. Serjt. O'Connor, Macfarlane Road, Wood Lane, Shepherd's Bush.

Serjt. Lewry, Leesland Road, Gosport.

Serjt. Waghorn, Star Inn, Crayford, Kent.

Aircraftsman J. Jacques, Victoria Road, Longeaton.

Aircraftsman Cameron, Beasley Street, Gorton, Manchester.

Aircraftsman Connelly, Midfield Cottage, Inveresk, Midlothian, Scotland.

It has been definitely ascertained that the airship foundered four miles north-west of the village of Salthouse, between Wells and Sheringham.

The following message has been received from the King in regard to the loss of Coastal Airship N.S.11 ;—

> His Majesty the King desires to express his deepest sympathy with the relatives of those officers and men who lost their lives in the airship N.S.11 while employed in mine-clearing operations.

N.S.11 was built by the Admiralty at Kingsnorth, Kent, in 1918, and had some good work to her credit, including a voyage of 1,285 miles along the coasts of Denmark, Slesvig-Holstein, Helgoland, North Germany, and Holland, the time taken being 41 hours. It was N.S.11 which recently made the flight over London flying the newly-resigned R.A.F. flag.

Dragging operations off Cromer were begun on July 19th by several minesweepers. If any wreckage of N.S. 11 is discovered a diver will be sent down. An attempt will be made to recover the engines in order that they may be examined.

* * *

The Air Ministry announced on July 21st :—

One of the F.5 flying boats engaged in the Scandinavian trip reached Christiansand from Dundee yesterday at 5.30 p.m., having accomplished the journey of 430 sea miles in seven hours and a quarter. As the flight was made through thick fog and driving rain, the performance is regarded as a particularly good one.

* * *

Two Naval flying boats from Felixstowe arrived at Schellingwoude, the Dutch Naval aerodrome near Amsterdam, on July 14th. The crews consisted of five persons, including Colonels Waterhouse and Raikes. The pilots were Major Moon and Captain Maxton. Captain Freeman and Lieut. Parker were among the crews. The time taken on the journey was, roughly, an hour and three-quarters.

* * *

The British Naval flying-boat F.5-N.96 (Rolls-Royce engines), piloted by Captain Baily, R.A.F., with Major Sitwell, D.S.C., R.A.F., in command, arrived at Copenhagen at 5.30 p.m. on July 19th. An official from the Foreign Office and two N.C.Os. were also carried.

The course followed was Felistowe to the Dutch coast, along the Dutch coast to Borkum, along the German coast to the Kiel Canal, and so to Copenhagen. Bad weather was encountered and much rain. An altitude of between 600 and 2,000 ft. was maintained.

The flying-boat left Copenhagen for Helsingfors at 11.10 a.m. on July 20th.

* * *

Owing to the difficulty of bringing any type warship up to London for the Peace celebrations, the next best course was adopted, and a very representative collection of what may be described as the "last sigh" in naval architecture and construction was congregated at the mouth of the Thames off Southend, and at certain times on certain days were open to public inspection

Perhaps the most interesting feature was the presence of H.M.S. "Furious," variously described by the intelligent Press and the more intelligent public as a light cruiser, battle cruiser, etc., commonly known as a "Hush-Hush" ship, whatever that may mean, and officially known as an "aircraft-carrier."

Two folded Short seaplanes on the deck added to its mystery and greatly impressed the public.

Most of the battleships and battle cruisers sported a couple of ship-planes, mostly "Camels" and "1½ strutters," although "Revenge" carried a Parnall "Panther" on the fore barbette.

The ignorance of the British nation in general, in things that really concern the premier Naval Power in the world, is remarkable, and if one has the patience a very amusing time may be spent in listening to scraps of conversation concerning the very interesting array of all types of craft from "Furious," "Royal Oak," etc., down to the "K" submarines and the speedy Green engined C.M.Bs. which lay in four lines from a point opposite Leigh to well past Shoeburyness.—L. L. B.

MILITARY.

FROM THE "LONDON GAZETTE."

WAR OFFICE, JULY 15TH.

The King has approved of the award of the Military Medal for bravery in the field to the following Warrant Officer, Non-Commissioned Officers, and Men, Royal Air Force, for services in France, except where otherwise stated :—

9991 Cpl. L. Briffault (41st Squadron); 35291 Flt.-Serjt. A. Carey (15th Balloon Co.); 23271 Serjt. A. Clark (11th Balloon Sec.); 31415 Cpl. W. Clayton (4th Squadron); 47099 A.M./2 F. E. Cursley (149th Squadron); 24982 Cpl. C. J. F. Gibson (8th K.B. Sec.); 10098 Cpl. G. L. Goodger (59th Squadron); 37515 L.A.C. P. E. Groves (65th Squadron); 10618 Cpl. E. J. Hedale (No. 1 Aircraft Depot); 13677 Ch. Mech. P. Junor (15th Balloon Sec.); 7740 L.A.C. (actg. L./Cpl.) R. King (15th Wing); 96727 A.M./2 C. S. Lacey, (attd. 199th S. By. R.G.A.); 129247 A.C./2 B. H. Patman (45th Balloon Sec.); 36344 Flt.-Serjt. P. F. Renwick (14th Balloon Co.); 13345 L.A.C. (actg. Cpl.) H. Saunders (17th Squadron); 11081 Serjt. F. Sutherland (7th Squadron); 20827 A.C.1 H. P. White (1st K.B. Sec.); 134872 Cpl. H. S. Wildman (7th Squadron); 53074 A.M./2 J. Wood (41st Squadron); 54048 A.C.2 H. W. Youngs (Balloon Sec.), 404221 A.M.2 G. I. Tracey (Wireless Sec.) (Mesopotamia).

WAR OFFICE, July 15th.

REGULAR FORCES.—OVERSEAS FORCES.—CANADA.—Brit. Columbia R.—Temp. Lt. (actg. Capt.) R. I. Van-der-Byl ceases to be secd for duty with the R.A.F., June 23rd.

Can. Art.—The following temp. Lts cease to be secd. for duty with the R.A.F.—R. H. Luxton, A. H. Hinton, June 27th.

Brit. Col. R.—The following temp. Lts. cease to be secd. for duty with R.A.F. :—O. A. Rowan, March 27th; A. Grundy, June 27th.
Corps Can. Rly. Troops.—Temp. Lt. W. J. Hough ceases to be secd. for duty with R.A.F., June 27th

WAR OFFICE, July 16th.

REGULAR FORCES.—Infantry.—Service Battalions.—Shrops. L.I.—Temp. Lt. E. G. Rumfitt resigns his commn. on appt. to R.A.F., May 8th, 1918.

* * *

OFFICIAL COMMUNIQUÉ.

The following communiqué was issued at Simla on July 19th :—
Sniping and minor attacks occurred in the vicinity of Ali Masjid (south of the Khyber). Our aeroplanes bombed hostile gatherings at Chora.

* * *

A Bolshevist wireless message recently stated that a British aeroplane had been obliged to land in consequence of engine failure near the Northern Dvina. The crew of three aviators was taken prisoner.

* * *

The final assault of the Kuban Cossacks upon the fortress town of Tsaritsyn was assisted by aeroplanes and tanks.

* * *

On July 18th Mr. Churchill, Secretary of State for War, had a narrow escape in an aeroplane accident near Croydon. The pilot was badly injured and Mr. Churchill was severely shaken.

* * *

It is now believed that the cutting of telegraph wires between Midleton and Youghal on the night of July 19th was part of a well-planned but unsuccessful scheme to raid the military aerodrome near Killeagh.

On the morning of July 20th motor-cars full of men were seen passing through neighbouring villages, and four motor-cars stolen from city garages during the night of the 19th have since been found abandoned on roads in various parts of the country, while a fifth bearing a Waterford registration mark was also discovered on the roadside some miles from Killeagh.

The damage to the wires is estimated at £100

AIR FORCE.

FROM THE "LONDON GAZETTE."

AIR MINISTRY, July 15th.

The King has been pleased to approve of the following awards of the Distinguished Flying Cross, conferred by the General Officer Commanding the British Army in Mesopotamia :—

THE DISTINGUISHED FLYING CROSS.

Capt. J. S. BEATTY, 72nd Squadron.—During the operations near Sheroat, Oct. 24th to 30th, 1918, he rendered gallant service in harassing the enemy by machine-gun fire from very low altitudes, being vigorously fired upon the whole time. Capt. Beatty has always been conspicuous for gallantry and devotion to duty. On April 21st, 1918, he destroyed one enemy machine and brought down another out of control.

Lt. S. BULL, 30th Squadron.—Whilst engaged in bombing and machine-gunning hostile tribesmen at Khun, near Bushire, on March 6th, 1919, he saw that a brother officer had been shot down. Hoping that he might be alive, he attempted to land on absolutely unsafe ground at very close range fire from the enemy, but after touching the ground 12 yards from the crashed machine he saw at once that no hope could be entertained that the occupant was alive, by reason of the condition of the wreck, and he was accordingly compelled to abandon further action. The attempt at rescue involved much risk, as had he actually landed it is improbable that he would have been able to take off again, apart from the attention which the tribesmen would have given him at that time.

Capt. F. NUTTALL, M.C., 30th Squadron.—A gallant flight leader who has rendered valuable services in carrying out the most arduous duties in action, and has commanded his flight with great skill under exceptionally difficult conditions. On April 27th, 1918, near, Kirkuk, whilst engaged in attacking enemy troops from a low altitude, he was shot down, wounded.

Lt. M. S. MACKAY, 72nd Squadron, and Lt. R. P. POPE, 72nd Squadron (E. Surr. R.).—During the operations in Baku between August 25th and September 13th, 1918, they flew continuously over the enemy's positions, bombing and machine-gunning from low altitudes with great effect, in the face of very vigorous fire from the enemy throughout the whole period.

FOREIGN DECORATIONS.

The King has granted unrestricted permission for the wearing of the following decorations, conferred on the officers and other ranks indicated for valuable services rendered in connection with the war :—

CONFERRED BY THE PRESIDENT OF THE UNITED STATES.

AMERICAN DISTINGUISHED SERVICE MEDAL.

Maj.-Gen. Sir H. M. Trenchard, K.C.B., D.S.O. (R. Sc. Fus.).
Maj.-Gen. Sir J. M. Salmond, K.C.B., C.M.G., C.V.O., D.S.O. (R. Lanc. R.).
Maj.-Gen. Sir F. H. Sykes, K.C.B., C.M.G. (15th Hussars)
Lt.-Col. P. H. L. Playfair, M.C. (R.A.).
Maj. (actg. Lt.-Col.) E. R. Peal, O.B.E., D.S.C.
Maj. D. V. J. Blake (Aust. F. Corps).
The Rt. Hon. Lord Weir of Eastwood, P.C., late Secretary of State for the Royal Air Force.

CONFERRED BY THE PRESIDENT OF THE FRENCH REPUBLIC.

CROIX D'OFFICIER, LÉGION D'HONNEUR.

Maj. (actg. Lt.-Col.) E. R. Peal, O.B.E., D.S.C.
Lt.-Col. (actg. Brig.-Gen.) J. G. Weir, C.M.G., C.B.E. (R.A., T.F.).

CROIX DE CHEVALIER, LÉGION D'HONNEUR.

Capt. (actg. Maj. R. Addenbrooke-Prout, O.B.E., M.C.
Maj. F. C. Baker, D.F.C., A.F.C. (D.C.L.I.), 102nd Squadron.
Lt.-Col. A. V. Bettington, C.M.G.
Maj. B. L. Huskisson, D.S.C.
Maj. G. H. Loxley.
Lt. (actg. Capt.) D. R. MacLaren, D.S.O., M.C., D.F.C. (46th Squadron).
Lt.-Col. H. A. Van Ryneveld, D.S.O., M.C.

CROIX DE GUERRE AVEC PALME (FRENCH).

Lt. (actg. Capt.) W. G. Albu (N. Russia); Lt (actg Capt.) O. M. Baldwin, D.F.C. (9th Brig., France); Lt. A. M. Bannatyne (206th Squadron, France).
Lt. (actg. Capt.) G. L. Graham, D.F.C. (9th Brig., France); Lt. (actg. Capt.) W. B. Green, D.F.C. (9th Brig., France).
Maj. S. G. Hodges, M.C., A.F.C. (Wilts, Salonika); Col. (actg. Brig.-Gen.) R. E. T. Hogg., C.M.G. C.I.E. (I.A., France); Maj (actg. Lt.-Col.) A. V. Holt, D.S.O. (Roy. Hs., France); Maj. B. L. Huskisson, D.S.C. (France).
Sec. Lt. (Obsr.) J. McDonnell (North Russia); Lt. (actg. Capt.) D. R. MacLaren, D.S.O., M.C., R.F.C. (France); Lt. H. A. Miller (North Russia); Sec. Lt. H. J. Miles (100th Squadron, France); Lt.-Col. R. P. Mills, M.C., A.F.C. (Roy. F's, France).
Sec. Lt. (Obsr.) N. D. Nunan (North Russia).
Capt. R. A. Preston (France).
Sec. Lt. E. C. M. Reid (North Russia).
Lt. (actg. Capt.) E. J. Salter (9th Brig., France)
Lt. H. W. Tait, D.F.C. (11th Bal. Sec., France); Sec. Lt. F. F. Tattam (North Russia).
Capt. H. W. Woollett, D.S.O., M.C. (Linc. R., France).
64052 A./M.2 V. R. Bates (16th Bal. Sec., France); 2249 S./Mech. H. W. Bush (98th Squadron, France), 23964 A.M.1 W. Lambert (11th Bal. Sec., France); 140801 Serjt.-Mech. E. R. MacDonald (98th Squadron, France); 15399 Serjt. S. B. Percival (Manc. R.) (attd. 27th Squadron, France) (killed Aug. 14th, 1918); 25013 Serjt. L. C. Ovens (103rd Squadron, France); 224398 Pte. C. H. Taylor (97th Squadron, France)

THE MEDAILLE D'HONNEUR.

41300 A./M.2 G. K. Balls (56th Squadron) (en bronze); 42624 A./M.1 A. Cook (31st Bal. Sec.) (en bronze); 44463 A./M.3 C. Dickenson (100th Squadron) (en bronze); 1888 Ch. M./M. F. L. Dorber (2nd A.S.D.) (en vermeil); 1749 Ch. Mech. F. Francis (3rd R.L.P.) (en argent); 5888 Ch. Mech. C. M. Hayden (100th Squadron) (en argent); 3959 A./M.1 L. E. Hodges (12th Squadron) (en bronze), 8089 Ch. M./M. W. P. McElwee, (1A./D.) (en argent); 18305 Flt.-Clk. T. H. Phelps (2A./D.) (en argent); 13769 A./M.1 E. L. Porter (10th Squadron) (en bronze); 24255 A./M.1 J. Saltzberg (1A.S.D.) (en bronze), 37581 A./M.3 W. S. Taylor (55th Squadron) (en bronze); 26570 Cpl. F. Timms (3A./D.) (en bronze); 23000 Clk./1 H. J. Walters (1A./D.) (en bronze).

AWARDER THE MEDAILLE MILITAIRE.

202763 Serjt. P. J. Adkins, D.S.M., D.F.M. (Woolacombe); 406711 Serjt. A. S. Allan, M.M. (Perth); 313629 Serjt.-Mech. L. G. S. Boshier (Reading); 104285 A./M.2 T. Ferguson (Glasgow); 313774 A./C.1 R. A. Hollingsbee (Stifford, Essex); 407061 Serjt. G. Howard (Bradford-on-Avon); 10865 Cpl.-Mech. S. H. Howling (Peterborough); 26670 Cpl. (actg. Serjt.-Mech.) T. J. Hyde (Portadown); 207597 Serjt.-Mech. C. J. E. J. Jones (Cardiff); 76185 A./M.1 T. McDermott (Wakefield).

NOTE.—Officers and other ranks of the Royal Air Force whose names have appeared in the "London Gazette" as having been awarded Foreign Decorations, but who have not received them, are requested to inform the Secretary of the Air Ministry on Oct. 1st, 1919, should the decorations not be received meanwhile. The designation of the Decoration and the date of the "Gazette" in which the announcement appeared should be specified

(To be continued.)

* * *

R.A.F.—The following temp. appts. are made at the Air Ministry :—
Staff Officer, 1st Class (T.).—Maj. A. Struben, O.B.E., June 1st
Staff Officer, 2nd Class (T.).—Capt. H. T. Humfress, June 1st.
The following temp. appt. is made :—Staff Officer, 2nd Class (T.).—Capt. W. J. B. Curtis, O.B.E., June 1st.
FLYING BRANCH.—Capt. W. R. Read, M.C., A.F.C., to be actg. Maj. whilst empld. as Maj. (A.), June 4th.
Capt. B. E. Baker, D.S.O., M.C., A.F.C., to be graded for purposes of pay and allces. as Maj. whilst empld. as Maj. (A.), May 1st.
Capt. A. N. Gallehawk to be graded for purposes of pay and allces as Maj. (A. and S.) whilst specially empld., May 15th.
Capt. R. S. Smith to be graded for purposes of pay and allces. as Maj. whilst empld. as Maj. (K.B.), May 1st.
Capt. W. R. Mackenzie, D.S.C., to be Capt. (S.), from (Ad.), June 6th.
Lt. D. C. W. Sanders to be actg. Capt. whilst empld. as Capt. (A.), from Oct. 3rd, 1918, to April 30th.
Lt. L. Balfour to be actg. Capt. whilst empld. as Capt. (K.B.), May 1st.
Lts. to be graded for purposes of pay as Capts. whilst empld. as Capts. (A.) :—V.-W. Burgess, A. L. Chick, A.F.C., M. V. McKeon, E. H. Russell, May 1st.
Lt. J. S. Giffard to be graded for purposes of pay and allces. as Capt. whilst empld. as Capt. (K.B.), from May 1st to June 13th.
Lt. H. L. Macro, D.F.C., to be graded for purposes of pay and allces. as Capt. whilst empld. as Capt. (S.), May 1st.
Lt. A. G. Lamplugh ceased to be graded for pay and allces. as Capt. (A.), June 20th.
Lts. to be Lts. (A.), from (Ad.) :—E. P. Moxey, May 21st; H. R. Eycott-Martin, M.C., June 27th.
Lt. L. H. Phelps to be Lt. (O.), from (Ad.), Jan. 21st.
Sec. Lt. C. J. Craft to be Lt., May 17th.
Sec. Lt. H. Wensley (late Gen. List, R.F.C., on prob.) is confirmed in rank as Sec. Lt. (A.), Feb. 7th.
Sec. Lt. C. O. Rigden (late Gen. List, R.F.C., on prob.) is confirmed in rank as Sec. Lt. (A.), Feb. 7th.
H. D. E. Rolland (Lt., Quebec R.) is granted a temp. commn. as Sec. Lt. (O.), Nov. 6th, 1918, and to be Hon. Lt.
R. A. Coward (Sec. Lt., E. Lan. R.) is granted a temp. commn. as Sec. Lt. O.), Nov. 7th, 1918.
The following relinquish their commns. on ceasing to be empld. :—Lt. W. McL. Walbank (Lt., Can. F. Art.), March 31st; Lt. J. C. F. Owen (Capt., Can. A.S.C.), April 30th; Lt. (Hon. Capt.) G. M. Brawley (Capt., Cent. Ont. R.), May 15th; Lt. C. B. Green (Lt., Cent. Ont. R.), May 16th; Sec. Lt. (Hon. Lt.) J. B. McKenzie (Lt., West Ont. R.), June 1st; Sec. Lt. (Hon. Capt.) C. A. Mackintosh-Walker (Capt., Cameron Highrs.), June 12th; Lt. H. A. E. Matthews (Lt., Dorset R.), June 20th; Lt.-Col. A. C. Barnby (Maj., R. Marines), June 21st; Maj. A. H. Morton, M.C. (Capt., R.H. and R.F.A.), June 22nd; Sec. Lt. (Hon. Lt.) T. Varcoe (Lt., R.H. & R.F.A.), June 23rd; Sec. Lt. (Hon. Lt.) G. H. Bisaillon (Lt. Can. Forestry Corps), June 27th; Lt. T. S. Russell-Rigby (Lt., Alberta R.), July 3rd; Lt. H. R. Kincaid, M.C. (Lt., E. Ont. R.), July 4th; Lt. D. H. Macintyre (Lt., Arg. and Suthd. Highrs.), July 7th.
Transfrd. to the unempld. list.—Sec. Lt. T. Welch, Jan. 13th; Lt. (actg. Capt.) F. B. Towers, Jan. 28th; Sec. Lt. C. A. Sander, Jan. 30th; Lt. J. Turner, Feb. 12th; Sec. Lt. P. Cunningham, Feb. 13th; Lt. A. L. T. Taylor, Feb. 18th; Lt. V. C. Tiarks, Feb. 19th; Sec. Lt. R. L. Hayden, Feb. 21st; Capt. A. W. Wright, Feb. 27th; Sec. Lt. J. A. Tomson, March 7th; Maj. R. E. Childers, D.S.C., March 10th; Sec. Lt. (Hon. Lt.) F. S. Tooley, M.C., March 15th; Sec. Lt. F. Brown, March 16th; Sec. Lt. E. Tomkins, March 22nd; Sec. Lt. (Hon. Lt.) C. S. Groves, April 5th; Lt. G. O. Shiner, April 7th; Lt. J. R. Hodgkinson, Sec. Lt. A. Thompson, April 8th; Sec. Lt. J. H. Hartle, Sec. Lt. L. S. Macdonald, Sec. Lt. G. M. Miller, Sec. Lt. R. E. Walker, April 9th; Sec. Lt. N. A. S. Kelly, April 10th; Capt. J. K. T. Glen, Sec. Lt. D. W. Thomas, April 11th; Lt. D. Ive, Lt. R. L. Kent, Lt. J. W. Sanders, April 12th; Sec. Lt. M. H. F. De Haerne, Lt. B. I. Johnstone, April 13th; Sec. Lt. H. A. Sanders, April 14th; Sec. Lt. H. W. Howes, Lt. A. Ibbotson, April 15th; Sec. Lt. A. N. Kelsey, Sec. Lt. C. H. P. Killick, Sec. Lt. F. D. Kilts, Sec. Lt. J. Sandford, Sec. Lt. J. D. Todd, April 15th; Lt. (Hon. Capt.) W. E. B. Barclay, M.C., Lt. R. G. Holt, Lt. W. J. H. Horrocks, M.C.,

Sec. Lt. F. J. Tilley, April 16th; Sec. Lt. (Hon. Lt.) W. U. Hodson, M.C., Lt. F. J. Hopgood, Sec. Lt. R. C. Iles, Sec. Lt. A. Tibbles, Sec. Lt. A. E. Titchmarsh, April 18th; Sec. Lt. F. Camerson, Sec. Lt. A. K. Colley, Lt. H. G. Corsan, Lt. J. L. Grant, Capt. A. R. S. C. Kennedy, Lt. E. S. Sawtell, Sec. Lt. F. W. Tucker, April 19th; Lt. F. Horsley, April 20th; Lt. W. H. Taylor, Lt. A. E. Turvey, Sec. Lt. C. R. Wolfendale, April 24th; Lt. S. H. Taylor, April 25th; Lt. J. C. Hopkins, Sec. Lt. M. C. Kerr, Lt. (Hon. Capt.) E. A. Thomas, April 26th; Lt. (actg. Capt.) C. J. Thompson, A.F.C., Lt. D. C. Townley, April 27th; Lt. J. A. Dear, Sec. Lt. A. W. Sawyer, Lt. (actg. Capt.) H. W. Taylor, Sec. Lt. A. Terry, April 29th; Lt. T. B. Burns, Lt. F. M. Green, Sec. Lt. A. A. Tutte, D.F.C., April 30th; Sec. Lt. J. R. Taylor, May 1st; Lt. E. G. S. Gordon (H.L.I.), Capt. H. W. Kingdon, May 3rd; Lt. A. G. Hodgson, Capt. C. S. Iron, May 6th; Sec. Lt. (Hon. Lt.) E. Knowles, Lt. C. G. Slade, Sec. Lt. P. M. Tidmarsh, May 7th; Sec. Lt. H. A. Graham, Lt. R. R. King, Sec. Lt. (Hon. Lt.) G. A. R. Slimming, Sec. Lt. C. Thomas, Sec. Lt. A. N. Thomson, May 8th; Lt. N. S. Garrett, Lt. K. E. Tanner, May 9th; Sec. Lt. H. Griffiths, Lt. D. H. Howitt, May 11th; Sec. Lt. J. Grant, Capt. F. R. Sadd, Sec. Lt. G. F. Taylor, May 12th; Lt. G. G. Callender, Capt. F. J. Dean, May 13th; Capt J. Hodson, Lt. T. H. Thorpe, Sec. Lt. W. E. De Turberville, Sec. Lt. J. H. V. Wood, May 14th; Lt. C. W. Skeet, Sec. Lt. C. H. Slater, Sec. Lt. M. H. C. Slaytor, May 15th; Lt. G. Irwing, Lt. E. H. King, Sec. Lt. H. E. Talbot, May 16th; Sec. Lt. P. B. Townsend, May 17th; Capt. W. Durrand, M.C., Capt. M. W. Turner, May 18th; Sec Lt. A. Critchley, Sec. Lt. H. R. French, Lt. W. R. Kingsland, May 19th; Capt. G. Breadner, Sec. Lt. F. H. V. Coomer, Sec. Lt. H. F. Feascl (substituted for notification in "Gazette," May 20th); Sec. Lt. S. W. Gee (substituted for notification in "Gazette," May 13th); Sec. Lt. W. R. Godard, Sec. Lt. C. Guild, Capt. J. G. Ireland, A.F.C., Sec. Lt. J. W. King, Sec. Lt. S. Thomas, May 20th; Sec. Lt. J. G. Crossley, Sec. Lt. F. J. Dawson (substituted for notification in "Gazette," May 9th), May 21st; Lt. P. N. Hoyle, Sec. Lt. W. Kidd, Lt. S. E. Taylor, May 22nd; Sec. Lt. G. W. H. De Carter, Lt. E. R. V. Collett, Sec. Lt. (Hon. Lt.) C. G. Tanner, Sec. Lt. C. E. Whyte, May 23rd; Lt. G. T. Shuttleworth, Sec. Lt. A. Whiteley, May 24th; Sec. Lt. C. F. L. Chester, Sec. Lt. H. C. Killen, May 25th; Lt. P. Burrowes, Sec. Lt. R. C. Freemantle, May 26th; Lt. W. E. G. Cutler, Sec. Lt. S. H. L. Kelly, Lt. P. Kershaw, Lt. (actg. Capt.) T. Owen, M.C., Capt. H. A. B. Robb, M.C., A.F.C., May 27th; Sec. Lt. C. J. Craft, Lt. (Hon Capt.) B. F. G. Cunliffe, Lt. J. N. Garnett, Sec. Lt. J. R. King, Lt. H. Tomlinson, May 28th; Sec. Lt. R. L. Brown, Lt. B. D. Clark, Sec Lt. C. F. Gates, Lt. G. W. T. Glasson, Lt. G. C. Hope, Lt. F. G. Taylor, A.F.C., Sec. Lt. W. Taylor, Lt. G. V. Wheatley, Lt. H. D. White, May 29th; Sec. Lt. C. P. Butler, Lt. B. G. Chalmers, Lt. D. Chisholm, Sec. Lt. I. J. Sankey, Lt. R. A. Slipper, Sec. Lt. W. A. Taunton, Sec. Lt. C. M. Taylor, May 30th; Sec. Lt. (Hon. Lt.) R. E. Carles, M.C., Sec. Lt. D. Neale, Lt. G. R. O'Sullivan, Sec. Lt. R. R. H. Taylor, Sec. Lt. M. H. Tench, Lt. H. C. Tussaud, May 31st; Sec. Lt. S. R. Clutterbuck, A.F.C., Lt. F. Sidebotham, Sec. Lt. J. R. Smith, June 1st; Sec. Lt. R. E. Cole, Sec. Lt. S. G. Cook, Sec. Lt. A. R. C. Greene, Sec. Lt. A. C. T. Isaac, Capt. G. M. Kingsmill, Sec. Lt. S. H. Thornton, June 2nd; Lt. A. M. G. Cosgrave, Lt. L. G. Gallwey, Sec. Lt A. D. Kennedy, Capt. T. Kennie, Lt. P. S. Kershaw, Lt. C. K. Medlen, Lt. W. H. Oatley, Sec. Lt. A. P. Thompson, June 3rd; Sec. Lt. C. J. Baldcock, Lt. H. Izard, Lt. G. F. Sams, June 4th; Sec. Lt. J. C. Campbell, Sec. Lt. C. W. S. Chalmers, Sec. Lt. E. E. Jones, June 5th; Lt. D. F. Anderson, Lt. R. T. Stubington (Hants R., T.F.), June 6th; Lt. A. V. Crebbin, Capt. W. H. Tolhurst, Sec. Lt. G. A. Treadgold, June 7th; Capt. A. L. Taylor, June 8th; Sec. Lt. B. O. Bracey, Sec. Lt. G. G. Cooper, Lt. P. L. Goudie, Lt. T. P. Issac, Lt. B. W. P. Kirby, Lt. J. N. Ogilvie, Sec. Lt. J. R. A. Savidge, June 10th; Sec. Lt. A. N. Burningham, Capt. C. T. Holmes, Lt. F. W. Knox, Lt. (Hon Capt) N. Senior, June 11th; Sec. Lt. M. R. Brown, Sec. Lt. S. de V. Clarke, Lt. J. B. L. H Cordes, Lt. R. N. Iverach, Sec. Lt. (Hon. Lt.) L. Kershaw, Capt. H. F. Saunders, Lt. F. J. Truss, June 12th; Sec. Lt. E. S. Banfield, Lt. G. A. Boast, Sec. Lt. W. T. Brownlee, Lt. H. G. Burrell, Sec. Lt. M E. Challis, Sec. Lt. H. H. Clarke, Sec. Lt. R. Cohen, Sec. Lt. N. Cook, Sec. Lt. G. A. Coulter, Lt. R. V. Cullinan, Sec. Lt. T. Gray, Sec. Lt. D. H. Houston, Sec. Lt. L. Inggs, Sec. Lt. (Hon. Lt.) H. W. Kelly, Lt G. K Kernick, Sec. Lt. H. L. Knight, Lt. G. K. MacGregor, Capt. C. R. Morrish, D.S.C., Sec. Lt. N. E. Ohman, Lt. N. C. Saward, Lt. R. T. Shepherd, Lt. E. M. Slatter, Sec. Lt. (Hon. Capt.) H. W. Stockdale, Sec. Lt. K. R. Thomas, June 13th; Capt. P. Brend, A.F.C., Sec. Lt. A. C. Buchanan, Sec. Lt. L. T. Caithness, Sec. Lt. C. U. Church, Sec. Lt. E. M. Connell, Sec. Lt. J. S. Cooper, Sec. Lt. L. G. Crowder, Sec. Lt. V. M. V. Field, Lt. V. Gordon, Sec. Lt. H. J. C. Kelly, Sec. Lt. C. D. Kinmont, Lt. J. L. Sawyer, Lt. D. T. Simpson, Lt. F. C. Stanton, D.C.M., Sec. Lt. A. H. Wood, Sec. Lt O. Wood, June 14th; Lt. S. C. Spink, Lt. J. H. Williamson, Lt. F. F. Woodyer, June 15th; Sec. Lt. A. J. Cundill, Sec. Lt. G. E. Izzard, Sec. Lt. G. A. Munro, Lt. (Hon. Capt.) A. Storey, June 16th, Sec. Lt. A. Chettle, Lt. M. J. Clark, Sec. Lt. H. H. Salmon, Lt. J. A. Turnbull, June 17th; Lt. P. V. Burton, Sec. Lt. A. B. Campbell, June 18th; Sec. Lt. (Hon. Lt.) C. C. Blizard, Sec. Lt W. P. E. S. Waller, June 19th; Sec. Lt. (Hon. Lt.) R. S. Cole, Sec Lt. J. S. Corrigan, Sec. Lt. J. A. Neill, June 20th; Sec. Lt. C. Buckingham, Lt. W. Guy, June 21st; Capt. H. J. Butler, A.F.C., Lt. W. F. L. Castle, Lt. F. L. M. Harris, June 22nd; Sec. Lt. G. Biddell, Capt. P. C. Garrat, June 24th; Capt. J. E. Barrs, D.S.C., Capt. J. R. Blunt, Lt. E. G. W. Coward, Lt. A. W. P. Cumming, Sec. Lt. H. J. Graves, Lt R. Morrogh, Lt. C. O. Rusden, Lt. F. Tapping, Lt. W. C. Tempest, June 25th; Sec. Lt. H. V. Bell, Lt. J. K. Finlay, Sec. Lt. S. T. Stidolph. Lt. B. Thomas, June 26th, Sec. Lt. W. Barrett Lt. W. A. Clark, Lt. E. S. Vincer (R. Dub. Fus.), June 27th; Sec. Lt. T. V. Beatty, Lt. H. A. Cooper, Lt. A. R. Kelly, Lt. A. C. Kilburn, Capt. A. A. Wallis, June 28th; Sec. Lt. (Hon. Lt.) G. H. Tarras, Sec. Lt. G. E. C. Wisdom, June 29th; Capt. J. S. D. Berrington, Capt. P. G. K. Bridgwood, Lt. V. C. Chapman, June 30th; Sec. Lt. E. Head, Sec. Lt. R. M. King, Sec. Lt. W. S. Marshall, Sec. Lt. R. S. F. Nickoll. Lt. K. T. Nicol, Capt. W. Perham, July 1st; Sec. Lt. G. A. Kelly, Sec. Lt. E. J. Orr, July 2nd; Lt. T. H. Barton, Lt. J. S. Common, Sec. Lt. R. H. Cross, Lt. C. E. Kelly, Lt. G. O. Newton. D.F.C., Lt. J. S. Tarbolton, July 3rd; Lt. W. J. McSweeney, Sec. Lt. E. Purton, July 4th; Sec. Lt. C. H. Moore, Lt. A. L. Taylor, Maj. E. G. Tove, Capt. A. C. Wyness, July 5th; Sec. Lt. W. F. Bates, Sec. Lt. E. F. Coyle, Sec Lt. F. C. King, July 6th. Lt. L. R. Curtis, July 7th; Sec. Lt. A. G. Clarke, Sec. Lt. R. E. Goodfellow, Lt. C. Thomas, July 9th; Lt. A. V. Bickley, Sec. Lt. H. V. Hinwood, Sec. Lt. A. Ingram, Lt N. D. K. Kennedy, Lt. G. N. McBlain, Sec. Lt. G. I. Murray, Sec. Lt. J. L. Norton, Sec. Lt. R. R. Nott, July 10th; Lt. F. B. Baragar, A.F.C., Lt. H. K. Boysen, Lt. E. K. Davidson, Sec. Lt. F. St. L. Devenish, Lt. F. E. Didcott, Sec. Lt. G. R. Duthie, Sec. Lt. R. R. G. Duthie, Sec. Lt. H. C. Edmeades, Sec. Lt. S. R. Hooper, Sec. Lt. L. M. Kelly, Sec. Lt. F. G. Noble, Sec. Lt. H. T. O'Connor, July 11th; Sec. Lt. E. Arnold, Lt. A. P. Bell, Lt. W. M. Blackie, M.C., Lt. W. Breckenridge, Lt. I. N. Clark, Sec. Lt. A. R. W. Dalley, Sec. Lt N. W. Davidson, Lt. H. E. Davies, Sec. Lt R. B. J. Daville. Sec. Lt. T. G Dennis, D.F.C., Sec. Lt. G. E. De Siena, Sec. Lt. A. M. Duggan, Lt. A. M. Dunstan, Lt. H. J. Emery, Sec. Lt. A. C. Evans, Sec. Lt. A. G. Everett, Sec. Lt. A H. Fitton, Sec. Lt F. J. Flahiff, Sec. Lt. R. H. Ford, Lt. E. P. Fulton, Sec. Lt. L. G. Howard. Sec. Lt. R. D. V. Howard, Sec. Lt. G. H. Hunter, Sec. Lt H. I. V. Jacobs, Lt. M. E. Jones, Sec. Lt. G. P. Kells, Sec. Lt. J. R. Kennedy, Sec. Lt. J. H. Knowles, Sec. Lt. J. W. MacEwen, Sec. Lt F. A. McHugh, Lt. W. G. Mackenzie, M.C., Sec. Lt. O. J.McNally, Sec. Lt. G. H. Manly, Sec. Lt. J. E. Manson, Sec. Lt. F. W Mesinger, Sec. Lt. G. Moore, Sec. Lt. G. J. Moore, Sec. Lt. H. V. Morehouse, Sec. Lt. E. T. Morris, Sec. Lt. W. E. Mosher, Sec. Lt. H. M. Mosley, Lt. R. C. Muir, Sec. Lt. W. Muirhead, Lt. J. P. Murphy, Sec. Lt. L. A. Myles, Sec. Lt. T. F. Naylor, Sec. Lt. J. F. Nelson, Lt. C. H. Ney, Sec. Lt. C. G. Nuttall, Lt. D. A. O'Leary, Lt. H. B. Oldham, Lt. J. R. Park, Sec. Lt. G. Pascal, Sec. Lt J. G. Pearson, Sec Lt. H. H. Pheeney, Sec. Lt. W. L. Phelan, Sec Lt. H. Pinkerton, Sec. Lt. G. McG. Pinkerton, Lt. N. P. Playford, Sec. Lt. W. P. B. Pugh, July 12th; Sec. Lt. S. M. Anderson, Sec. Lt. T. H. Blatchford, Lt. M. J. Du Cray, Sec. Lt. S. C. Foster, Lt. J. C. Griffith, Lt. D. L. Hobson, July 13th; Capt. J. M. Allport, Sec. Lt. J. L. Davis, July 14th.

Capt. G. H. Morton (Brit. Columbia R.) relinquishes his commn. on account of ill-health, July 1st.

Lt. J. A. B. Colin relinquishes his commn. on account of ill-health, and is permitted to retain his rank, June 19th.

The following Lts. relinquish their commns. on account of ill-health contracted on active service:—G. M. Shaw (Cent. Ont. R.), March 12th (substituted for notification in "Gazette" of June 20th); J. Y. Baird (Sco. Rif.), July 9th, Lt. R. S. Herring, M.C. (Lon. R.) (caused by wounds), July 17th.

Lt. R. Tyack resigns his commn., July 16th.

Lt. P. A. H. de Metz to take rank and prec. as if his appt. as Lt. bore date July 1st, 1918.

Lt. H. S. Symons to take rank and prec. as if his appt. as Lt. bore date April 1st.

Lt. E. A. Clear to take rank and prec. as if his appt. as Lt. bore date June 13th.

The following Sec. Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank:—H. A. Lye (caused by wounds), July 4th (substituted for notification in "Gazette" of Jan. 10th); W. H. Saunders (contracted on active service), July 8th.

The following Sec. Lts. resign their commns.:—J. H. Doughty-Davies, J. Hunt, July 16th.

Sec. Lt. J. B. O'Neil is dismissed the Service by sentence of a Gen. Court-martial, June 23rd.

The rank of Lt. T. G. Murray is as now described, and not "Sec. Lt." as stated in "Gazette" of Feb. 14th.

The rank of Lt. W. I. Goddard is as now described, and not "Sec. Lt." as stated in "Gazette" of July 4th.

The notification in the "Gazette" of Oct. 25th, 1918, concerning 475312 Cadet G. C. Boyer is cancelled.

The notification in the "Gazette" of March 18th concerning Sec Lt. S. G. Shand is cancelled.

The notification in the "Gazette" of April 25th concerning Sec. Lt. L. S. Macdonald is cancelled.

The notification in the "Gazette" of May 23rd concerning Sec. Lt. J. A. De Gaye is cancelled.

The notification in the "Gazette" of June 13th concerning Lt. F. E. Short is cancelled. (The notification in the "Gazette" of June 3rd to stand.)

Administrative Branch.—Majs. to be Majs., from (S.O.):—A. B Winch, March 19th; H. A. Moore, C.B.E., M.C., July 1st

Lt. (Hon. Capt.) C. H. Lewis to be actg. Maj. whilst empld. as Maj., May 1st.

Capt. W. G. Scott to be actg. Maj., without pay and allces. of that rank, whilst empld. as Recruiting Officer, May 1st.

To be graded for purposes of pay and allces. as Capts., and to be actg. Majs., without pay and allces of that rank, whilst empld. as Recruiting Officers:—Lt. F. T. Chapman, Lt. R. Tait, Lt. G. B. Redgrave, Lt. A. R. Harris, Lt. F. V. Bell, Sec. Lt. A. E. H. Hales, May 1st.

Capts. to be Capts., from (S.O.):—K. B. Harbord, March 15th; R. S. Lindsell, O.B.E., June 1st, G. C. Corry-Smith, July 1st.

Lts. to be actg Capts. whilst empld. as Capts.:—K. A. Meek. F. H. Sims, May 1st.

Lt. A. G. Maddock to be actg. Capt. whilst specially empld., from (T.), from Dec. 21st, 1918, to April 30th.

Lts. to be graded for purposes of pay and allces. as Capts. whilst specially empld.:—A. G. Maddock, to June 13th; H. B. Stutfield, May 1st.

Lts. to be graded for purposes of pay and allces. as Capts. whilst empld. as Capts.:—G. W. T. Pireira, J. J. Wilson, H. W. G. Ripley, May 1st.

Lt. (Hon. Capt.) (actg. Capt.) G. M. Smyth to be Lt., from (S.O.), and to relinquish the actg. rank of Capt, April 1st.

Lt. G. A. F. Hudson to be Lt., from (S.O.), June 25th.

Sec. Lt. H. O. Warren to be Sec. Lt., from (A.), Nov. 25th, 1918 (substituted for the notification in the "Gazette" of Feb. 18th).

Transferred to unempld. list:—Sec. Lt. R. E. Jeffrey, Feb. 8th; Lt. G. H. Tait, Feb. 18th; Sec. Lt. (actg. Lt.) H. W. L. Tottenham, Feb. 27th; Lt. (actg. Maj.) W. H. Taylor, March 10th; Sec. Lt. A. S. Turner, March 30th; Sec. Lt. (actg. Lt.) S. M. Stringfield, April 1st; Maj. A. M. Grenfell, D.S.O., April 2nd; Sec. Lt. (Hon. Capt.) A. P. Thompson, April 13th; Lt. C. F. Cunningham, April 17th; Sec. Lt. T. A. Kennedy, April 19th; Lt. G. S. F. Tomlin, April 25th; Lt. (actg. Capt.) S. H. Twining, Sec. Lt. A. K. Whiteman, April 30th; Lt. H. L. T. Templeton, May 1st; Sec. Lt. E. J. Slee, May 2nd; Capt. P. N. B. King, Sec. Lt. C. F. Whalley, May 3rd; Lt. W. J. Guthrie, May 9th; Lt. J. G. Burchett, M.C., May 10th; Sec. Lt. H. N. Cliffe, Sec. Lt. A. M. Hooper, May 15th; Sec. Lt. J. C. Cooke, May 16th; Sec Lt. G. D. King, May 20th; Sec. Lt. H. G. Hooker, Sec. Lt. L. J. Timms, May 21st; Sec. Lt. (Hon. Lt.) W. L. Kendrick, May 22nd; Capt. A. G. Shortt, May 23rd; Lt. F. R. Bush, Lt. B. Whitaker, May 25th; Sec. Lt. C. W. Kerr, Lt. A. E. Kennedy, May 26th; Sec. Lt. S. Cooper, Lt. S. Thompson, May 27th; Lt. D. H. Thomas, May 28th; Sec. Lt. A. B. Cocke, May 29th; Sec. Lt. (Hon. Lt.) I. L. P. Cort, Maj. V. J Kelly, May 31st; Sec. Lt. P. M. Cooke, Lt. H. J. Ough, Sec. Lt. C. F. W Toone, June 3rd; Lt. F. H. Bushell, June 5th; Sec. Lt. W. H. Dibben, June 6th; Sec. Lt. C. L. R. Treleaven, Lt. (Hon. Capt.) M. A. Trotter, June 7th; Sec. Lt. J. Tunbridge, June 8th; Lt. R. R. Byrne, June 9th; Capt. G. A. Brown, Lt. A. L. Trainer, June 10th; Sec. Lt. A. J. E. Bryant, Lt. J. A. Crozier, Sec. Lt. G. Overton, June 11th; Sec. Lt. P. A. Miller, June 12th; Sec. Lt. G. C. Betts, Sec. Lt. J. R. Brent, June 13th; Sec. Lt. F. L. Catterall, Lt. N. L. Kelly, June 14th; Lt. R. Massey, June 15th; Lt. C. F. Bulmer, June 16th; Lt. E. P. Spriggs, June 17th; Sec. Lt. E. H. Hebden-Phillips, June 19th; Sec. Lt. W. N. Crimp, June 20th; Sec. Lt. G. V. Yeabsley, June 21st; Lt. C. Baines, Lt. A. C. Corbetta, June 24th; Lt (Hon. Capt.) R. G. Kitson, June 27th; Lt.-Col. W. E. S. Burch, Sec. Lt. W. F. Gonzalez, June 30th; Capt E. C. Baker, Lt F. Badham, Sec. Lt. H. H. Wake, July 1st; Sec. Lt A. T. Belton, Lt. A. W. Chadwick, D.F.C., Sec. Lt. A. Dayton, Lt. H. Goodwin, July 2nd; Lt. J. W. D. Farrell, July 3rd; Sec. Lt. P. Mendoza, July 4th; Lt. J. H. Underwood, July 8th; Sec. Lt. J. C. Duncan, Sec. Lt. W. E. H. Dymock, Sec. Lt. P. E. Keening, July 11th; Sec. Lt. R. H. Gray, Lt. H. E. Gridley, Lt. S. E. Cane, Sec. Lt. A. E. Hopkins, Sec Lt. T. R. Nichols, Lt. G. R. C. Oliver, Lt. F. P. Watts, July 12th; Sec. Lt. P. M. Burgess, July 14th.

The following Capts. relinquish their commns. on account of ill-health:—R. L. Kennedy (Lt., Hrs.) (caused by wounds), July 3rd; J. W. W. Bridges (Coldstream Gds.) (contracted on active service), July 10th.

Lt. H. M. Tysoe to take rank and prec. as if his appt. as Lt. bore date Nov. 12th, 1918.

Sec. Lt. F. C. Hilbert relinquishes his commn. on account of ill-health, and is permitted to retain his rank, June 11th.

The following Sec. Lts. resign their commns.:—C. W. Garrood, A. Giles, July 16th.

The notification in "Gazette," Dec. 24th, 1918, concerning Sec. Lt. G. Barfoot-Saunt is cancelled.

The notifications in "Gazette," March 14th and March 28th, concerning Sec. Lt. A. P. Manners are cancelled.

The notification in "Gazette," April 18th, concerning Capt. P. Le G. Gribble is cancelled.

The notification in "Gazette," May 23rd, concerning Lt. C. F. Morris is cancelled (notification in "Gazette," June 20th, to remain)

TECHNICAL BRANCH.—Majs. to be actg. Lt.-Cols. whilst empld. as Lt.-Cols., Grade (A):—A. S. Morris, O.B.E., C. G. Smith, O.B.E., R. F. Stapleton-Cotton, May 1st.

Capt. L. H. B. Cosway to be actg. Maj. whilst empld. as Maj., June 1st.

Capt. W. W. Hall to be actg. Maj. whilst empld. as Maj., Grade (A), May 1st.

Lt. T. L. F. Burnett to be actg. Maj. whilst empld. as Maj., Grade (B), May 1st.

To be graded for purposes of pay and allces. as Majs. whilst empld. as Majs., May 1st:—Capt. (Hon. Maj.) C. C. Colley (Grade A), Lt. R. W. Davies (Grade A), Capt. J. C. Forsyth (Grade B).

To be actg. Capts whilst empld. as Capts., Grade (A):—Sec. Lt. J. A. Atkinson, from Dec. 10th, 1918, to March 8th (substituted for notification in "Gazette," May 30th); Lt. J. H. Secker, May 1st.

To be actg. Capts. whilst empld. as Capts., Grade (B):—Lt. J. R. Frankish, Lt. E. E. Porter, to May 28th; Lt. H. G. Wood, Sec. Lt. J. H. Lytle, May 1st.

Lts. to be graded for purposes of pay and allces as Capts. whilst empld. as Capts., Grade (A):—C. C. Bracebridge, C. M. Seth-Ward, to May 12th; (Hon. Capt.) R. Godfrey, J. Shields, H. G. Thomas, May 1st; H. A. Adams, May 13th.

To be graded for purposes of pay and allces. as Capts. while empld. as Capts., Grade (B):—Lt. O. W. de Putron, Sec. Lt. (actg. Lt.) W. A. Fowler, May 1st.

Lt. A. W. Allan to be Lt., Grade (A), from Grade (B), March 2nd.

Lt. T. Kerr-Jones to be graded for pay and allces. as Lt. while empld as Lt., Grade (A), from April 4th to 30th.

Lt. A. Garrity to be graded for pay and allces. of Lt. while empld. as Lt., Grade (B), Oct. 3rd, 1918 (substituted for notification in "Gazette," Dec. 17th, 1918).

Lt. E. L. Pollard to be Lt., Grade (B), from (O.), May 22nd, 1918 (substituted for the notifications which appeared in "Gazettes" June 28th, 1918, and Feb. 28th).

Sec. Lts. to be Lts.:—F. W. Atkinson, Dec. 30th, 1918 (substituted for notification in "Gazette," Jan. 3rd); E. G. Hellard, Feb. 16th.

Sec. Lt. C. Littlejohn to be actg. Lt. while empld. as Lt., Grade (B), May 1st.

Transferred to unempld. list:—Lt. A. E. Turner, M.C., M.M., Jan. 18th; Sec. Lt. A. P. Manners, Feb. 18th; Lt. D. Taylor, Feb. 22nd; Lt. E. Cooke, March 17th; Lt. (actg. Capt.) R. J. Shanks, March 31st; Sec. Lt. J. S. Hodgson, Lt. C. H. Knight, Sec. Lt. S. Kennedy, April 10th; Sec. Lt. (Hon. Lt.) C. W. Burgess, April 12th; Capt. E. W. Sharp, Sec. Lt. (actg. Lt.) T. Walker, April 16th; Lt. (actg. Capt.) W. H. Hoffert, April 17th; Sec. Lt. A. H. James, April 18th; Sec. Lt. P. B. Harris, Sec. Lt. W. A. Isaac, April 23rd; Maj. (actg. Lt.-Col.) A. K. Hall, O.B.E. (substituted for notification in "Gazette," June 24th); Sec. Lt. (actg. Lt.) T. G. Kennard, April 30th; Sec. Lt. H. S. Given; Sec. Lt. T. F. Taylor, May 2nd; Sec. Lt. W. N. Edwards, Sec. Lt. F. Sharpe, May 3rd; Lt. H. E. Tabor, May 8th; Sec. Lt. H. P. Greenhill, Capt. G. A. Turner, May 11th; Lt. W. J. King, Lt. D. J. Reason, Sec. Lt. F. C. Thornton, May 13th; Lt. S. H. Thomas, Lt. G. J. Woods, May 14th; Sec. Lt. S. H. Child, May 15th; Lt. J. W. McKee, May 20th; Sec. Lt. (Hon. Lt.) R. P. Cooper, May 23rd; Lt. T. Woodman, May 25th; Lt. A. E. Reynolds, May 26th (substituted for notification in "Gazette" May 30th); Sec. Lt. S. G. Bunster, May 27th, Lt. W. N. Connah, Lt. A. T. Crook, Lt. E. Gallagher, Lt. H. K. Gibson, May 28th; Lt. B. S. Crimp, May 29th; Capt. G. Caird, Capt. J. W. Taylor, June 1st; Maj. R. Bull, Sec. Lt. A. R. N. Challacombe, Lt. G. Glen, June 4th; Capt. G. H. Creighton, June 5th; Sec. Lt. E. C. Owens, Sec. Lt. H. Tomlinson, June 6th; Sec. Lt. W. B. Close, June 7th; Capt. R. Rainford, June 10th; Sec. Lt. S. W. Crawford, June 12th; Capt. P. G. Burton, Lt. C. W. B. Tubbs, Capt. H. S. V. Thompson, June 13th; Sec. Lt. W. M. Brodie, June 15th; Sec. Lt. T. G. Callard, Lt. P. W. H. Twyman, June 16th; Lt. T. H. Cooper, Sec. Lt. (Hon. Lt.) R. P. Graham, Sec. Lt. H. H. Kalber, Sec. Lt. B. T. Scott, June 17th; Capt. J. A. Cooper, June 19th; Sec. Lt. A. W. Mansfield, Lt. F. C. Thomas, June 21st; Sec. Lt. J. W. J. Bates, June 24th; Lt.-Col. B. C. Bartley, June 25th; Capt. A. H. Chapman, June 26th; Sec. Lt. A. L. Cooke, June 28th; Maj. P. C. A. Bridgeman, Capt. A. L. Bligh, Capt. G. F. Underwood, Lt. J. H. Tindall, July 1st; Maj. W. F. Vernon, July 3rd; Capt. A. P. Thurston, July 4th; Lt. S. Turner, July 6th; Lt. J. M. Atherton, July 10th; Lt. H. S. Elliott, Sec. Lt. C. T. A. Hart, July 12th.

Lt. S. T. Hosken relinquishes his commn. on account of ill-health, and is permitted to retain his rank, July 2nd.

Sec. Lt. (Hon. Lt.) A. Dingwall relinquishes his commn. on account of ill-health caused by wounds, and is permitted to retain the rank of Lt., July 7th

The notification in "Gazette" of June 13th concerning Lt. G. Thomas is cancelled.

The notification in "Gazette" of May 16th concerning Lt. J. W. McKee is cancelled

The notification in "Gazette" of April 4th concerning Sec. Lt. R. L. T. Latour is cancelled (notification in "Gazette" of April 1st to remain).

MEDICAL BRANCH.—Transferred to unempld. list:—Capt. (actg. Maj.) A. H. Todd, April 30th; Capt. F. Irvine, May 3rd; Lt. A. G. Graham, May 9th; Lt. H. W. Toms, May 14th; Lt. O. F. Conoley, June 8th; Capt. J. C. H. Allan, M.B., June 10th; Capt. J. A. Gordon, June 18th, Capt. D. Cameron (R.A.M.C., T.F.), July 4th.

CHAPLAINS BRANCH.—Transferred to unempld. list:—Rev. E. H. Wright May 12th; Rev. J. Shelly, M.A., May 21st.

MEMORANDA.—The following Overseas Cadets are granted temp. commns. as Sec. Lts., with effect from Feb. 15th, and relinquish such commns., with permission to retain the rank, from the day following termination of the standardised voyage in the case of those claiming immediate repatriation, and from the day following demobilisation in all other cases:—A. L. Ballard, 21397 T. L. Clayton, 2884 E. G. Farrant, 904643 A. Geddes, 178205 G. Pfaff, 50134 C. E. Rutherford, 316808 J. T. Tosswill

The following Cadets are granted hon. commns. as Sec. Lts.:—175905 A. E. Colley, 205218 C. Kemp, 530240 H. B. Riddle, Dec. 12th, 1918; 28613 S. E. Ferris, Jan. 1st; 176849 P. Garside, Jan. 22nd; 137657 C. F. Butler, Jan. 3rd; 316906 J. E. Briggs, 25349 F. C. Brereton, 73065 F. L. Cannon, 137320 D. H. Cornell, 911769 A. J. Goodman, 172145 C. H. Hall, 10130 R. H. Hawken, 513386 H. E. Ryerson, 531122 R. H. Speck, Jan. 6th; 9876 R. Fraser, Jan. 7th; 137302 C. N. Crisp, Jan. 8th; 3086 L. C. Edwards, Jan. 9th; 316013 E. Martin, 767111 P. D. Pratt, Jan. 10th; 403495 T. C. Dolphin, Jan. 11th; 1500 L. Grimes, 25527 R. Harrison, 1555 S. F. Payne, 128539 W. L. Plummer, Jan. 13th; 137535 E. Phillips, Jan. 14th; 531467 H. J. Blackwell, 153984 J. R. Clarke, 126370 L. G. Day, H/530262 C. Harrison, 154149 W. Nixon, 154968 L. A. Workman, Jan. 15th; 8842 E. G. Wills, Jan. 16th; C. A. Dodd, 117082 D. M. Freeling, Jan. 17th; 174453 F. A. Curran, 512560 P. Lee, Jan. 18th; 137016 D. McNeill, Jan. 19th; 179280 H. W. Peterson, Jan. 20th; 5/23910 A. L. McCallum, 137447 H. Fishback, Jan. 21st; 250849 H. Scragg, Jan. 22nd, 137393 I. M. Herrod, Jan. 23rd; 305599 J. R. Harrison, Jan 24th; 117609 W. W. Adam, 176669 J. F. Allen, 117249 G. E. Brockway, 175492 A. Brown, 110323 F. F. Bowling, 128815 J. Brown, 175672 R. M. Burton, 117071 L. Bloomfield, 128203 J. Bradley, 175800 J. W. Baird, 137311 A. J. B. Campbell, 175911 H. Dade, 175251 H. J. Disley, 31694 E. T. Deeley, 3351 B. Ellis, 355604 F. J. Gichard, 175923 G. E. Gregory, 73644 A. D. Gordon, 72337 J. Gardener, 110639 W. C. Hood, 250477 R. Hill, 302786 L. H. W. Hadon, 12483 E. Haythornthaite, 140030 J. Howard, 533054 W. E. Holmes, 137742 S. W. Hickman, 25526 G. Harrison, 80800 S. Herbert, 10029 J. Hope, 117800 N. Hodgson, 137390 H. A. Howe, 128648 T. Jamieson, 51888 W. H. Kirkwood, 1465 W. H. C. Leadbeater, 87061 J. W. Lamb, 128026 J. Learmonth, 128025 J. E. Littlejohn, 128031 T. Martin, 9763 A. J. Muriant, 11091 B. C. H. Marsh, 147193 J. McLaurin, 75163 H. Massey, 73075 C. S. McKay, 176851 C. S. Needham, 97085 W. A. Rayle, 137536 W. L. Rayner, 242172 S. Sykes, 40584 C. Smith, 176856 R. C. Sidney-Wilmot, 43251 E. M. Wood, 137512 W. R. Worley, 137521 M. C. Wheeler, 176292 F. W. Wise, 176293 E. K. White, 117487 W. K. Westwood, 95185 S. W. Williams, Jan. 25th; 31301 T. R. Harper, 3/70396 P. R. John, 155587 W. G. Stark, 39150 C. Sutherland, 45921 D. G. Tregelles, Jan. 27th; 128335 R. D. Alexander, 625079 J. M. Bevan, M/2099694 W. E. Barnes, 767477 A. J. Browning, 128155 F. G. Britnell, 175366 C. Bonnikson, 128942 N. K. Blair, 175679 H. W. Britcher, 35859 L. H. Bunning, 205941 A. E. Cowlishaw, 128355 C. Cockman, 36502 J. F. Clayton, 128287 H. V. Davies, 175910 D. Duggans, 175587 H. L. S. Dewes, 14089 E. C. Dick, 290173 A. W. Dawson, 4398 W. H. Ford, 28278 J. H. Ferguson, 137200 G. S. Fiske, 175915 F. L. Frost, 176233 J. Ford, 175183 R. A. Fry, 117061 A. C. Gale, 176331 G. E. Gray, 137775 F. W. V. Grouchy, 175192 H. W. Hall, 128631 G. Hutchinson, 175747 W. A. Hakin, 137737 A. F. Hull. 175926 J. Hampton, 175380 A. E. Hawkins, 304630 H. C. Housden, 776298 R. E. Holroyd, 50172 H. W. Isaac, 128875 A. D. Joiner, 35623 C. Ll. Jones, 65016 J. W. Johnson, 176787 J. C. W. Joyce, 176423 F. S. Keeling, 12486 R. A. Kendrick, 102798 G. Lush, 108254 J. Lloyd, 137575 E. C. Lindop, 176798 H. R. Murray, 1316 Maudsley, 24825 J. C. McGregor, 53112 A. Murchie, 47253 H. Michaelson, 175535 R. L. McKissack, 155689 S. Morris, 175207 F. Maund, 110390 D. Muir, 175823 T. J. A. McGlennon, 053805 A. E. Newland, S/4/072530 H. Pearce, 137641 S. Pendry, 26435 R. H. W. Punnett, J. Petterson, 305104 P. G. Russell, 137712 W. H. G. Roach, 117330 J. Robinson, 40800 L. F. Roberts, 176813 H. Rayner, 176825 W. Robson, 74621 N. E. Starkey, 137503 C. G. Sheward, 137162 D. V. Smith, 364448 F. R. Spencer, 53256 A. Sharp, 66942 C. O. M. Steward, 35548 L. A. Smith, M/103466 C. B. Siddons, 137644 C. D. Thomas, 137032 L. M. Thompson, 19108 W. A. P. Thomas, 140044 C. G. Westall, 176468 L. H. Willis, 176144 G. Winyard, 176720 G. Ware, 175101 H. B. Wallace, 4683 W. Worsley, Jan. 29th; 119006 S. O. Scott, Jan. 31st; 94263 P. Briggs, 137726 R. E. Ebrall, Feb. 2nd, 37609 A. T. Barlow, 137668 E. J. Brooks, 84161 J. S. Barker, S/11128 W. C. Budd, 137551 A. E. Cook, 137689 J. Coe, 176618 J. R. Cooper, 29224 L. A. E. Crump, 41374 S. C. Campbell, 110296 C. B. Cook, 137648 J. Dooley, 175687 R. W. Dawe, 175047 J. Dixon, 91413 A. E. Darby, 6351 A. G. Denby, 35702 J. Dobbie, 175118 S. Enoch, 1990 A. Erwin, P/18937 W. G. Farley, 137133 A. E. G. Grett, 10201 H. J. Griffiths, 137265 E. C. Graham, 128362 W. Hague, 11940 J. G. Hillam, 100466 H. Hibbs, 15318 E. L. Hill, 175600 W. Hopewell, 175554 E. Lovett, 176210 F. W. James, 128536 C. J. Little, 624766 H. S. Montgomery, 110982 E. F. Nurden, 316146 C. E. Newling, 137767 F. H. Parsons, 535055 K. I. Peabody, 100160 L. A. Rogers, 55702 W. Stedmond, 246058 R. Smith, 128329 R. Soher, 390722 H. C. Saul, 176377 R. A. M. Sankey, 110063 P. E. Thompson, 026368 A. W. J. Thompson, 536616 J. W. Tolyfield, 324162 J. Williams, 137511 A. P. Wilsish, 77476-T. B. Ward, 176148 A. Wright, 99905 W. Wallon, 137051 J. P. V. Wollam, Feb. 4th; 175173 G. Berthwistle, 81030 D. H. Cowin, 137094 N. H. Richardson, 176118 F. P. Reeves, 98767 W. Wilson, 117757 N. E. Jones, 117773 J. H. Craig, 128074 C. E. Findley, 100313 J. D. Cheshire, 137264 R. A. Dolman, 22006 D. M. Currie, 36616 A. E. Breeze, Feb. 5th; 402680 W. Beresford, 176037 V. Sickle, 175727 W. R. Young, Feb. 6th; 53994 H. V. Armstrong, 176915 R. Arthur, 176860 R. Booking, 176200 H. Barker, 96548 H. C. Chatterton, 176100 G. R. Carpenter, 137602 H. Derry, 93878 J. H. Fitton, 176765 E. C. Fitch, 50897 G. Finch, 58081 W. H. Garrett, 76668 Henzell, 61129 J. W. Hurd, 137276 H. A. Hamilton, 176906 R. C. Houston, 50802 J. C. Hill, 176670 C. K. Harrison, 176332 H. C. Hoult, 110230 H. Joyner, 176357 A. McMillan, 138887 J. Morland, 128538 R. D. Mann, 117691 P. T. Russell, 128309 A. Sherbourne, 200625 S. S. Smith, Feb. 7th; 155050 E. A. W. Beasant, 137668 A. F. Barron, 128821 J. Barton, 175806 H. McD. Campbell, N. P. Jones, 175065 J. Livingstone, 175448 H. W. Malin, 177117 J. L. Mitchell, 177331 W. I. Muir, A. R. Pratt, J. B. Shaw, F. C. Stubbs, 128330 J. Thompson, 12645 R. S. Thompson, 38198 B. T. Whittaker, Feb. 8th; 175703 A. Hardaker, Feb. 9th; 352530 S. Adams, 128346 C. Burns, 128119 H. E. Barber, 18205 F. C. Bird, 128827 F. Carlyle, 311305 J. D. Cousins, 357855 J. S. Cox, 137166 J. N. C. Cummings, 136774 D. A. Cuttis, 1276 R. S. Craddock, 137667 W. Clarke, 22458 R. J. Causby, 137676 W. N. Chilcott, 8/3876 F. H. Dight, 128358 G. W. Dainty, 53418 J. E. J. Donald, 175874 D. A. Davis, 175377 J. A. Derry, F/40856 P. R. Dutton, 86174 E. D. D'Aintree, E. Eadon, 282437 G. L. Evatt, 137725 C. J. Evans, 176327 H. R. Ebbles, 8826 E. J. Edwards, 18059 R. Fantozzi, 110236 G. W. Graham, 110029 L. H. Gubbins, 175259 T. M. Gibson, 355486 J. D. Gilbert, 12086 T. Hughes, 137394 W. J. Hamblin, 117257 J. J. Hayes, 229241 J. Henderson, 6542 J. R. Jeans, 36610 E. R. James, 62487 C. R. James, 92505 R. Kent, 59964 T. Lewis, 835509 J. Leitch, 11079 J. T. MacLaren, 77365 O. Lancaster, 7311 S. J. Mew, G/08159 C. J. Mantle, 5/07841 C. J. Moody, 137432 G. W. Newton, 19775 H. Pentony, 137076 H. H. Phillips, 035264 M. A. Pugh, 512669 C. G. Roach, 176273 H. J. Refoy, 137482 W. J. Riley, 37722 W. Rawlings, 4332 H. W. Ross, 117275 J. Sladden, 110665 D. E. Scott, 43403 S. W. Smith, 177053 J. C. Spray, 36679 J. Somerville, 928244 H. J. Skinner, 137033 D. H. Turner, 100236 J. D. G. Taylor, 32227 J. C. Taylor, 766908 F. V. Taylor, W. G. Wardle, 137159 G. Wall, 26869 C. Wilkinson, 790233 E. C. Watkinson, 1499 J. E. Waldron, Feb. 10th; 175496 R. G. Bavnton, 11734 E. E. Badby, 52620 C. Cruickshank, J. J. A. Gough, E. H. T. Jewell, W. B. Lewis, 175612 K. Malzard, 1271 M. A. Mosley, 90542 J. E. Neil, 176697 H. A. Newton, 200988 T. H. Platts, 9830 S. F. Rawlings, 5144 G. Roughton, 36516 R. Vincent, V. Waddell, F. H. R. Williams, Feb. 11th; M2/105063 J. C. Asher, 175167 R. J. Barham, 176643 W. Colville, 176416 C. J. Hall, 100405 V. R. Kettle, 137515 E. M. Ward, Feb. 12th; 91051 F. J. Cramer, 175177 P. K. Challen, 117977 N. J. Emery, 137341 R. Fletcher, 175184 W. Fogg, 175263 A. Gardner, 316070 J. Gordon, 175042 H. Mootz, 537022 G. J. Pullen, 17502 A. Sutton, 1031 L. C. Scott, Feb. 13th; 356701 T. M. Evans, 181006 R. F. Frances, 423124 T. Gardner, 100507 F. Greene, 663766 D. Hunter, 137280 R. G. Harman, 156284 J. Hill, 128399 W. Leedham, 216811 L. E. Maves, 28026 H. M. McKay, 35630 H. Rayner, 24953 A. T. Robinson, Feb. 14th; 175033 C. W. Allison, 96523 S. C. Butler, 226150 W. J. G. Bricher, 117615 J. H. Bone, 175363 H. W. Brown, L. J. Cannell, 137627 J. F. Carr, 137174 G. H. E. Cox, 176318 W. O. Cromwell, 50052 G. E. Cott, 176227

H. L. Dawe, 176224 F. Dean, 433458 J. H. Earley, 205768 J. R. H. Ellis, 137733 H. W. R. Flint, 117119 W. Fletcher, 1089952 M. W. Flood-Page, F/5931 W. J. Gayes, 176086 S. M. Garrett, 110499 N. Golding, 51544 L. T. Hill, 22937 J. J. Hall, 176337 F. Horn, W. N. Lumsden, 94114 P. G. Laybourn, 137574 J. H. Lockwood, 68105 H. McRobbie, 137777 V. I. Ovenden, 69892 A. J. Overall, 128983 C. H. S. Pickett, 553713 E. A. Rowsell, 176121 G. W. R. Robinson, 100564 A. V. Rawson, 38459 A. J. Rack. W. Surgeon, W. Sugden, 15081 H. B. Thomas, 128497 J. Wade, 136717 L. E. Wallis, 176145 J. O. Wood, 176399 W. C. Wood, Feb. 15th; K/1123 H. G. Dennis, Feb. 19th; 51717 R. Bolton, Feb. 20th; 117654 N. Cooper, Feb. 21st; 54315 J. S. Bruce, C. Child, 70558 A. L. Pink, Feb. 22nd; 176240 J. W. Hobson, 45112 W. K. Parkinson, G/73701 D. W. Patston, Feb. 24th; 137359 G. P. Gower, 5813 R. Hill, 117747 V. C. R. Waller, Feb 26th; 35377 H. C. Burgess, 117495 W. Davies, 39908 A. Hirst, 21361 F. Middleton, Feb. 27th; 49048 F. W. Nutbourne, March 5th, 116270 J. Briscoe, 200468 F. Hatton, 99762 J. Stewart, March 7th; 594658 S. G. J. Cogswell, 26373 P. Lancaster, 66300 E. A. Suter, March 8th; 175004 H. W. Cattell, 08931 G. Holmes, H. Richards, March 12th; 176239 F. Hughes, 176096 W. P. James, E. F. Knight, 176272 G. Robinson, March 13th; 117557 E. Copsone, March 14th; 52235 W. G. Carpenter, 117840 H. M. Lumb, March 15th; 171977 A. T. Leng, March 18th; 70568 H. D. E. Barton, 131981 C. Norman, N. G. Preater, 3182 J. A. Taylor, March 20th; 175656 R. C. Ogg, 128207 G. A. Robbins, March 21st; 6342 W. H. M. Jones, 36459 R. W. Scott, March 27th; 104334 G. J. Bland, 536921 R. Green, March 28th; 110494 L. Drinkwater, March 29th; 4594 L. W. Baggot, T/R104758 G. Challenger, L. J. Hartnett, 5156 W. J. Jones, April 1st; 6941 H. B. Bell, M. Shaw, April 2nd; 110094 J. N. Dixon, April 3rd; 032134 W. Brown, 12348 A. W. Marsden, 175563 H. F. Thom, 253943 J. W. Tullock, April 4th; 155942 S. G. Myers, April 5th; C. V. Stan, April 7th; 22684 H. D. Cleveley, 51100 T. S. Callender, 46309 S. T. Musson, 10368 T. S. Sharpe, April 8th; 103653 C. G. Croft, 156398 F. R. Cotgrove, 25871 C. C. Hance, 45083 F. Loncon, 17403 W. A. Luff, 175286 W. Pearson, 221582 A. R. H. Tfistram, April 10th; 175671 G. R. V. Bolster, 90398 C. Kentish, 330522 J. S. Penty, 3026 C. F. Whiston, April 11th; 50453 T. Mill, April 14th; 2479 J. K. Hollis, April 15th; 9385 W. Bortfield, 175374 A. C. Curtis, 117180 L. Hislop, 45590 V. Reed, 137589 K. G. Russell, April 29th; 80500 E. A. Bale, April 20th, 434248 J. Green, May 1st; 15877 J. A. Cunningham, 52587 A. M. Murdoch, 52672 J. D. Renwick, 137797 F. Seckington, May 2nd; 28484 J. A. Thompson, May 3rd; 175000 S. Gauthony, May 21st.

Lt.-Col. (actg. Brig.-Gen.) C. G. Hoare, C.M.G. (Maj., Ind. Army), relinquishes his commn. on ceasing to be empld., April 24th.

Temp. Hon. Lt. H. Pearse relinquishes his commn. on ceasing to be empld., June 16th.

Transferred to the unempld. list:—Sec. Lt. T. W. Sands, April 2nd; Capt. G. H. L. Sweet, from (S.O.), May 5th; Lt. (Hon. Capt.) L. Pell-Ilderton, from (S.O.), May 12th; Capt. O. A. Butcher, D.S.C., from (S.O.), June 5th; Maj. E. B. Burton, from (S.O.), June 7th.

Capt. (actg. Maj.) P. Le G. Gribble relinquishes his commn. on account of ill-health, and is granted the rank of Maj., April 19th.

Capt. Hon. R. G. Lord St. Oswald (Capt., C. Gds.) resigns his commn. and is permitted to retain his rank, July 16th.

Lt. A. Graham relinquishes his commn. on account of ill-health, and is granted the rank of Capt., July 7th.

The notifications in "Gazette" of June 17th concerning the following Officers are cancelled:—Capt. W. G. Scott, Lt. F. T. Chapman, Lt. R. Tait, Lt. G. B. Redgrave, Lt. A. R. Harris, Lt. F. V. Bell, Sec. Lt. A. E. H. Hales.

The notification in "Gazette" of June 6th concerning P.F.O. J. W. D. Archibald is cancelled.

The notification in "Gazette" of June 13th concerning Maj. R. E. Childers, D.S.C., is cancelled.

AIR MINISTRY, July 18th.

The King has been pleased to approve of the award of the Victoria Cross to the late Captain (actg. Major) Edward Mannock, D.S.O., M.C., 85th Squadron Royal Air Force, in recognition of bravery of the first order in aerial combat.

On June 17th, 1918, he attacked a Halberstadt machine near Armentières, and destroyed it from a height of 8,000 feet.

On July 7th, 1918, near Doulieu, he attacked and destroyed one Fokker (red-bodied) machine, which went vertically into the ground from a height of 1,500 feet. Shortly afterwards he ascended 1,000 feet and attacked another Fokker biplane, firing 60 rounds into it, which produced an immediate spin, resulting, it is believed, in a crash.

On July 14th, 1918, near Merville, he attacked and crashed a Fokker from 7,000 feet, and brought a two-seater down damaged.

On July 19th, 1918, near Merville, he fired 80 rounds into an Albatross two-seater, which went to the ground in flames.

On July 20th, 1918, east of La Bassée, he attacked and crashed an enemy two-seater from a height of 10,000 feet. About an hour afterwards he attacked at 8,000 feet a Fokker biplane near Steenwercke, and drove it down out of control emitting smoke.

On July 22nd, 1918, near Armentières, he destroyed an enemy triplane from a height of 10,000 feet.

Major Mannock was awarded the following distinctions for his previous combats in France and Flanders:—Military Cross (Gazetted, Sept. 17th, 1917); Bar to Military Cross (Gazetted Oct. 18th, 1917); Distinguished Service Order (Gazetted Sept. 16th, 1918); Bar to Distinguished Service Order (1st) (Gazetted Sept. 16th, 1918); Bar to Distinguished Service Order (2nd) (Gazetted Aug. 3rd, 1918).

This highly distinguished officer, during the whole of his career in the Royal Air Force, was an outstanding example of fearless courage, remarkable skill, devotion to duty, and self-sacrifice, which has never been surpassed.

The total number of machines definitely accounted for by Major Mannock up to the date of his death in France, July 26th, 1918, is 50—the total specified in the "Gazette" of August 3rd, 1918, was incorrectly given as 48, instead of 41.

THE PAY OF THE ROYAL AIR FORCE.

The following official statement with reference to the revised rates of pay for officers of the Royal Air Force was issued on July 21st.

1. The rates of pay, pensions, and allowances for officers of the Royal Air Force have been under review, and the standard rates now authorised are as shown in the accompanying statements. The present system, under which the various branches each had their own rates of pay, has been replaced by a uniform system of rates for all branches, with the exception that certain specialist services (such as medical and dental) will continue to have special rates as hitherto. These specialist services will be dealt with separately, except in so far as reference is made to them below.

2. The rates have been fixed with reference to the present high cost of living, and it has been decided that 20 per cent. of the rates of pay and retired pay will be considered as due to the present high cost of living, and will be subject after five years to change, either upwards or downwards, according as the cost of living rises or falls. Subsequent revisions will be made at three-yearly intervals on the basis of Board of Trade food prices.

3. The new rates will not apply to officers awaiting demobilisation or who are temporarily retained. They are intended for those officers who are given permanent or short-service commissions in the force as reconstituted, or who are seconded to the Royal Air Force from the other Services.

PAY.

The rates will be as follows, and will apply generally to officers (including staff officers) performing duties of the present Flying, Technical, and Administrative branches:—

Rank.	Pay per diem. £ s. d.
Cadet	0 5 0
Cadet after 1 year	0 10 0
Second Lieutenant	0 18 0
Lieutenant	1 3 0
Lieutenant after 2 years as such	1 5 0
Captain	1 9 0
Major	1 14 0
Major after 5 years as such	1 16 0
Lieutenant-Colonel	2 0 0
(Rising by 1s. per day after each year to a limit of £2 10s.)	
Colonel	2 15 0
Colonel after 2 years as such	2 18 0
Colonel after 4 years as such	3 1 0
Colonel after 6 years as such	3 4 0
Brigadier-General	3 4 6
Brigadier-General, Command Pay	0 5 0
Major-General	5 0 0
Lieutenant-General	6 0 0
General	7 0 0

SPECIAL RATES FOR QUARTERMASTERS.

Rank.	Pay per diem. £ s. d.
On appointment .. Lieutenant	0 19 0
After 4 years .. .. ,, ...	1 1 0
,, 8 ,, ... Captain	1 3 0
,, 12 ,, ... ,, ...	1 5 0
,, 15 ,, ... Major	1 10 0
Lieutenant-Colonel ..	1 15 0

(The establishment of Lieutenant-Colonels will be a very small one.)

SPECIAL RATES FOR CHAPLAINS.

	Rate per diem.
On entry	1 0 0
After 3 years	1 3 0
After 6 years	1 6 0
After 9 years	1 9 0
After 12 years	1 12 0
After 15 years	1 15 0
After 18 years	1 18 0
After 21 years	2 1 0
After 24 years	2 4 0
After 27 years	2 7 0
After 30 years	2 10 0
Chaplain-in-Chief	£1,000 per annum.

Temporary Chaplains in the Royal Air Force will receive a gratuity of £50 for each complete year of service, subject to conditions to be hereafter published.

Medical officers will receive the same rates of pay as may be approved for the Medical Service of the Army.

PAY OF OFFICERS EMPLOYED AT THE AIR MINISTRY.

RATE.

DIRECTORS, £2,000 per annum
DEPUTY DIRECTORS, 1st Class, £1,500 per annum
DEPUTY DIRECTORS, 2nd Class, £1,200 per annum
} Consolidated rates.

OTHER OFFICERS.—Down to and including the rank of Major.—Full pay and allowances, *plus* £100 per annum. Below the rank of Major.—Full pay and allowances, *plus* £75 per annum.

ATTACHED OFFICERS.—Full pay and allowances of their rank, *plus* 10s. a day up to three months; thereafter they will come on to the ordinary Air Ministry Scale.

ALLOWANCES.

The allowances will be as given below, and will be reviewed periodically:—

TABLE MONEY.—Is under consideration.

SUBSISTENCE AND TRAVELLING ALLOWANCES.

	Up to 8 nights in one place.	After 8 nights.	Daily absence 5-9 hours.	Daily absence over 9 hours.
	s. d.	s. d.	s. d.	s. d.
A. Rank of Col. (or similar staff grading) and upwards	30 0	15 0	6 0	15 0
B. Below rank of Col.	22 6	12 6	4 0	11 6

LODGING, FUEL, LIGHT, AND RATION ALLOWANCES.

HOME STATIONS.—The standard rates will be as follows :—

	Lodging.	Fuel and Light. (average)	Ration. s.
	Per diem.	Per diem.	Per diem.
2nd Lts. and Lts. ..	3s. 6d.	1s. 0d.	No change
Capt., Maj. and Lt.-Col.	4s. 6d	2s. 0d.	No change
Other Officers	No change	Increase of 1s. per diem.	No change

NOTE.—Married officers over 30 years of age for whom no married quarters are available and who are therefore obliged to provide accommodation for themselves and for their families may draw lodging, fuel, and light allowances.

SERVANTS' ALLOWANCE.—2s. for each authorised servant at home and abroad if no servant is provided.

FIELD ALLOWANCE.—To be granted to all officers on active service in the field, and to be issuable whenever officers are under canvas. The rate is still under consideration.

CHILDREN'S ALLOWANCE.—Existing rates of children's allowance will continue until the end of 1919, after which they will be abolished. In the meantime children's allowance will be continued, and officers now receiving the allowance will not become ineligible for it if the effect of the increases in pay now granted is to raise their salaries beyond the limit of income laid down for the grant of the allowance.

COLONIAL ALLOWANCE.—The same as for the Army.

CONVEYANCE OF FAMILIES.—The cost of conveying the wives, families, and baggage of officers will be charged to the public only in respect of changes of station in this country.

FURNITURE ALLOWANCE AND CHARGES.—Furniture allowance and furniture charges are abolished. In future, all quarters, including the commanding officer's quarters, will be furnished.

MESS ALLOWANCE.—This allowance is abolished.

TRAVELLING CONCESSIONS.—The question of the continuation (*a*) of the rule allowing officers proceeding on leave two free passes a year, (*b*) of the reduced fare for officers travelling on leave, is still under consideration.

PENSIONS.

(Applicable to officers performing duties of the present Flying, Technical, and Administrative Branches.)

A.—GENERAL OFFICERS.

Lieutenant-General.—£975 after 24 years' service, increased by £22 for each year beyond 24, with a maximum of £1,105.

Major-General.—£790 after 22 years' service, increased by £22 for each year beyond 22, with a maximum of £1,010.

Brigadier-General.—£650 after 20 years' service, increased by £22 for each year beyond 20, with a maximum of £950.

An officer must complete three years' service in any of these ranks before being entitled to the special pension attaching to it. This condition will not, of course, affect his title to the pension earned by service in the ordinary way, and an officer may reckon service as lieutenant-general or major-general towards his service in a lower rank if that would entitle him to special pension for that lower rank.

B.—COLONELS AND LOWER RANKS.

There will be a minimum qulaifying period for pensions—20 years.

Subject to this the scale is as follows :—

	Age	Retired Pay.	Service.	Addition for each extra year of service.*	Reduct'n for each deficient year of service.*
Cols. retire at 55, max. ret. pay £900	55	£790	24	22	15
	54	765	24	22	15
	53	742	23	22	15
	52	720	23	22	15
Lt.-Cols. retire at 48, max. ret. pay £600	51	697	22	22	15
	50	675	22	15	15
	49	637	21	15	15
	48	600	21	15	15
Majs. retire at 45, max. ret. pay £450	47	562	20	15	15
	46	525	20	15	15
	45	487	19	15	15
	44	450	19	15	15
Capts and subalterns ret. at 40, max. ret. pay £400	43	412	18	15	15
	42	375	18	15	15
	41	337	17	15	15
	40	300	17	15	15

* Limited to 5 years.

Gratuities to officers who retire before qualifying by length of service for Service pensions :—

A gratuity of £75 for each completed year of service will be awarded, with a maximum of £1,000, provided that no officer is to be allowed to resign with a gratuity unless he has completed 10 years' service.

While these pension scales will be applicable generally to officers appointed to perform the duties of the present Flying, Technical, and Administrative branches, including chaplains, the following will be dealt with under special regulations which will shortly be issued :—

Officers seconded from the Navy and Army. Officers who may be appointed as Quartermasters on the special Quartermasters' rates of pay.

Commissioned Warrant Officers, Warrant Officers, and Ratings from the Royal Navy on regular engagements who have been given temporary commissions in the R.A.F.

Warrant Officers, N.C.Os. and Men from the Army on regular engagements who have been given commissions in the Army or were given temporary commissions in the R.A.F.

It should also be noted that these scales do not apply to specialist services such as Medical and Dental officers, Pay officers, and Schoolmasters.

NOTES.

1. The application of these standard rates of pay, pensions, and allowances to the existing and future personnel will be carried out under administrative regulations which will shortly be published.

2. The new rates will begin to take effect from the date of the first "Gazette" containing the names of officers appointed to permanent and short service commissions in the Royal Air Force. They may begin at somewhat later dates for officers not dealt with in the first "Gazette."

THE PEACE PROCESSION.

On July 19th, the Peace Procession through London took place. Detachments of the Royal Navy, Army and R.A.F. took part. Detachments from the various foreign Powers were also present.

The following formed the R.A.F. contingent :—

Major-General Sir J. M. Salmond, K.C.B., C.M.G., C.V.O., D.S.O. Brig.-Gen. C. L. Lambe, C.B., C.M.G., D.S.O. Col. C. R. Samson, C.M.G., D.S.O., A.F.C. Brig.-Gen. C. A. Longcroft, C.M.G., D.S.O., A.F.C. Brig.-Gen. E. Maitland, C.M.G., D.S.O.

REPRESENTATIVE DETACHMENTS.

Lieut.-Colonel C. L. N. Newall, C.M.G., R.N., and Staff.

Representative Detachments of the following :—No. 5 Squadron ; No. 7 Squadron ; No. 9 Squadron ; No. 11 Squadron ; No. 12 Squadron ; No. 18 Squadron ; No. 22 Squadron ; No. 25 Squadron ; No. 29 Squadron ; No. 43 Squadron ; No. 57 Squadron ; No. 59 Squadron ; No. 62 Squadron ; No. 70 Squadron ; No. 84 Squadron ; No. 88 Squadron ; No. 92 Squadron ; No. 110 Squadron ; No. 208 Squadron.

PARKS AND DEPOTS.

Airships ; South-Eastern Area ; South-Western Area ; Midland Area ; Northern Area ; 29th Group ; 11th Group.

CHAPLAINS AND MEDICAL SERVICES.

WOMEN'S ROYAL AIR FORCE.

Pilots and crack squadrons were poorly represented.

VACANCIES FOR R.A.F. DOCTORS.

The Air Ministry announces that the Royal Air Force requires the services of a limited number of medical practitioners, including those who have already served. All candidates must be fit for general service at home and abroad, should be under 35 years of age, and must be willing to fly if called upon to do so.

The terms of service are as follows :—

Candidates who have served before will be commissioned in their previous substantive rank ; those who have not served will be commissioned as lieutenant.

The period for engagement to be for one year or until no longer required, whichever shall first happen.

Pay to be at the rate of £550 a year, inclusive of all allowances, except travelling allowances and expenses when travelling on duty, and rations or the allowance in lieu.

Outfit and kit allowance will be issued to candidates who have not received them for previous service.

Applications should be addressed to the Secretary, Medical Department, Air Ministry, London, W.C.2.

THE REMOVAL OF THE AIR MINISTRY.

The Air Ministry is being removed as quickly as possible from its present home at the Hotel Cecil to three adjoining buildings in Kingsway—Empire House, India House, Canada House. On and after Wednesday, July 23rd, therefore, all communications should be addressed to the Air Ministry, Kingsway, W.C.2.

The official entrance to the Ministry will be in Empire House, but letters and parcels should be delivered at the Canada House entrance.

AIR MINISTRY ANNOUNCEMENTS.

The Air Ministry calls the attention of all persons who have served, but are no longer serving in the Royal Air Force, the Royal Naval Air Service, and the Royal Flying Corps, or who have been employed either directly or indirectly by the Government in research or experimental work in connection with flying, or engaged in the manufacture of aircraft, or parts, or accessories of aircraft, to the fact that no information obtained through secret and confidential service publications or technical apparatus, or in any other manner consequent upon their employment by the Government, as above mentioned, may be disclosed to any other person without the written consent of the Air Ministry.

Disclosure of information so obtained may constitute an offence under the Official Secrets Act, and attention is directed to the obligations and penalties imposed by that Act.

* * *

The Air Ministry made the following announcement on July 17th :—

It is notified for general information that the Investiture for the presentation of Distinguished Flying Crosses and Air Force Crosses to Officers of the Royal Air Force will be held at Buckingham Palace on Thursday, 24th instant. There will be no Investiture on the 19th instant, but Officers who have applied already, and are not summoned for the 24th instant, will receive orders to attend later from the Lord Chamberlain's Office, as numbers and occasions permit.

It is particularly important that Officers should understand that they cannot be allowed to present themselves for Investiture unless they receive a summons to attend from the Lord Chamberlain's Department. It will be realised that it will not be possible for attendance to be ordered for 24th instant for all who have applied, and Officers who do not receive instructions to attend on that date will understand that their names remain noted for another occasion, and that no further action is required of them. It is not practicable to indicate beforehand when Investitures will be held at which any individual will receive his decoration.

There are now sufficient applications in hand to occupy a considerable time, and no further names are, therefore, required until about Sept. 1st, 1919.

Service Dress should be worn by Serving Officers and by Officers demobilised or released from service if so desired—otherwise Morning Dress (frock coat or morning coat) should be used.

Investitures for the Order of the British Empire will be arranged next October, and applications for attendance may be submitted to the Air Ministry at any time after Oct. 1st, 1919.

* * *

The Air Ministry announced on July 17th :—

His Majesty the King has been graciously pleased to signify his pleasure that a medal be granted to record the bringing of the war to a successful conclusion, and the arduous services rendered by His Majesty's Forces.

2. The medal in silver will, provided the claims are approved by the competent Royal Air Force authorities, be granted to the under-mentioned classes who either entered a theatre of war on duty or who left their places of residence and rendered approved service overseas, other than the waters dividing the different parts of the United Kingdom, between August 5th, 1914, and Nov. 11th, 1918, both dates inclusive :—

(a) Officers, warrant officers, attested and enrolled non-commissioned officers and men of the Royal Naval Air Service, Royal Flying Corps, or Royal Air Service.
(b) Members of women formations employed under a direct contract of service with the Royal Air Force Medical Service.
(c) All who served on staffs of Royal Air Force hospitals and all members of recognised organisations who actually handled sick and wounded.
(d) Members of duly recognised or authorised organisations.

3. The medal will also be granted to all officers, warrant officers, attested and enrolled non-commissioned officers and men of the Royal Naval Air Service, Royal Flying Corps, and Royal Air Force, who—

(i.) Have been actively engaged in the air against the enemy whilst borne on the strength of an operational unit in Great Britain.
(ii.) Have been employed in flying new aircraft to France.
(iii.) Have formed part of the complement of an aircraft-carrying ship.

4. The medal in bronze will be granted to all British subjects who were enrolled as followers or members of Native Labour Corps units and who served in theatres of war.

5. The riband will be : centre orange, watered, with stripes of white and black on each side and with borders of royal blue.

6. Instructions as to the submission of claims and the disposal of the medals will be issued in due course.

* * *

The Air Ministry made the following announcement on July 19th :—

The gallantry of a German prisoner of war in this country, who rescued one of our flying officers from being burned alive, has procured him release from his prison camp forthwith, a free passage to Germany, together with a sum of money and a silver watch, in recognition of his behaviour.

A British aeroplane crashed and took fire at a Wiltshire aerodrome, where the prisoner and others are employed. The pilot was entrapped and in danger of a terrible death when the prisoner in question, Private Brückman, of the 99th Infantry Reserve Regiment of the German Army, went to the disabled officer's assistance, and effected his rescue at great personal risk to himself.

BISLEY.

The first stage of the St. George's at Bisley, at which 10 shots at 300 yards are fired, took place on July 16th. The highest score was obtained by Lieut. A. B. Lewis, R.A.F., 45 points. Capt. J. Pearce, R.A.F., got 43 points.

The following are among the King's Hundred :—

Capt. C. E. Stewart, late R.E., attd. R.F.C.; Major H. R. Northover, R.A.F.; Lieut.-Col. A. C. R. Garrod, R.A.F.; and Major W. A. D. Edwards, late R.A.F.

Major H. R. Northover, R.A.F., was second in the contest for the King's Prize at Bisley on July 18th, with 248 points, and was awarded the N.R.A. Badge and £25. Lt.-Col. A. G. R. Garrod, R.A.F., was sixth with 245 points, and was awarded the N.R.A. Badge and £5.

In the revolver team competition on July 19th, the Royal Navy was first, the Royal Marines second, the Army third, and the R.A.F. fourth. The Pixley was won by Major A. T. Whitelock, R.A.F.

Captain H.R.H. the Prince Albert, K.G., presented the prizes in the absence of H.R.H. the Prince of Wales, K.G.

FRANCE.

The following is from a Paris correspondent :—

General Haller, commanding the Polish Army, was recently given his first flight in a Breguet machine by Adjudant Sallares.

A squadron of four seaplanes belonging to the French Navy have left Toulon for Cette. Two alighted in the harbour at Berre and two others in that of Carro.

Lieut. Franval, on a 120 m.p. Morane, has left for Pampeluna to give an exhibition. He intends to stop at Cazaux and Angoulême. Later he will give an exhibition before the King of Spain at Santander.

Military biplanes, new, complete with 120-130 h.p. engines, are being sold to private enterprises for the price of a Ford car.

Mention was recently made of various flights that were to be carried out under the auspices of the French Aviation Authorities, and a list of routes, pilots, and machines selected was given. These flights have been further divided into two categories—sporting and scientific.

The sporting flights are :—

Comdt. Vuillemin and Lieut. Dagnaux (Breguet), Paris-Constantinople-Cairo, by Naples and Salonika; Capt. Lafon (S.E.A.), Paris-Constantinople, by Venice and Belgrade; Lt. Bouzac (Spad-Herbemont), Paris-Fez; Lt. Patauchon (Breguet), Paris-Casablanca; Lt. Lemaitre (Breguet), Paris-Dakar; Lt. de Romanet (S.E.A.), Paris-Rome; Lt. Flachaire (S.E.A.), Paris-Amsterdam; Lt. Marinovitch (S.E.A.), Paris-Venice-Prague; Lt. Fonck (Nieuport), Paris-Madrid.

On the scientific side there will be trials of navigation by compass and radiogonometry by Capt. Lejeune (Paris-Constantinople), Sergt. Jaouen (Paris-Tunis-Casablanca-Paris), and Capt. Hebrard (Paris-Toulon).—F. T. N.

U.S.A.

On June 20th the U.S. Senate Naval Affairs Committee voted 35 million dollars for Naval aviation during the coming year.

* * *

The visit of H.B.M.A. R.34 to the United States has had the effect of arousing American interest in the big airship.

Admiral Benson, Chief of the U.S. Naval Operations, announced on July 14th that Congress had authorised the construction of large hangars and the construction or purchase of two large airships. He also stated that at first the airships will be used for experimental purposes.

* * *

The U.S. House Military Affairs Committee during the end of June increased the appropriation for the U.S. Army Aviation Service to 55,500,000 dollars.

Special provision in the new Army Bill allows $982,000 for the purchase of the Curtiss-Ellwood aviation plant at Buffalo, $3,260,000 for the purchase of the Dayton-Wright aeroplane plant at Dayton, $3,500,000 for the purchase of the airship landing-ground and sheds in Burlington County, N.J., and $470,000 for the aerodrome at Rockwell Field, San Diego, Cal.

* * *

The Air Service of the United States War Department are retaining permanently 26 aerodromes. Fourteen will be retained temporarily for storage and other purposes, and none will be abandoned or sold at present.

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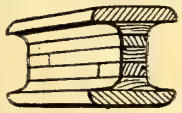

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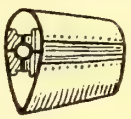

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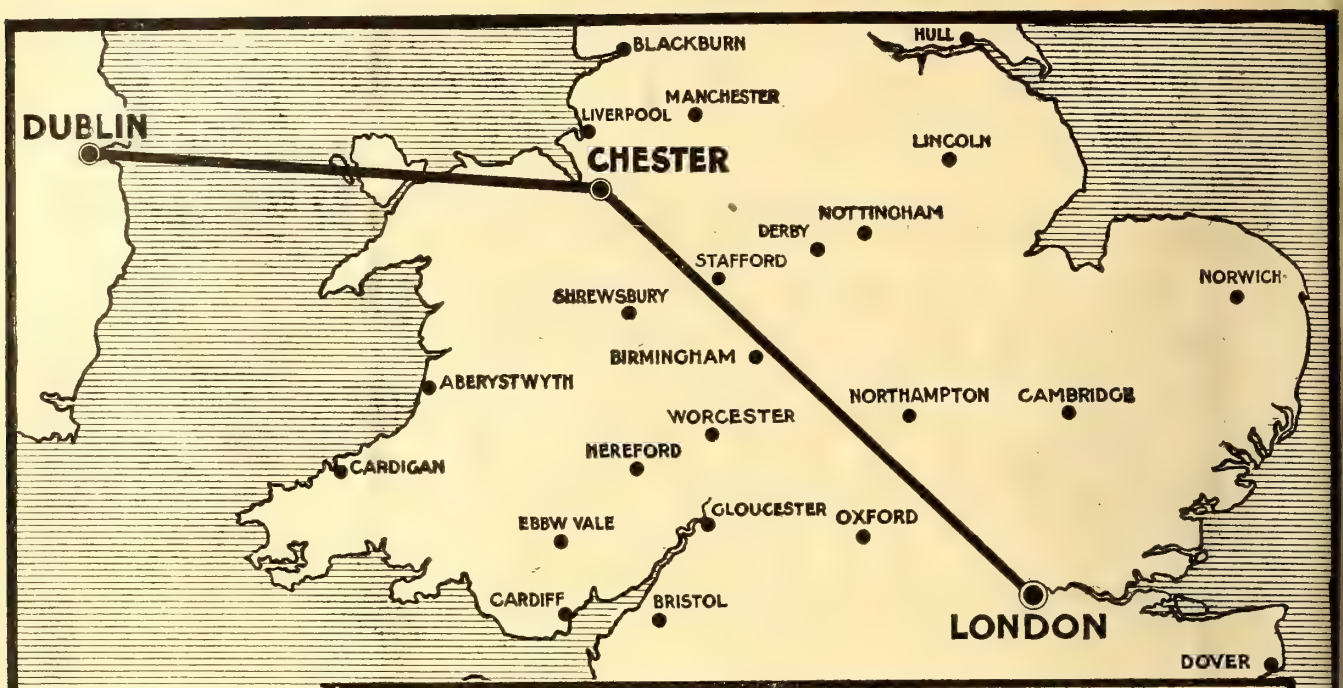

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ON INTERNATIONAL AIR NAVIGATION AND CIVIL AVIATION.

On July 24th the Air Ministry issued the text of "The International Convention for the Regulation of International Air Navigation," as agreed "by the representatives of the Allied and Associated Powers serving on the International Commission dealing with aerial navigation and appointed as a sub-Commission of the Peace Conference."

It is stated that "the Convention has been agreed to by all the representatives, subject to certain reservations. The Convention has not been formally approved by the Supreme Council of the Peace Conference. It has, however, been agreed that it should be issued for the information of the public of the Allied and Associated States."

Hitherto it has been the custom of this paper to publish the text of all important official documents for the benefit of its readers. In this case it is impossible to do so, for the convention covers 43 pages, each somewhat larger than a page of THE AEROPLANE. Therefore one can only quote important points in the document and comment thereon.

The official "white paper" containing the full text can be had for ninepence from any bookseller, or for a shilling post free from the Publishing Department of THE AEROPLANE, 61, Carey Street, W.C.2. It should be unnecessary to say—but knowing the carelessness of aviators one does so none the less—that everybody who has to do with Civil Aviation ought to have a copy of this document, for on the understanding and observation of its provisions depends the smooth running of all future aerial traffic outside this country.

It cannot be too widely known that ignorance of the law is no defence against prosecution for breaking it. Therefore every pilot who hopes for a job in civil aviation, every ground engineer who hopes for a job with a civil aerial transport firm, every owner or prospective owner of an aeroplane who hopes to fly abroad, and in fact everybody in any way concerned with the flying, equipment, management, or sale of commercial aircraft ought to be thoroughly well educated in the contents of this all-important document before they venture on any international work.

A MATTER OF LIFE OR DEATH.

It ought to be fairly plain to anybody with moderate intelligence that the whole future of aviation, the whole life of the Aircraft Industry, and, as a corollary, the efficiency of our Flying Services in the next war, depends on International Air Navigation. If we develop our international air navigation in an intelligent and enterprising way we shall become the world's leading Air Power. If we are content to fiddle around with "joy-rides" and "exhibition stunts" in our own country for the next few years, then we can say "Good-bye" to Air Power and sink again into the fourth-rate position which we held before the recent war.

America will acquire our foreign trade in commercial aircraft just as she acquired the world's motor trade through the self-sufficiency, lethargy, obtuseness, and conceit of British motor makers. Germany will acquire the world's trade in war machines just as she acquired the world's trade in guns, small-arms, and ammunition before the war.

It is true that Germany is forbidden by the Peace Treaty to make war aircraft, but the German is much too clever to be defeated by such a clause in a treaty. A high-speed racing aeroplane or a specially designed acrobatic machine only needs a gun or two and it becomes forthwith a first-class fighting machine. And just as sawing the forward gunner's cockpit off a big bomber makes it into a perfectly peaceful passenger machine (*vide* certain illustrations in this paper), so sticking a projecting nose onto a passenger machine will make it a self-protecting bomber.

Remember how, when Napoleon decreed that Prussia should only have an Army of 20,000 men, the Prussians introduced the short-service system and put 100,000 men through their Army in a few years. Germany will do something very similar in the matter of aircraft.—And we shall be mighty glad of it in years to come, when the real race-war against the Slavs comes upon us.—But meantime Germany will be capturing our foreign trade in aircraft.

Therefore it is a matter of life and death to the British Aircraft Industry whether we get going on International Air Navigation before our competitors or not. And precisely when we get going depends very largely, if not entirely, on the Air Ministry, and more particularly on the Department of Civil Aviation.

DEPARTMENTAL HINDRANCES.

So far, we have no reason to be pleased with the work of our Civil Aviation officials. One is prepared to make every allowance for Sir Frederick Sykes, Controller-General of Civil Aviation, for he has been up against many difficult problems. In the early days of his Department most of his time had to be spent in Paris debating this very Convention which is now under discussion. Also, he had no staff with which to carry on the work of his Department in his absence.

Being a singularly far-sighted man, he, no doubt, decided that the ultimate good of Civil Aviation would be better served by influencing the International Conference in the right direction than by stopping at home and confining his energies to regulating joy-rides and exhibitions. Wherein he was absolutely right. But while he has been away the mice at home have been not so much playing as gnawing at the roots of our Aircraft Industry.

When most of the work of the International Conference was done General Sykes had a bad smash at Kenley, and that must have hindered his work still further. And since he has recovered and has been trying to build up a staff for his Department it seems that he has had

foisted upon him just about the most useless set of individuals who have ever been collected into a Government office.

It is only fair to say that General Sykes's Department is not always directly to blame for the hindrances which have been placed in the way of civilian flying. But it is certainly indirectly to blame, for its duty is to develop civil aviation, not merely to control it. And a very important part of that duty should consist in removing hindrances which are raised by other Departments in the Air Ministry. The Department of Civil Aviation should be, in fact, a kind of foster-mother which should take up the defence of any civil aviation venture which was being put-upon by other Departments.

A Case in Point.

Take for example the case of the machines and engines which certain firms in the Aircraft Industry were forbidden to use in the Aerial Derby, just when British aeroplanes needed a big International advertisement as an off-set to the fine performances put up by our friends in France and Italy. The reasons given by the Supply Department, which seems to have been the Department which prohibited the use of these machines, were so utterly futile that they could hardly have deceived even a Member of Parliament or a daily journalist. It should have been the duty of the Civil Aviation Department to defeat the Supply Department and to have obtained permission for the machines to fly. Yet the Civil Aviation officials did nothing to help.

Everything good that was done during the war was only done by one Department defeating another, and it was commonly said that the war on the Bolo Sector of the Strand Front was the bitterest of any. So in civilian flying, success will only be attained if the Civil Aviation Department makes up its mind to defeat all the other Departments.

A Public Scandal.

Take another example. The Supply Department, in an effort to achieve economy, doubtless praiseworthy though it may lead to a particularly dirty form of graft, appears to be buying in the cheapest market, regardless of quality, and in doing so seems to be going the right way to work to kill enterprise and originality, which means killing progress in Civil Aviation, and so destroying the efficiency of the equipment of the Royal Air Force.

In a very forcible letter, which under the intriguing title "Embusqué's Grab" appears on page 438 of this issue, a necessarily nameless victim of the Supply Department describes in detail how well-designed and well-made components of aircraft are practically stolen by the Department and farmed out to be made as cheaply as possible. And, in one of the strongest and most closely reasoned of the many brilliant articles which have appeared under his pseudonym, "Strasbourg" lays out, on page 413, the idiocy of the officials who practise these false economies. But one notices that he refrains from pointing out, as he might have done, that the outsider who will take on the cheap and nasty reproduction of another man's good design is quite possibly the very type of man who will bribe minor officials to influence the order in his direction and who will bribe minor inspectors to pass bad work.

Such methods of doing official business spell death and damnation to British Aeronautics and all concerned therewith. Cheap reproductions of aeroplanes, engines, fittings, or instruments mean fatal accidents in the Royal Air Force, and a bad name for British aircraft abroad. Depriving the actual designers of their just due in the way of orders and profits means putting them out of business, and so killing progress. As the advertisement of the London and Provincial Aviation Co. said, when they retired from business with their profits in their pockets instead of spending their profits on hoping for the best, "One might as well play for nothing as work for nothing."

The Handicap of a Uniform.

It is precisely when such things as this occur that the Department of Civil Aviation should step in and see that the Aircraft Industry has fair play. But apparently none of the officials in that Department have either the brains, or the pluck, or the initiative, to start out and raise a row in the interests of Civil Aviation.

Moreover, it seems that the said officials are still handicapped by being in uniform, and so cannot, even if they they had the pluck, do their duty properly. Obviously a captain or a major or a lieutenant-colonel in one Department cannot go to a General of one sort or another in a different Department, and tell him that his subordinates are either a set of amazing fools or else a crowd of crooks.

A civilian could do so, just as easily as one can oneself, though perhaps he might do it more politely. And that is what ought to be told to the Chiefs in the Supply Department. And the sooner they realise the fact the better.

The Official Rubbish Heap.

During the war one pointed out over and over again that the technical people in the Air Ministry with very few exceptions were the "throw-outs" of the Aircraft Industry and of the Motor Trade. Almost everybody who was any real good was producing aircraft, and not sitting in the Hotel Bolo.

To-day the position is obviously worse. Since the Armistice removed the immediate need for dodging trenches even those who could not get jobs in the Aircraft Industry have cleared out of the Hotel Bolo. A vast percentage of the Air Ministry "experts" have returned to their pre-war avocations as motor touts, book-makers, advertisement canvassers, and so forth. Consequently the people who are still left in the technical jobs, and have the fate of British Aeronautics in their hands, are those who are so astoundingly bad that they cannot get a job of any sort anywhere except in the Air Ministry.

There are, of course, a few exceptions, such as regular officers in the R.A.F. whose whole career is wrapped up in the King's Service, and a few enthusiasts who see that it is their duty to stay in the R.A.F. and try to make a success of its technical work. But, taking it by and large, one is fairly safe in saying that whereas the various Technical Departments during the war were merely the scrap-heap of the Aircraft Industry, they are now the rubbish-heap of all British trades. And nobody will agree more cordially with this dictum than will the few remaining good men who are condemned to work with this commercial residue.

A Crying Need.

Naturally this state of affairs cannot continue. It cannot be allowed to continue. And, above all, the people who have up to the present made such an unholy mess of commercial aeronautics within the British Isles cannot be allowed to extend their dire influence to International Air Navigation.

There is a crying need for drastic reform in the three Departments which affect commercial aeronautics, the Civil Aviation Department, the Supply Department, and the Aeronautical Inspection Department. The purely Military (including the Naval) side of the Air Ministry is doing very well indeed. So is the Research

Department—which, one hears, is displaying an intelligent appreciation of good work and is operating in a way which would have made a vast difference to the R.A.F. in the Field if only it had been in similarly capable hands during the war.

The Air Ministry to-day rejoices in a Department of Information under a very able officer who has already done much valuable work. One would like to suggest that perhaps the most valuable information which this Department could issue at the moment would be a complete list of all the officials in the three Departments before-mentioned, together with an account of the qualifications for his job of each of the officials in that list. One believes that the resultant document would be both entertaining and educative, as well as funny without being vulgar.

Reform Agitation.

In any case reform is needed, and reform will have to come. All reforms are preceded by agitation, as witness every reform, from Wat Tyler's Rebellion and earlier, down to the Yorkshire Coal Strike. The agitations of 1915 and early 1916 resulted in the Air Enquiry Committee of 1916 and the reforms which resulted in the R.F.C. winning the command of the air in 1917.

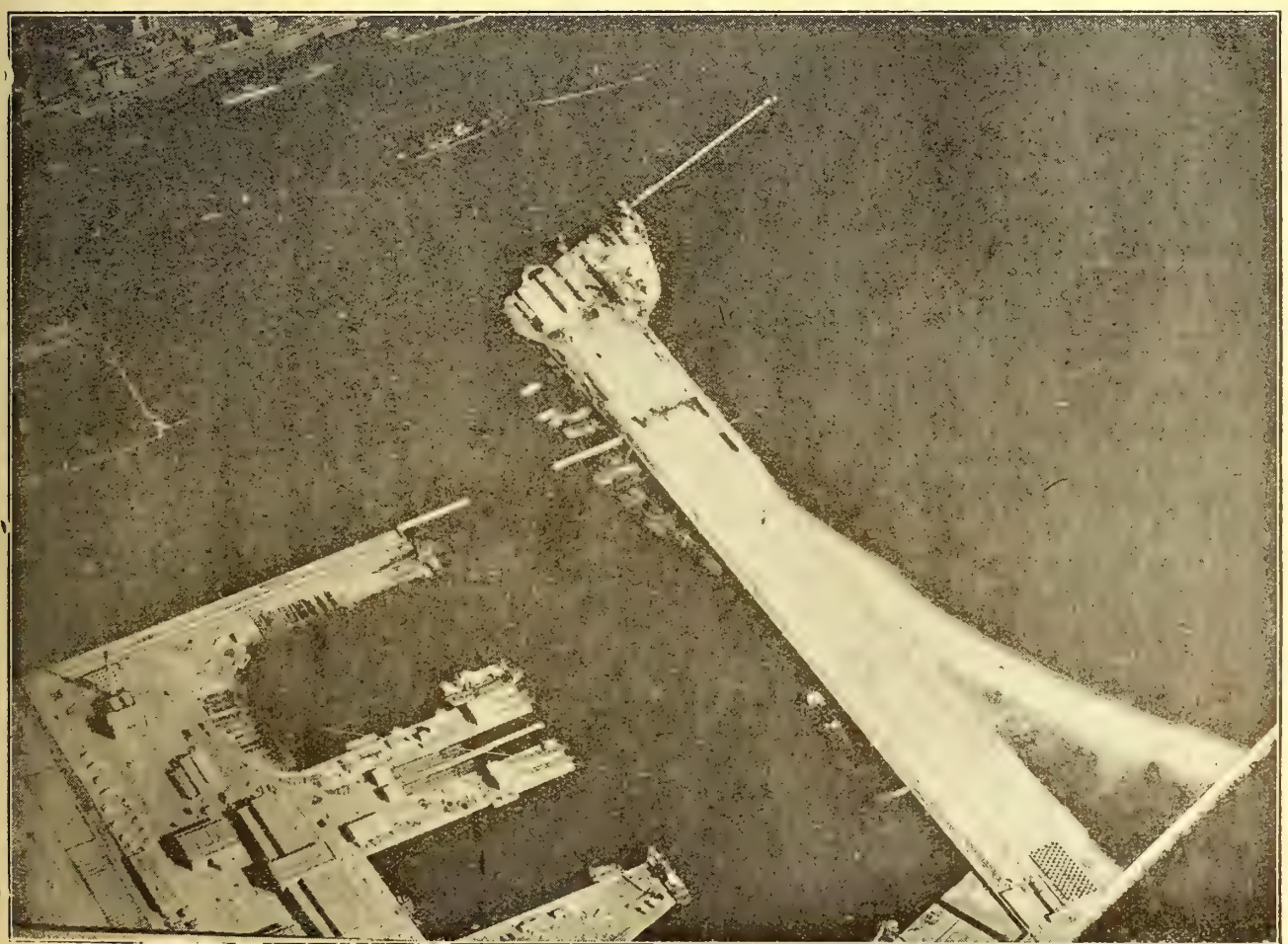
Something of a very similar nature seems to be afoot to-day. One hopes that it will not be necessary to hold another Air Enquiry, but if it becomes necessary it ought to be more amusing than the 1916 Enquiry, if only because the manufacturers will have no fear of losing Government orders, because at the present rate of progress they will have none to lose. Those whose Departments are at fault will do well to set their houses in order without waiting for the agitation to develop further, for thus they may hold their jobs. If they do not reform their Departments themselves they are bound to suffer accordingly, for even though they may not themselves be to blame they are none the less officially responsible for the misfeasances of their underlings.

Lack of Faith.

It is true that the Air Ministry is not alone to blame for the present state of affairs. In a particularly amusing article, on page 445 of this issue, that humorous but eminently practical writer "Medway" discourses on "Men of Little Faith," and one fears that he is only too right in his belief that some people in the Aircraft Industry themselves lack faith in the future of commercial aeronautics. Magnificent chances of securing foreign business are being lost, largely through lack of enterprise. And that lack of enterprise is simply caused by lack of faith, for those who are losing the opportunities have shown plenty of enterprise in other directions.

The Aircraft Industry must convince itself that there is money to be made out of International Air Navigation. It is no use sitting still and waiting for the money to make itself out of Government orders, and out of foreign Governments who, it is hoped, will come over here and beg us to let them buy aeroplanes.

Not long ago one was arguing with a very astute business man who was hesitating whether to spend some of his war profits on commercial aviation. One pointed out to him that if he got hold of a railway concession in, say, China he would not hesitate to spend a few millions and would not expect any return for his money for three or four years, and that he could well afford to do the same with aviation. His reply was simply that if he built a railway he would know that as soon as the railway began running he would be assured of a definite number of third-class fares and a definite amount of goods traffic.



THE HARBOUR, PORT SAID.—A German aerial photograph showing the Mole at Port Said Harbour.

The reply was ingenious, but not convincing. One holds firmly to the belief that it is possible to go out and *make* a market for civil aerial transport if one sets to work the right way. And it is just this faith which is lacking in so many who could afford to go out and make their own markets if so disposed.

The Monopoly Question.

Major C. C. Turner, in his latest article in the "Observer," raises another point which has a bearing on the present "hold-up" in commercial aeronautics, if one admits his premises. He says:—

"There is too much evidence of internal strife, which is certain to increase as the situation, owing to the lack of Government encouragement, makes it increasingly difficult for individual firms. There are some who say this situation has been brought about deliberately. There is a struggle to secure absolute control by one monopoly working side by side with the Government establishment. The movement goes so far as to include the aeronautical bodies. The Royal Aero Club is probably regarded as a nuisance, since its insistence upon the care for the sporting and private side of flying runs counter at almost every point to monopoly, State or private. The Royal Aero Club gets stronger and stronger, in spite of insidious influences and counter-mining. The Royal Aeronautical Society is, in the nature of things, easier prey.

"But the nation's best interests are too closely concerned with the maintenance of a virile industry, with room and freedom for every capable designer and for the greatest versatility and diversity of talent, for anyone who has those interests at heart to submit to influences that, working on no matter how reasonable-seeming excuses and motives, are essentially inimical to the country's welfare."

The "congealed inuendo," as Mrs. Malaprop called it, is not hard to follow. According to Major Turner, if one reads aright, some firm or other is trying to "corner" commercial aeronautics, and to queer everybody else's pitch in the process. The only question is, which firm?

Obviously one thinks of Mr. Holt Thomas's group first. The Aircraft Mfg. Co., Ltd.; Aircraft Transport and Travel, Ltd.; Airships, Ltd.; The Gnôme and Le Rhône Engine Co., Ltd.; Peter Hooker, Ltd.; and perhaps a few more of which one is ignorant, make a formidable list of producing firms. And when one considers Major-General Brancker, Brigadier-General Festing, Lieut.-Col. O'Gorman, Mr. Alfred Turner, and sundry other ex-officers and ex-officials, one perceives a galaxy of talent which might well make a successful effort to secure a monopoly of civil aerial transport.

But then again there is Sir Samuel Waring's group, the Alliance Aeroplane Co., the Bat Co., the A.B.C. Engine Co., and a few more; and a number of astute business men concerned therewith. Also there is that benevolent autocracy known as Handley Page, Ltd. And there is a little affair called Vickers, Ltd., which has a few stray Admirals, Generals, officers of lower rank, any quantity of M.Ps., and several millions of capital, which it can use to fight or to create a monopoly. And there is a concern named William Beardmore and Co., Ltd., which carries some weight. And another familiarly known as Armstrong-Whitworths. Not to mention the variegated ramifications pertaining to Boulton and Paul, Ltd., and the solidly compact Sopwith Co., Martinsyde, Ltd., and sundry others.

Any or all or each of them might be severally, separately, or conjointly trying to create a monopoly. And the more they try the better for trade. Competition is the life-blood of business, and commercial progress in aeronautics as in everything else depends on a chronic infraction of the Tenth Commandment. Therefore good luck to whomsoever may be trying to secure a monopoly. By trying they will stir up competition. And that will be just exactly what is wanted to stir up the Air Ministry.

International Air Navigation.

Meantime International Air Navigation is not yet a practical proposition. Although the Convention has been signed it has not yet been ratified or passed for necessary action, or whatever it is called, by the various High Contracting Powers. Apparently one cannot yet pack one's grip and take an air trip to one's old home town in a foreign country, nor can one start from Lympne (pronounced Limb) in Kent after lunch for a tour of the battle-fields of France before returning to dinner. International politics still intervene.

Perhaps by the time International Flying becomes legal the Departments of Civil Aviation, Supply, and Aeronautical Inspection will have reformed themselves and all will have become well. But one doubts it. Even International Politics work more quickly than does the internal reform of Government Departments. Still, the said Departments cannot plead that they have not had fair warning.

One notices that so far one has said nothing about the text of the International Air Convention. Perhaps therefore one had better postpone writing about it till next week. One hopes that by then all readers of these notes will have procured a copy and so will be better able to follow the arguments thereon.—C. G. G.

THE QUEEN OF NORWAY AND AVIATION.

Her Majesty Queen Maud of Norway, accompanied by the British Chargé d'Affaires, Mr. Esmondovey, went for a flight in an aeroplane on July 24th.

AN R.N.A.S. DINNER.

It is proposed to hold a dinner for officers of the late R.N.A.S. who were at Hendon between August 4th, 1914, and March 31st, 1915. It is proposed that this dinner be held at the Café Royal on August 16th next. The tickets should work out at about £2 2s. to include wines and breakages. Would any officer desirous of attending such a dinner write Captain H. H. Square at 3, Clifford Street, as soon as possible?

PAY IN THE R.A.F.

The following letter has been received:—

Sir,—In last week's issue of The Aeroplane I note you say, "That officers in the Royal Air Force will now be able to live on the new rates of pay. This does not apparently appear to be the view of the remaining officers in the Force.

An infantry captain is encouraged to marry at that rank, but can you inform me how a married Air Force captain can live, according to his position, on 29s. a day (a decrease of 4s. 6d. per day on present pay)? Woe to him, indeed, if he is blessed with children!

I am detailing a rough statement of my brother's expenditure, and defy anyone to show extravagance or unnecessary items. I am also omitting any sum for the education and clothing of his two children:—

	£
Mess expenses (yearly)	72
Uniform	60
Rent and rates	65
Maid	20
Household expenses (food, etc.)	200
Clothing (wife)	60
	477

These items are absolutely at the lowest computation, and the balance of £54 is supposed to cover incidental expenses, travelling, income-tax, etc. Obviously it is inadequate.

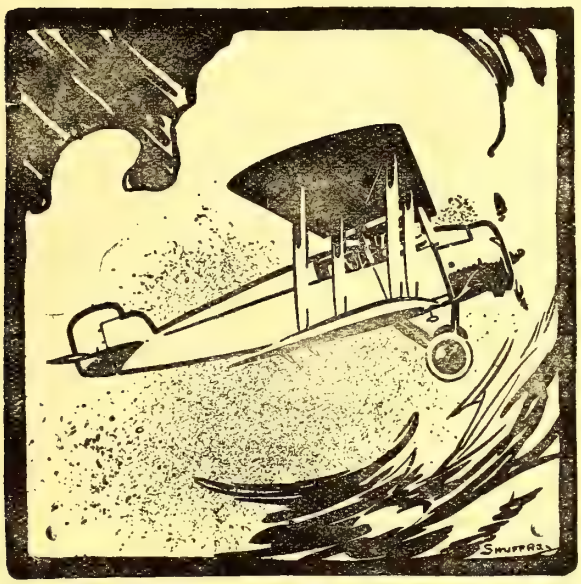
My brother has completed some hundreds of hours' flying, and, to the best of my knowledge, is still competent. He is also a pre-war soldier, and is acquainted with army routine in all its phases. However, unless someone can suggest a sane and sensible solution of how to live on the existing rates of pay he will have to leave the Force.

Apologising for writing at such length.

Late Major, R.E.

CIVIL FLYING

WITH



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THE PAY OF THE ROYAL AIR FORCE.

By HENRY FORESTER.

Pay for officers in the fighting services of great countries has never through the ages been an affair of first importance. To fight for the king and for the nation has been both the privilege and the duty of those born in gentle estate. It was the price paid for lineage, and it was at the same time an exclusive joy. None can imagine even the most material of paymasters assessing in the metal of commerce the national daily value of Sir Philip Sidney. Neither Wolfe nor Sir John Moore nor Nelson nor his Grace of Wellington would have served the king with less devotion had the rates of pay been less than they were, or had even they been non-existent. These were leaders in the art of war, the inspiration of the age, and it is perhaps unfair to quote them as instances of the futility of daily money values in the military Services of the Crown, but it is nevertheless true that soldiers or sailors have never in recent centuries selected their professions with a view of earthly prosperity. Piracy, the Stock Exchange, the law, and other professions of a similar nature all held and still hold greater and more certain possibilities of wealth. It is the soul and not the substance which makes the great soldiers.

Yet it is unfair to historic truth to forget that inadequacies of pay in the lower ranks were made up in time of war by loot gained by vigour in action. Loot to-day is the privilege of the civilian who serves his country best by remaining far from the fields of war in a security gained at the cost of those in whom the old spirit of service survives. Hence it is necessary that the soldier of to-day should be paid a living wage. No longer is the officer drawn exclusively from a class in which wealth was common. The noble and the gentle classes of to-day are in general possessed of but moderate means, and it is no longer possible for them to serve the country entirely at their own expense.

The Great War has passed, and with it many of the habits and customs of long gone days. The world is changed, and the conditions of existence are no longer the same. It is no longer possible to rely on the spoliation of a defeated enemy for the maintenance of officers and men of the victorious army. Wars are too few to make such a system profitable to the military or charming to the civilian. Hence the three Services have in the past few weeks reorganised the conditions of service which formerly were the rule. On July 21st the Air Ministry issued a minute outlining the new scale of pay in the Royal Air Force in so far as officers were concerned, and it is with that minute that I propose to deal in this paper.

The most prominent feature of the new scale is the disappearance of flying pay. No longer is any officer to receive any additional remuneration because he is called upon to fly. With the exception of certain specialist services of a non-executive kind (such as the chaplains, the dentists, and the doctors), all officers of equal rank in the Royal Air Force will receive an equal rate of pay. It is true that in order to allay criticism it is laid down that all executive officers in the Service shall be trained as pilots, and will be liable to carry out flying duties at any time. But in practice the difference from present conditions will be but slight. No man can do two things at once with adequacy and efficiency, and it is absurd to expect staff officers or those specially engaged in administrative or technical work to do the duties of a pilot as well, even though these duties may be intermittent.

Many flying officers have held the opinion that the risks attendant on their mode of life should be recompensed by additional payment. They have regarded with faintly concealed contempt such officers as have been engaged exclusively in non-flying duties. They have never given proper credit to these others for the hard work and the mental capacity which was demanded by an efficient execution of the work allotted to them. As a parallel instance, it is generally known that the man in the trenches thinks that the staff officer lives an easy and guarded existence, and that his uses in life are not very high. It is a fallacy which, like the majority of fallacies, is strongly held by the majority of people.

The service of the King is not and cannot be a career of profit. It does not produce millionaires. Glory may be achieved, but never fortune. Heroism cannot be scaled in money values, nor can devotion to duty. Nor

FLYING IN NEW ZEALAND.—Another View of Auckland taken from one of the Walsh Brothers' Flying Boats.

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does it cost a hero (flying) any more to buy a beefsteak than it does the humbler non-flying officer. Hence in arranging a scale of pay the simplest and fairest plan is to provide each rank with the emoluments necessary to decent existence, irrespective of the specific duties of each category of the rank. It is a privilege to be heroic, and bravery is not a financial asset. Each officer in the Service, so long as he does his duty, is essential in the scheme of things, and he could not well be eliminated if success is to be attained. One is therefore convinced that the Air Ministry have chosen the right course in this matter.

The special rates of pay (consolidated) paid to staff officers in the Royal Air Force have disappeared, save in the case of officers serving at the Air Ministry, who all receive additional pay ranging from £75 to £100 a year. This is intended to represent the additional cost of living in London. Directors and Deputy Directors who sit in solitary glory in whatever evacuated hotel or other building may from day to day house the Air Ministry receive special rates, irrespective of ranks. Directors have an increase of £500 per annum in some cases and £1,000 in others, the fixed rate being £2,000 a year. Corresponding improvements are made in the case of Deputy Directors.

But these aristocrats of the administration are not interesting. It is with the lower ranks of officer that one must first deal. Second lieutenants of all types now receive the rate of pay formerly given to junior flying officers—18s. a day—while all lieutenants receive 23s. a day, rising to 25s. after two years' service in the rank—that is to say, a final increase of 1s. a day over the former highest rate for the rank. Thus flying officers gain but little in the new rates, while administrative subalterns double their previous pay. There will be jubilation amongst the office files, and the adjutant will feel that he has not lived in vain. Even staff officers do not lose under the new system, though the fact that they do not get higher pay for their more responsible and more wearying work will reduce the desire to be posted to the staff.

(To be continued.)

CONCERNING KITE BALLOONS.

By the Late W. L. Wade.

To the older readers of The Aeroplane the early history of the kite balloons in this war is fairly well known, but for the benefit of those who have but recently acquired an interest in aeronautical matters it may be well to point out that the invention of the kite balloon, as an improvement on the ordinary spherical captive observation balloon, must be credited to the Germans.

The first of these balloons was used a considerable time before the outbreak of war, and the Germans employed quite a number of them in the military manœuvres of the years immediately preceding hostilities.

In 1914 neither the British nor French Armies possessed a single kite balloon, and considerable scepticism evidently existed as to their probable usefulness in war time.

Curiously enough, the only kite balloon in the possession of the Allies at the outbreak of war belonged to the Belgian Army, to whom it had been sold by Germany, probably in a moment of commercal enthusiasm.

The Germans very quickly put large kite balloons, which incidentally were known by the name of the firm which produced them, Parseval-Siegsfeld, into operation on the Western front, and they soon proved a valuable adjunct to aeroplanes in connection with artillery spotting, and in practice they were found to be a great deal more difficult to destroy by hostile artillery fire than might be imagined. In those days also, anti-aircraft measures of all kinds had not reached a very high state of effectiveness, so that the Parseval-Siegsfeld kite balloons were found to enjoy a considerable degree of safety.

The Result of an Agitation.

Although the operations of these machines quickly attracted the interest of many soldiers on active service, particularly certain progressive artillery officers, it was difficult to arouse enthusiasm in high places concerning their possibilities, and a public agitation arose, in which The Aeroplane took a prominent part.

Finally the Royal Naval Air Service decided to add one more to its wide range of activities, and therefore established a Kite Balloon Section, an experimental and instructional station being established at Roehampton under Lt.-Col. (now Brig.-Gen.) E. M. Maitland, with Squadron-Commander DelaCombe as his "Number One."

A number of balloon units were organised and personnel trained, and before long a number of balloons were sent to France to assist a somewhat sceptical Army in the punctual and correct delivery of its shells.

The possibilities of the kite balloon as a purely Naval weapon were also appreciated, and certain steamships were adapted to carry a balloon for observation purposes at sea, one of the ships being sent at an early date to the Dardanelles, where some extremely amusing episodes arose as the result of the lack of faith on the part of certain "stick and string" Naval officers.

After a short experience with the Naval balloons the military authorities were so impressed with the results that they promptly took measures for the acquisition of a supply of balloons manned by personnel drawn from the Royal Flying Corps; whereupon the Naval balloonists were told to look for other spheres of activity.

On the Western Front.

Before very long the chain of kite balloons which appeared to the rear of either side of the fighting line became such a source of annoyance and danger to the troops which served as the targets of the guns which were directed by the different balloons, that all belligerents arrived at a mutual decision to clear their opponents' balloons out of the sky, and all sorts of unpleasant tactics were adopted with this end in view.

The offensive was made both from the air and from the ground. Incendiary bullets had not then reached a high state of development, and after more or less ineffectual attempts to bomb the balloons from overhead, aeroplanes were specially fitted up with batteries of rockets which proved to be fairly successful.

From the ground anti-aircraft guns attacked the balloons in the air, and long-range artillery of the ordinary type made it their business to shell the winches on the ground with the object of severing the mooring cables. These latter guns were, on the whole, much more successful than the anti-aircraft guns, and rendered it necessary for the balloon operators constantly to alter the position of their winches.

Balloon casualties became unpleasantly frequent, and as the destruction of their crews was usually a secondary result of the destruction of the balloons, it became necessary to devise a means of escape for the observers when their balloons were set on fire.

Then, for the first time in the war, the parachute was put into general use, and although it constituted a measure of safety to the balloon observers it also added one more trial to their lives, owing to its then comparative uncertainty of operation; and it must be remembered that practice jumps were necessary, these being a great deal more trying to the nerves than forced jumps at moments of danger.

As a rule, the early parachutes opened properly provided they were given sufficient time, but on occasion the time taken was so long that the unfortunate observer fell some hundreds, and occasionally some thousands, of feet before he received any support. It must have been enough to deprive almost any man of his reason to feel himself whizzing through the air and to look up overhead and see his parachute trailing behind him looking very much like a crumpled sheet.

At the present time, of course, the parachute has become as reliable in its operation as almost any other form of mechanical apparatus, but it must have been a veritable nightmare in the early days.

Important Improvements.

The kite balloon as produced by the Germans was a fairly crude arrangement, and it was promptly improved by the Allies, notably as a result of the work of Capt. Caquot, of the French Army, who redesigned the balloon in such a manner as to increase its stability, and to reduce its head resistance, which resulted in the diminution of the strain on the mooring cable and thenceforth throughout the war it was regarded as indispensable to the efficient use of artillery.

In the meantime the Royal Naval Air Service had been left to go its own way with the development of the kite balloon as a naval instrument, which chiefly found service in connection with anti-submarine patrols and escorts to transport and mercantile shipping, and no other measure did more to destroy the morale of the crews of enemy submarines. In this connection the kite balloons did not operate only from special ships, but they were also towed from the sterns of destroyers, patrol boats, and in certain instances by merchant ships.

The last use to which kite balloons were put was in connection with defence against hostile bombing aeroplanes, kite balloons being set up in rows, which supported rows of steel wires technically known as "aprons," which were calculated to obstruct the passage of aeroplanes in the dark. These kite balloon aprons resulted both in moral and material damage to the raiders.

Taking it all round, therefore, the kite balloon has been a decidedly important factor in the war, and it is not beyond possibility that further may be heard of its activities in connection with civil aerial transport.

B.T.H. Magnetos

all-British in design and workmanship, were used **on the first Airship to cross the Atlantic, the R. 34,** on the aeroplanes which secured the British altitude record, and the first and second prize-winners of the Victory Aerial Derby at Hendon.

The above performances add to the record of B.T.H. Magnetos, and support the high opinion in which they were held by pilots during the war for reliability in service.

The British Thomson-Houston Co., Ltd.,
Lower Ford Street, Coventry, England.
Member of the British Ignition Apparatus Association.

B T-H

The WORLD of AERONAUTICS

NEWS OF THE WEEK FROM ALL QUARTERS

An Aerial Black Maria.

It is reported from the United States of America that for the first time in history a prisoner is to be transported by aeroplane from the place where he was captured to the appointed court of trial.

It is believed that by this system of giving joy rides to criminals the pre-dry average of crime may be kept up, as it is said that since the happy days of dampness law-breaking has decreased, and unless some inducements are given to criminals it it feared that some of the police will be thrown out of employment.

Heavy-Weight Aviators.

A writer in "Country Life" states that:—"Increase in size in airships means an increase in their crew, but not necessarily proportional to that in the ship itself. Thus, whereas the crew of the R.34 weighed, say, five tons—which is a generous allowance, as we are not actually quoting from definite figures—the crew of an airship of five times the size and nearly ten times the lifting capacity might be reasonably expected not to exceed 10 tons."

One agrees that the estimate of five tons as the weight of the crew of the R.34 is a generous one, as it implies that each member of the crew, even including the cat, must have weighed about 25 stone.

The Flying Ring.

According to "The Aerial Age" of America:—

"The recruiting service of the Army has planned a novel stunt in connection with their recruiting campaign. A boxing match aboard an aeroplane will take place over Camp Dix, providing the New Jersey State Boxing Commission enters no objection, though how far above the earth the authority of the commissioners may run is a question.

"Lieut. John S. Donaldson, of the First Pursuit Squadron, challenged all-comers to meet him with gloves. The challenge was accepted by Lieut. Leroy M. Wightman, a machine-gun officer handy with the padded mits. The boxers will be belted within a tiny ring in the tonneau of a large bombing plane so that there will be no danger of a plunge to earth in case of a knockout. The flying ring will be driven by Sergeant John Moore, and it is planned to have the referee and timers in another plane that will keep alongside the boxers' plane so that they can judge the points and time the rounds."

The chief difficulty seems to be the provision of view points for spectators. If hundreds of aeroplanes carrying sport-loving passengers circle round the "flying ring" there may be an exciting time.

Flying Chaperones.

An American periodical reports that:—"Because a student at Vassar took a long air ride with a young lieutenant in the U.S. Air Service, the possibilities are that aeroplane joy rides may become prohibited by the social laws of Vassar College. The student's name has been withheld, but because of her exploit the students have considered inserting rules for aeroplaning into the laws, which are made and enforced by the students' association.

"An army aviator was flying over the college grounds, and landed in the driving park. He asked one of the students strolling nearby whether she would care to go up with him, and she accepted. It is not yet decided whether this is a violation of the rule against going riding unchaperoned, but aviators are advised for the present to use three-passenger planes."

The point that is not clear is whether each young army aviator is expected to carry his own chaperone in his three-seater or if he is to rely upon local resources for the supply of one when the exigency arrives.

One suggests that the former is the more practical scheme, and that an official corps of flying chaperones should be organised, and that they should wear the observer's wings, with perhaps a heart in place of the conventionalised eye.

Conductors to——

In view of airship accidents a number of writers in the lay Press have been suggesting that all airships should be fitted with lightning conductors. The columns of hot air written on this subject would form excellent conductors, doubtless, but the people who make the brainy suggestion do not point out a practical method of conveying the electric fluid to earth. An unearthed conductor would be an invitation to lightning. Can it be that this sort of thing is part of the Bolshevic propaganda?

In the Fashion.

Reuter has announced a strike of mail pilots in the United States of America. It was declared on Friday, July 25th, following on the refusal of the Post Office Department to reinstate two pilots who had been discharged on account of refusing to ascend in fog recently. The New York-Chicago air mail service is affected.

His Master's "Hum."

"A. R. E. M.," in the "Dundee Advertiser," has been telling some dog stories. He writes:—

"During the war most air stations had their full complement of canine mascots. Quite a number of these dogs were confirmed fliers, and I knew several of them who had done enough hours in the air to qualify for their 'wings' long before the Armistice.

"A . . . remarkable animal is a fox-terrier which belongs to one of our best-known airship pilots. The first time this dog was taken for a flight he got so terrified that he jumped out of the ship and fell fully twenty feet to the ground.

"When he was taken up on subsequent occasions the precaution was taken of tying him in, but, strangely enough, he showed no fear afterwards, and made no efforts to get swiftly back to earth. This dog has up to date done considerably over 100 hours' flying.

"The most remarkable thing about him, however, was this. By some wonderful means he always knew his master's airship when it was coming home. Two or three ships might come in from patrol perhaps at dusk, and he would pay no attention to them. Then presently his master's ship would be sighted, and away he would go down to the landing-ground to welcome it.

"None of those who noticed him doing this time after time knew how he was able to distinguish one ship from the other. Perhaps there was something in the hum of the engine that he recognised, or perhaps it was just instinct—but the fact remains that he undoubtedly did know."

An Aerial Grand Stand.

According to a correspondent of "The Times," "an aerial wedding was the feature of the New York police athletic meeting . . . . . when Miss Wily Schaeffer, of this city, and Lieutenant George Burgess, of the United States Aviation Corps, were married in mid-air with the assistance of the wireless telephone. The ceremony was performed by the Rev. Alexander Wouters in the presence of thousands of people at a height of 2,000 feet.

"The young couple ascended in one machine while the clergyman was a passenger in a second aeroplane, from which, using a wireless telephone, he read the marriage service and heard the bride and bridegroom exchange their vows. The witnesses, the best man, and the bridesmaid remained on *terra firma*, where, together with the crowd which filled the grand stand, they could hear every word of the service by means of megaphones attached to wireless telephone receivers."

After reading of the attendance of "thousands of people at a height of 2,000 feet," one is disappointed to read in the second paragraph that these wedding guests were in a grand stand on the ground.

One wonders how much further this kind of imbecility can go.

In Haste.

According to the "Aerial Age," of America, "Lieut. Warren P. Kite, for twenty-two months instructor at Kelly Field, eloped with Miss Orpha Kate Arnold, ranch owner and oil operator of Larned, Kans. After a 55-minute flight he landed at Hays, where the ceremony took place. Lieut. Kite arrived at Larned nine days previous to the wedding, in order to participate in local home-coming celebrations, during which he became acquainted with the bride."

One's experience of American methods of non-production of aeroplanes during the war led one to believe that the reputation for "hustle" previously held by the U.S.A. was overrated. But Lieut. Kite is evidently one of the much-advertised "do-it-now" type. To have eloped by aeroplane with a lady he had met only nine days previously indicates enterprise. One's good wishes are with the couple.

A Generous Gift.

Captain Sir John Alcock and Sir A. Whitten-Brown have given £2,000 to the employees at Vickers' Weybridge works who constructed the aeroplane in which they crossed the Atlantic. The firm is supplementing the amount to make it sufficient to pay one week's wages to all the employees at the works.

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The WORLD of AERONAUTICS (continued)

On Peace Night.

In the "Referee" of July 20th, "Dagonet" wrote:—

"I have always respected peace, but on the night of July 19th I looked down upon it. I looked down upon it from the heavens above. What a sight! At first I hesitated about looking down, because I was afraid it would make me giddy. But it didn't. My giddy days are evidently over. I felt so comfortable that I was able to write in the notebook that I took up with me. I thought of writing a full account of peace night as I saw it from the aeroplane and dropping the sheets down one by one addressed to the Editor of the 'Referee,' with a written request that anyone picking them up would carry them at once to the 'Referee' office. But I realised that there might be more difficulty in getting about down below than I was experiencing up above. So I reserved my description for a more convenient occasion, and asked my friend to put me down near Salisbury Square. He explained that it was within the four-mile radiance—I beg pardon, radius—and that he couldn't, but that he would drop me on the edge of the radius. And he did."

The Production of Gas.

The world of aeronautics and the production of gas—or hot air in lieu thereof—have long been indissolubly connected. The present note deals, however, with that rarer, more silent, and efficient branch of the subject which has to do with the chemistry and manufacture of hydrogen.

Major P. Litherband Teed, A.R.S.M., A.I.M.M., has during the war been very intimately connected with the production of the hydrogen used for the inflation of the numerous lighter-than-air craft which have been used in H.M. Service during the war, and in "The Chemistry and Manufacture of Hydrogen" (Edward Arnold; price 10s. 6d.) he has embodied the latest and most up-to-date information as to the qualities of hydrogen and the various processes by which it may be manufactured.

The chemistry of hydrogen in its inorganic combinations and in certain of its more important organic compounds is dealt with briefly, but in a manner intelligible to those whose chemical knowledge is of the most elementary. Both the chemistry and the practical methods employed in the various methods which may be used for the commercial production of the gas are described in detail and the advantages and disadvantages of each process are discussed.

The book gives lists of the existing patents which affect the various papers, and terminates with an appendix giving the physical constants of hydrogen in a form applicable to aeronautical use.

A Literary Effort.

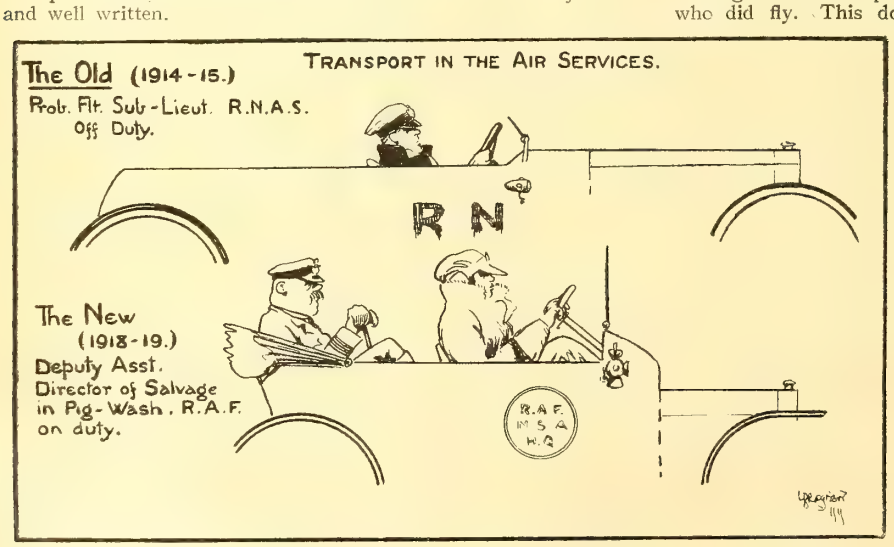
The story of their pioneer attempt to cross the Atlantic is told by Mr. H. G. Hawker, M.B.E., A.F.C., and Lieut.-Commander K. Mackenzie Grieve, A.F.C., R.N., in their book, "Our Atlantic Attempt," published on July 15th (Methuen. 3s. 6d. net).

The preface is written by Major-General the Right Hon. J. E. B. Seely, C.B., C.M.G., D.S.O., M.P., the Under-Secretary of State for Air. Mr. Hawker has written most of the chapters, and seems very pleased with everyone, and showers praise on the "Daily Mail," the machine, and everything connected with the flight.

Lieut.-Commander Grieve tells about the difficulties of navigating, and supplies some notes on the flight.

The story is somewhat disconnected, and there is some duplication of facts, but it is quite interesting reading.

Captain Gordon Aston's introduction is extraordinarily sound and well written.



The Projected Australian Flight.

The following letter has been received:—

Sir,—With reference to the scheme for the formation of an Imperial Aerial Survey Corps which I have seen outlined in a contemporary service paper I trust that I may be permitted to express an opinion on this matter, which, as a traveller and a soldier, is one which is deeply interesting to one such as myself.

It is indeed gratifying to note the position the Australian Government has taken with regard to the projected Australian flight, and as one who is conversant with the general policy of the Commonwealth Government, I think we shall find that our Overseas Dominions will be scoring over the Mother Country as regards commercial aviation. I say this having in mind the persistent procrastination of the responsible authorities at Home dealing with this crucial matter.

We have sufficient evidence to confirm what I have previously said when we read that the Australian Government are doing everything that is possible to assist their flying men in obtaining a thorough training before undertaking the more serious work of piloting machines across the southern seas.

If only our own official mandarins would take a more broad-minded view of the matter and dispense with the innumerable Governmental channels there is every reason why we too should now open a much brighter prospective future for those numerous pilots who at present see no hope of utilising their war experience on a profitable basis. By this principle we can show our Colonies that we have a sporting Government out to play the game by our fighting men in addition to furthering our aviation future. F. W. Nicholson (late B.E.F., and W. Australia).

The War and Victory Medals.

The following letter has been received:—

Sir,—May I bring to your notice the fact that the men who manned the anti-aircraft searchlights and guns in England are not included in the award of the British war and victory medals?

Many of us during the war volunteered for service overseas, but were refused on the grounds that we were just as much on active service repelling hostile aircraft at home as if we were in France.

Now, at the end of the war we find ourselves with nothing to show for our services, while several people who "entered a theatre of war" and are entitled to the medals never heard a shot fired.

In view of the fact that the old R.F.C. and R.A.F. airmen who composed the Home Defence squadrons are to receive the medal, surely we, who contributed in no small measure to the success of the Anti-Aircraft Defence, are entitled to some recognition?

Ex-Sapper.

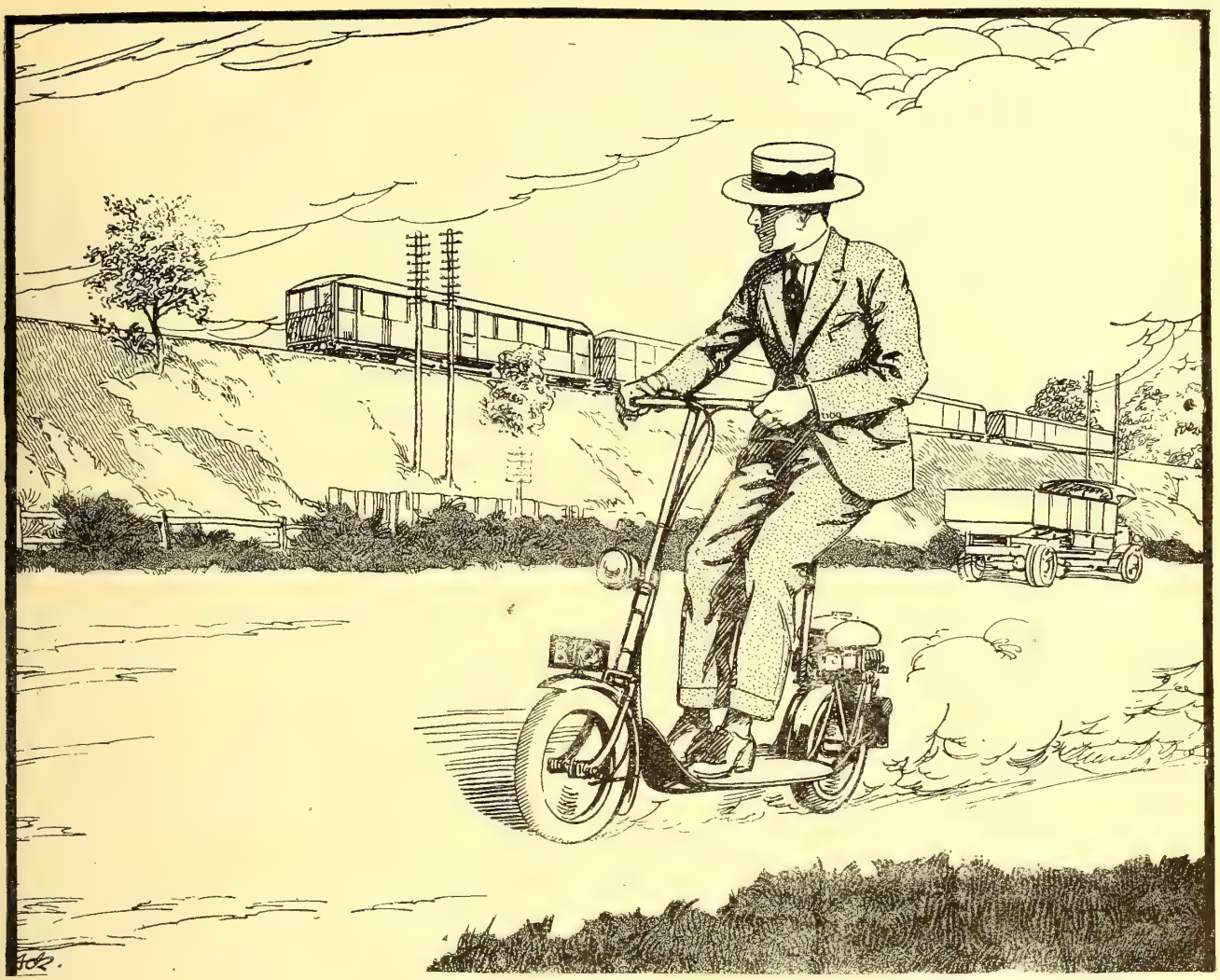
Pensions for R.A.F. Officers.

Sir,—I should be glad if you would kindly allow me to draw the attention of your readers to a misleading paragraph in The Aeroplane entitled "Pensions for R.A.F. Officers."

No doubt, a number of ex-officers will regard this announcement as a genuine offer to consider their claims, but the majority will probably regard it as a farce, which I can prove it is.

In June, 1916, whilst serving in France as a private, my O.C. advised me to apply for a commission. I acted upon his instructions, and applied to the R.F.C. people, who sent me chasing over half of France to be examined by various doctors. Not satisfied with their findings, which, strange to say, all agreed that I was A1 and fit to fly, the Great Ones told me to report in London at the Hotel Cecil, where I was again examined by a civilian doctor, the only gentleman I ever met in the R.F.C. holding an official position, as distinguished from the R.F.C. who did fly. This doctor agreed with my former examiners, and I was sent back to France to await developments. About the last week in July I received a telegram from the War Office to inform me that I was a full-blown second lieutenant. A few days later a letter arrived from the War Office containing instructions *re* kit and reporting orders.

Whilst in training in England, I experienced pains in my body, which became so acute that I was one day carried from the aerodrome to my quarters, a draughty, leaky hut, and I lay there until the doctor arrived. Certain other events transpired, and I was sent for a Medical Board to the Hotel Cecil, where I was pronounced "Unfit any duty for three months." At the expiration of this period I was again "boarded" and pronounced "Unfit for any duty for six weeks." Eventually I was kicked out as "Unfit as pilot or observer" and granted £33. For over twelve months I was under my own doctor's in-



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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

The WORLD of AERONAUTICS (continued)

structions and received treatment for rheumatism. I was treated at various military hospitals for the same complaint, and although I frequently sent particulars of my case to the Ministry of Pensions, accompanied by medical certificates, I could not get any satisfaction until I threatened to state my case in the Press. Then the "Heroes of the Great War" sat up, rubbed their eyes, and did something in this fashion.

One morning at 10 o'clock an orderly in the R.A.M.C. arrived at my home and presented me with a note instructing me "to report at the 2nd Western General Hospital, Manchester, at 9.30 a.m., February 12th, 1918, for a Medical Board." It was then half an hour after time, but I went to the hospital and received a "ticking-off" from a colonel for coming late. I allowed the gentleman (?) to finish his speech, and then pointed out to him what had taken place. He merely grunted, "Sit down; I'll see you presently," and he left me. A few minutes later I was joined by a captain of the R.A.M.C. on leave from the East, and seeking an extension of leave on the grounds of being "unfit to travel." The colonel then returned, accompanied by a corporal, and after a few words with my captain acquaintance he turned to me and said, "Oh, yes, now and how do you feel?"

They all three then sat round a table, and the corporal R.A.M.C. began to question me. I at once asked the colonel if this sitting was my Board, and he replied, "Yes, we are conducting this hospital, not you." To which I replied, "Well, sir, if you can derive any satisfaction from that, you are welcome to it; but I shall take this matter further. You first of all bungle the appointment, then you press into service an officer who is not fit for duty on his own admission, and, to crown the lot, you sit there whilst a corporal performs the duties of a qualified medical man." The corporal then picked up a sheet, which, I presume, was my medical history, and said, "He is all right, sir; only post-influenza." I was then told to go, and a few days later I received a letter from the Ministry of Pensions which read, "As your disability was not due to nor aggravated by Military Service, you are not eligible for any further grant from the funds at the disposal of this Department." The Ministry of Pensions has in its possession all these facts and offers from me to prove all that I have said, and an offer to place my correspondence before them, and yet nothing is done. I was never treated for influenza in my life, but my protests are of no avail.

Now, if any of your readers expect genuine consideration after what I have written and can prove, they are indeed optimists of a high order. In conclusion let me say that I have been in communication for the past two years with the Ministry of Pensions.

AN ENGINEER.

Martinsyde, Ltd.'s, Athletic Sports.

On July 19th, Martinsyde, Ltd., of Woking and Brooklands, held their annual athletic sports meeting under the auspices of the Martinsyde Recreation Club. The meeting was a great success despite the fact that it was held on the day chosen for the official celebration of Peace, and also that the weather was not all that might have been desired.

The Deatn of Madame de la Roche.

On July 18th Madame de la Roche, wrongly called Baroness by the daily Press, was killed while flying as a passenger with M. Barrault, at the Crotoy Aerodrome. The pilot also was killed.

Originally an actress, she learned to fly on a Voisin of the earliest type—fitted with side panels, Vivinus engine, and all the other horrors of immaturity—at Mourmelon in the autumn of 1909, taking her pilot's certificate on October 21st of that year. Towards the end of the year or the beginning of 1910 she had her first serious flying accident and broke her leg. Undeterred she flew again immediately after her recovery, and in June, 1910, she was a competitor at the second aviation meeting at Reims. Here on one fatal day she was brought to ground through becoming involved in the backwash of another machine, the pilot of which was, perhaps unjustly, thought to have brought about the accident deliberately. Her injuries were serious, both her legs and one of her arms being fractured.

Though she might at this stage have relinquished the practice of aviation without discredit, she again took to the upper atmosphere so soon as she was fit. This time she transferred her loyalty to the Farman firm, and created several world's records for height and duration in women's classes. She and Madame Dutrieu were keen rivals, and shared such glory as was then open to women in the new art.

Recently, on a Caudron biplane she raised the height record for women pilots to 16,000 feet.

During the war it is said that she made a series of endeavours to enter the French Aviation Service, but naturally without success.

Singularly beautiful, she was imbued with a high spirit of courage. She descended to no cheap methods of self-advertisement, and devoted her sincerest efforts to the furtherance of the best interests of aviation. Though she excelled in what is at present essentially a man's sport and profession, she never lost that feminine charm which enthralled all who knew her. Beauty alone gains many adherents, but when it is allied with the subtle attraction which made all France the slave of Ninon de l'Enclos there are none who fail to be enthralled.

Coming Events.

AUGUST.

Friday, August 1st.—Amsterdam Aircraft Exhibition opens.

Saturday, August 2nd, Sunday, August 3rd, and Monday, August 4th.—Tenth London Aviation Meeting at Hendon.

Tuesday, August 5th.—Handley Page Social and Athletic Club's Sports. Starting at 12 midday at Cricklewood Lane.

Saturday, August 16th.—R.N.A.S. Officers' (Hendon) Dinner at the Café Royal.

Thursday, August 21st.—R.A.F. Annual Athletic Meeting at Stamford Bridge.

Sunday, August 24th to Sunday, August 31st.—The "Avenir's" Tour de France Aérien is due to start.

Saturday, August 30th.—Hendon-Brighton-Hendon Air Race at Hendon Aerodrome.

SEPTEMBER.

Wednesday, September 10th.—Schneider Cup Competition, Bournemouth.

Saturday, Sept. 20th.—Hendon-Manchester-Hendon Air Race at Hendon Aerodrome.

DATE TO BE ANNOUNCED LATER.

Hendon-Paris-Hendon Air Race.

THE ROYAL AERO CLUB.

A meeting of the Flying Services Fund Committee was held on Wednesday last, July 16th, 1919, when there were present:—Lieut.-Col. T. O'B. Hubbard, M.C., R.A.F. (in the chair), Mr. Chester Fox and Mr. Stevenson (Assistant Secretary).

GRANTS AND ALLOWANCES.—The following Grants and Allowances were made:—

(41) An allowance of £3 a month for three months to the mother of a C.P.O.II in the Royal Naval Air Service who had been killed on active service.

(45) A Grant of £5 to an Ex-1st Class Air Mechanic in the Royal Flying Corps who had been incapacitated on active service.

(74) A Grant of £10 to the mother of a Corporal in the Royal Flying Corps who had been killed on active service

(83) An allowance of £3 a month for six months to the widow of a 1st Class Air Mechanic in the Royal Flying Corps who had been killed on active service.

(116) An allowance of £4 a month for six months to the widow of a 3rd Class Air Mechanic in the Royal Air Force who had been killed on active service.

(132) An allowance of £1 a month for six months to the mother of a Private in the Royal Air Force who had died on active service.

(134) An allowance of £2 a month for six months to the widow of a Sergeant in the Royal Flying Corps who had died on active service.

(138) The school fees, etc., for at least one year, of the child of the widow of a Private in the Royal Air Force who had died on active service.

(188) An allowance of £1 a month for six months to the widow of a Private in the Royal Air Force who had died on active service.

(220) An allowance of £2 a month for twelve months, to pay the rent of her house, to the mother of a Sergeant in the Royal Air Force who had been killed on active service.

(221) An allowance of £1 10s. a month for six months to the widow of a Sergeant in the Royal Air Force who had died on active service.

(223) An allowance of £2 a month for six months to the widow of a 2nd Class Air Mechanic in the Royal Air Force who had died on active service.

(226) An allowance of £2 a month for six months to the widow of a Corporal in the Royal Air Force who had died on active service.

(227) An allowance of £2 a month for six months to the mother of a 2nd Class Air Mechanic in the Royal Air Force who had been killed on active service.

(229) An allowance of £2 a month for six months to the mother of a 2nd Class Air Mechanic in the Royal Air Force who had died on active service.

(230) An allowance of £1 10s. a month for three months to the mother of a 3rd Class Air Mechanic in the Royal Air Force who had been killed on active service

(231) An allowance of £2 a month for three months to the mother of a 2nd Class Air Mechanic in the Royal Air Force who had been killed on active service

(232) An allowance of £1 10s. a month for three months to the widow of a 1st Class Air Mechanic in the Royal Air Force who had died on active service

(253) An allowance of £1 a month for six months to the widow of a Private in the Royal Air Force who had died on active service.

JACQUES SCHNEIDER INTERNATIONAL RACE.

The race for the Jacques Schneider International Trophy will be held on Wednesday, September 10th, 1919, at Bournemouth. The course will be over a circuit of about 30 miles, starting from Bournemouth, and taking in Swanage and Christchurch

Messrs. S. E. Saunders, Ltd., the well-known yacht and aircraft builders, of Cowes, Isle of Wight, have kindly placed their new erecting shops and slipways at the disposal of the Club for the accommodation of the competing machines.

Machines representing the British Empire must be ready not later than September 1st, 1919

The Committee of the Royal Aero Club will select the three competitors to represent the British Empire, and reserves to itself the right to hold eliminating trials

Entries are to be made to the Royal Aero Club, 3, Clifford Street, London, W.1, not later than July 31st, 1919. Each entry must be accompanied by the Entry Fee of £20.

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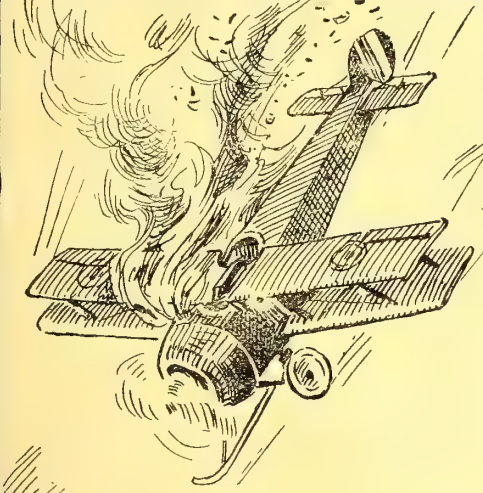

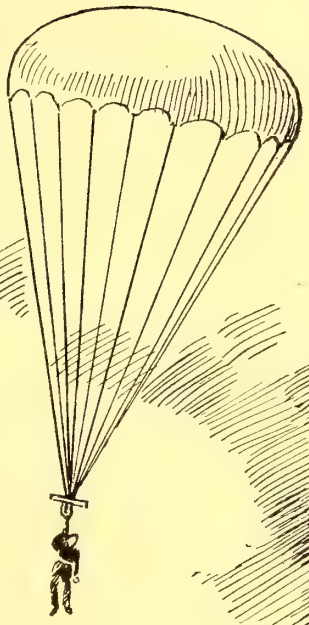

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THE R34 DINNER.

On Wednesday, July 23rd, the Royal Aero Club entertained the officers and crew of R. 34, together with a number of distinguished guests, at a dinner at Princes' Galleries. Unfortunately, owing to the extremely bad acoustic properties of the room, it was extremely hard to hear what anybody was saying.

The Duke of Atholl, chairman of the Royal Aero Club, in proposing the toast of the guests, said that, thanks to the Air Ministry, we had not got stagnation in aviation in this country. (One may here interpolate the remark that, as his Grace of Atholl said, we have not got stagnation, we have in fact, got full speed astern. Perhaps being a Scot the chairman was merely being sarcastic.)

Continuing, the Chairman said that throughout the voyage the R. 34's sorrows were our sorrows, and everybody had followed their adventures with the deepest interest. At the same time there was nothing new under the sun, and many of the R. 34's adventures were quite old. He himself remembered as a small boy going to the Royal Aquarium and seeing a beautiful lady dressed in blue descend from the air after being fired out of a cannon. The Americans similarly saw a beautiful figure in blue descend from R. 34 when she arrived. Also, they had heard that the favourite position for the officers of R. 34 was asleep under the table. There was certainly nothing new about that.

Becoming serious, the Chairman said that the feat was one of the greatest skill and endurance. We had to thank our late enemies for giving our Air Force its chance. The first Zeppelin that came over this country did more good than any other mistake which the Germans made. This voyage of R. 34 brought America closer to England, and he congratulated the officers, crew, designers, and constructors of R. 34.

Mr. Davis, the American Ambassador, supporting the toast, referred to the personnel of R. 34 as being the most distinguished company who had ever visited America. Referring to the chairman's recollections of his childhood, he said that he himself at country fairs remembered beautiful ladies in spangled tights descending by parachutes from balloons, but he had never been able to reach the spot where they fell before they had been picked up.

Mr. Davis referred to a note of Horace Walpole's written in 1785, in which he said that three more balloons had gone up that week, and added, " Now that we have an aerial fleet, what signifies the loss of the sea? " (It would be well if people in these days realised the truth of that remark.) The Ambassador concluded by saying that America's only complaint was that the distinguished gentlemen of R. 34 had not remained longer on their shores.

Major-General Seely, as fluent as ever, was another supporter. He said that the most striking feature of the voyage was the reception of the crew in the United States, and the voyage was worth while a hundred times over. He remarked that the officers of R. 34 said that their crew were the finest chaps they had ever sailed with.

Major-General Sir Hugh Trenchard who also supported the toast was received with prolonged applause. He said that the crew of R. 34 not only commanded success, but deserved it. The R.A.F. was not only first as a fighting service, but remained first in the paths of peace, and this voyage was the keystone of the arch in the path of aircraft progress in the world's peace. He was certain that there must have been perfect confidence and co-operation between all ranks in the ship.

Confidence would always win, and confidence was only got by sound team work, and that again was only got by hard work all round. The crew of R. 34 had learned to work thoroughly together. They had added to the best traditions of the flying services in the war, and had set a new tradition for the Royal Air Force.

Mr. H. White Smith conveyed the congratulations of the Society of British Aircraft Constructors, and was proud that the constructors had a partnership in this great deed. The constructors could now turn their attention to commercial purposes. We were not yet ahead in airships, and the R. 34 was very like the Zeppelins of 1916. There was need for development in aircraft and in engines also. People rather lost sight of the possibilities of airships, but they had a great future.

R.34's Replies.

The toast of the R.34 having been duly honoured, Brig.-General Maitland, D.S.O., in replying, laid particular emphasis on the fact that he was only a passenger on R. 34, and that none of the credit for the voyage was due to him He stated that this fact gave him a better opportunity of observing the splendid work done by the officers and crew, and he paid a most glowing tribute to Major Scott commanding R. 34. He recalled that an American paper had described Major Scott as " a portly, ruddy-faced individual." Personally he thought that these qualities gave one confidence in Major Scott. His men had followed him from the Old World to the New, and from the New to the Old, and he believed that they would follow him from this world to the next. Major Scott was quite imperturbable in any emergency. General Maitland also gave thanks to the Admiralty Wireless people, to the Marconi Company, and to the Beardmore and Sunbeam firms for their shares in the enterprise.

Turning to the voyage itself, General Maitland said that the Air Ministry had sent them, firstly, to get scientific data, secondly, to demonstrate the possibilities of rigid airships, and, thirdly, to visit Newfoundland and America. They had learnt a great deal, considering that airships were still experimental. For instance, they had learnt that electrical storms could be surmounted. They always felt perfectly safe with Major Cook as navigator. Major Harris, their meteorologist, was a real wizard in his own science, and he believed that meteorology would become a popular study. Captain Durrant's wireless worked well, but their directional wireless was none too good. Their experiences made them appreciate all the more the magnificent performance of Read, Alcock, Brown, Hawker, and Grieve.

As to the utility of airships, he thought that they would be useful in locating ice fields, which were a danger to navigation, and in forestry and survey work. Also airships were certainly a method of avoiding seasickness, and if for this reason only he thought airships had a commercial future. As regards the position of our airships, he thought that we were now well on terms with Germany and ahead of all other nations. The present time offered a fine opportunity for British enterprise. The rôle of the airship was that of a long-distance non-stop vehicle. Aeroplanes would work in with airship lines. Each type had its own advantages. General Maitland concluded by paying a warm tribute to the reception which they had all had in America.

Major Scott, skipper of R. 34, said that he had absolute confidence all along in his ship and crew. The brain of an airship pilot had to be full of figures, and he had to be for ever calculating what to do with the ship. For example, owing to the variations in temperature an airship was always inclined to fly nose down in the evening and to fly nose up in the morning. Electrical storms had the effect of throwing the ship about suddenly without warning, and their effects would have to be closely studied.

Major Scott further said that nothing could have been more perfect than the arrangements made for handling the ship in America, where she was moored out for a hundred hours without shelter of any kind. He said that Major Cook's navigation was marvellous, as was Major Harris's meteorology. Officers and men backed him up enthusiastically right through; in fact, he had to order Captain Shotter, the engineer officer, to go to bed

Major Cook the navigator, remarked that on this voyage he did not use any " new-fangled gilguys." He stuck to the old-fashioned sextant for his navigation. He had had good advice from Lieut.-Commander Grieve. He had had a patent gyroscopic horizon sent to him before starting, but, unfortunately, the inventor had forgotten to explain how it worked. He found that a cloud horizon worked quite sufficiently well. An ordinary bomb sight was quite useful for judging drift and speed.

Major Harris, the meteorologist, said that the upper air was like a great unexplored world, but he believed that future study would make it possible that the danger areas could be buoyed out. Cloud strata should always be observed, as the clouds indicated almost better than anything else the actual state of the atmosphere. There was an enormous amount of investigation to be done. He suggested that there should be a meteorological officer on every airship until they had plotted things out a bit. He also suggested that meteorological information from land stations might well be boosted up by two or three hours. All countries should help in compiling the world's meteorological knowledge.

Major-General Brancker, proposing the health of the chairman, referred to his memory of transferring the Army airships to the Admiralty, when, as he said, the airship personnel were " handed over, kicking and biting, to the Navy." As regards the future of aeronautics, he said that we had now got to face hard facts. We had been absolutely on top in the war, and we must keep there in peace. The future of the British Empire depended on aviation, and the future of aviation depended on the Air Ministry, the Royal Air Force, and the Royal Aero Club.

MANNERS AND CUSTOMS IN NEW YORK.

Sir Charles Allom, of White, Allom and Co., and the Gosport Aircraft Co., was ejected from the lobby of the St. Regis Hotel on June 25th, following a heated argument arising out of the action of two girls in soliciting subscriptions to Mr De Valera's £1,000,000 loan for the "Irish Republic."

The girls displayed a Sinn Fein emblem which caused Sir Charles to protest to the manager, Mr. Hann, that persons inimical to the interests of the Allies were being harboured.

Some further words passed, in the course of which Sir Charles declared that such persons were traitors, whereupon he was grasped by three porters, who pushed him out to the pavement.

Sir Charles offered considerable resistance, and his hat and cane were left in the lobby. The incident was watched by a fashionable crowd.

To "Aeroplane" Subscribers.

Since the Armistice, the subscription list of the AEROPLANE has steadily increased: an eminently satisfactory development which we are anxious to encourage.

Of the many books published on the war on the Western front, none conveys a more realistic impression of the work of a particular arm than FLYING COLOURS by Captain H. M. S. Saundby, A.F.C., R.A.F., M.C., published at **£2 2s.** net (Edition de luxe) and **15/-** net (Popular Edition).

Among the art books published in the last year or two, none can claim to be a more faithful reproduction of the artist's colour scheme and that indefinable thing atmosphere.

FLYING COLOURS is a permanent memorial of the life of "the pilot in action," as Major-General C. B. Ashmore calls him. It was very costly to produce, and necessarily the price to the public had to be high.

Many would like to possess it who do not feel disposed to put down Two Guineas for the larger edition or Fifteen Shillings for the smaller.

How to meet their views? We make a special offer to any subscriber for one year to the AEROPLANE: namely to give him the right to purchase either edition at half price.

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In order to be fair to current yearly subscribers we extend the half-price concession to them also. If a subscriber has paid a quarterly or half-yearly subscription, then to secure the right to participate he should send the balance for the year.

Subscribers who have given their orders through the trade, and not direct to the AEROPLANE Office, must sign the form below or a copy thereof, and hand it with the balance on account of the book to their retailer for transmission to the AEROPLANE.

If the subscriber already has a copy of FLYING COLOURS, and would wish to take advantage of this offer, then he may secure McCudden's "Five Years in the R.F.C." **(7s. 6d.)**; Richthofen's "Red Air Fighter" **(3s. 6d.)**, and Gill's "The Aerial Arm" **(6s. 6d.)** at half price, *i.e.* **8s. 9d.** the three, plus the year's subscription to the AEROPLANE.

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THE RE-ORGANISATION OF THE R.A.F.

The leader in The Aeroplane of Wednesday, June 18th, makes one think, and reporting, as it does, General Trenchard's speech at the Independent Air Force dinner, makes one read what one might otherwise skip with alacrity. What is the gist of it all? What is likely to develop in the R.A.F.? As a 4-year victim of uniform (in aviation), one wonders.

I, unlike you, have always had faith in the Royal Air Force—the single control of flying instead of the dual muddle existing in 1914. But my ideal has lived as an ideal only, and has been poor in health ever since April 1st, 1918.

The single Air Force is right, without question. One force for land, one force for sea, one force for air—that is the ideal. Intercommunication of the widest sort follows after—sailors fighting alongside soldiers on land, soldiers transported on ships by sailors, the airmen dealing with both. Let's put that idea down as the basis of this talk—a single independent Air Force is right and necessary. Now to talk about its practical realisation, in the present circumstances.

A practical air force will train its own people, in its own schools, for its own job, yet keeping always in touch with its sister services. The education required will be a liberal one—more liberal than either Army or Navy, and yet lighter than either in that deep knowledge of any particular subject should not be requisite. The force will be composed of engineers as its head people, with a personnel of pilots, mechanics, clerks, etc., etc.

For once the engineer—the son of Martha—should come into his own. He made flying and he alone has nursed the baby. Civil aviation must surely be run by the Air Force, so far as its regulation is concerned. Regulation implies a good deal, and must certainly in this case control a great deal.

All air stations, civil and military, must be supervised by the Air Force, and therefore the Air Force will, more largely than either Navy or Army, be a force for both peace and war.

Perhaps even, in view of the League of Nations, it may be a peace arm, more than a war preventative. Passenger carrying, the dream of the novelist, is never likely to bulk largely in air councils of the future. It can only be done at a prohibitive price, and therefore cannot become a large business. But mail service must gradually develop to an unimagined extent, and, by its size and importance, necessitate control by a large State Department.

The Air Force logically comes into its own here. In war—fighting, reconnaissance, spotting, bombing, etc.—in peace, the transport of the world's news and communications—that must inevitably be the future. How does all this apply to General Trenchard's speech?

Not one word has been reported as to any utterance of the General's regarding civil aviation! Many of the older officers in the R.A.F. are hanging on to office simply because they are reluctant to leave aviation, and yet can see no possible opening for civil aviation divorced from the State. How can there be any opening if it is accepted that the future lies as the present exists.

One hears wild talk by various officers in high position regarding the future (General Trenchard is not ranked amongst them by the writer) including statements to the effect that flight is safer than any other transport, and passenger flight is a commercial possibility; but attempts to establish a definite mail service appear to be lacking.

Unless some strong action is quickly taken by the Air Force authorities, much—I guess most—of the metaphorical ground gained by mechanical flight will be lost.

The large engineering firms, roped into aviation for the war, will abandon an ungrateful child, and take to their legitimate and more profitable offspring. These large firms can be made the backbone of the aviation industry now by encouragement, and the declaration of a practicable policy. War alone cannot support a large industry, and, in my opinion, passenger carrying by aeroplane will also fail.

A State mail service, on the other hand, will mean a constant supply of machines, and a growing demand as the service widens. This will bring in its train the necessary maintenance of aviation works, and all they include.

Let me suggest that a definite movement should at once be made to start a State mail service, and that a definite pronouncement of policy appertaining thereto should be given.

The present situation is intolerable—one not to be borne. Our heads speak about things with the beautiful carelessness born of no work. Passenger carrying from England to Australia, lobsters from France to England, fruit from California to England—it's all talked about. *Meanwhile*, nothing's done.

There have been various stunts, such as London to Madrid, London to Egypt, etc. Has anyone ever worried to work out these flights? A few facts might be useful here.

The London-Egypt flight worked out at 2½ miles per hour—I don't know the cost.

The Atlantic crossing by Alcock (assuming his mail to weigh 50 lbs.) works out at £500 per ton mile.

The N.C.4 flight across the Atlantic works out at £700 per ton mile if the useful load carried amounted to 50 lbs.

These are facts ascertainable by everybody. Meanwhile, colonels sit and answer minutes—minutes as stupid as the answers given by the colonels. Majors are in charge of sections, sections that are represented by half a dozen letters of the alphabet—and that mean as much. Captains are in charge of subsections—a busy one deals with one item of aeroplane equipment.

Everyone asks as to a policy—none is declared. In the meantime the lighter-than-air section (to which I was originally attached) makes capital (temporary capital, be it said) out of public ignorance. "R.34 flies to Germany." "Wind put up the Huns," etc., etc.

A refreshing article appeared in the "Daily Mail" signed by Lieut.-Commdr. Kenworthy on "lighter-than-air." Like all aircraft matter at the present day, it is hard to give the exact cost of flights, but I will attempt an estimate of cost of lighter-than-air flight.

A rigid costs about £400,000
The shed costs about £400,000.
The landing party of 500 men costs about £100,000 per year.
The life of the machine (by Hun figures) is about one year.
The available flying days (according to Hun figures) at 24 hours per day, is about 50 as a maximum.
The average speed (according to Hun figures) is about 40 m.p.h.
The average load carried (useful) is about 10 tons.

ESTIMATE OF SERVICE WITH ONE RIGID AIRSHIP BETWEEN POINTS 5,000 MILES APART.

Assumptions made.—1. Average speed of 40 miles per hour.
2. Average load of 10 tons (useful)
3. Flying days (24 hours per day), amount to 50 per year.
4. Effective life of airship is 50,000 miles' flying, or 1,250 hours in one year.

	Cost per year	Per cent of total cost.
Rigid.—Life one year. Cost £400,000, including repairs, new engines, etc., and value as scrap...	£400,000	45
Sheds.—Life 15 years. Cost £400,000. Two sheds	53,300	6
Handling crews.—500 men at £200 per year. Two crews	200,000	22
Mechanics.—50 at £300 per year. Two squads...	30,000	3
Riggers.—50 at £300 per year. Two squads	30,000	3
Pilots.—10 pilots at £600 per year	6,000	1
Petrol.—50,000 gallons at 2s. 6d.	6,250	1
Oil.—2,500 gallons at 5s.	625	1/10
Insurance.—30 per cent. of value of airship	120,000	13
Offices.—At £2,000 a year. Two offices	4,000	5/10
Management.—Say	10,000	1
Aerodromes.—£10,000 a year, including water, light, etc. Two aerodromes	20,000	2
Car Services.—£2,000 a year. Two services	4,000	5/10
Gas, and gas plant.—Say	15,000	1 9/10
	899,175	100
Say ...	£900,000	

Miles flown per year ..... 50,000.
Cost per mile ..... £18.
Load carried ..... 10 tons—500,000 ton miles.
Cost per ton mile ..... £1.80—36s.

The total cost of flight per ton mile now amounts to 36s., which is equal to an estimated cost of heavier-than-air flight at 100 miles per hour (NOT 40 M.P.H.) average speed.

Lighter-than-air policy could not exist for a moment were people akin to men of the world in charge of affairs. As it is, we drift on, hoping and praying for a leader.

Let it be stated again—let the ghosts of the pioneers of flight state it again—the whole object and use of flight lies in extreme speed.

You can push a load of one ton, on rails, at 20 m.p.h, for one mile for 1d. (ascertained cost).

You can push a load of one ton, on rails, at 50 m.p.h. for one mile for 10d. (estimated cost).

You can fly a load of one ton, in the air, at 100 m.p.h., for one mile, for 40s. (estimated) by aeroplane.

You can fly a load of one ton, in the air, at 40 m.p.h. for one mile, for 36s. (estimated) by airship.

You can fly a load of one ton, in the air, at 400 m.p.h. for one mile for £100 (estimated) by aeroplane.

The conclusion is obvious. The load carried is too small, and too expensive, to be worth while from the passenger point of view, but is quite sufficient for the mail.

Mail—reduced as necessary by microphotography—is the future load, and mail carrying must be carried out by State Government.

Admitted that private firms may tender for the carriage of mails as for present G.P.O. services, but the super-control of all must come under the Air Force, and the Air Force will therefore run war and peace services at the same time.

And yet—not a word from our chiefs *re* this! Only wild statements in the Press, and no results.

Unless the matter is tackled—strongly—immediately—the new Air Force will dissolve, the public will be disgusted, and flight affairs put back half a century.

A State air mail service should be started by the Royal Air Force *now*.

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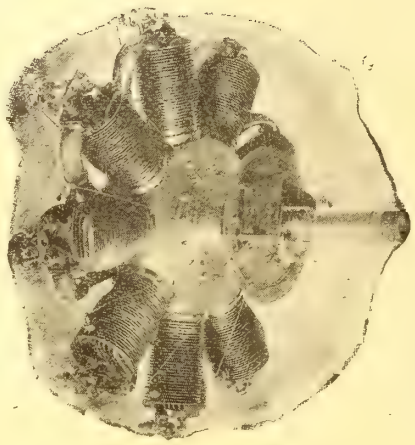

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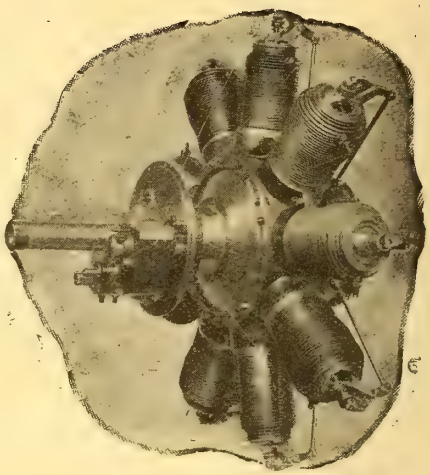

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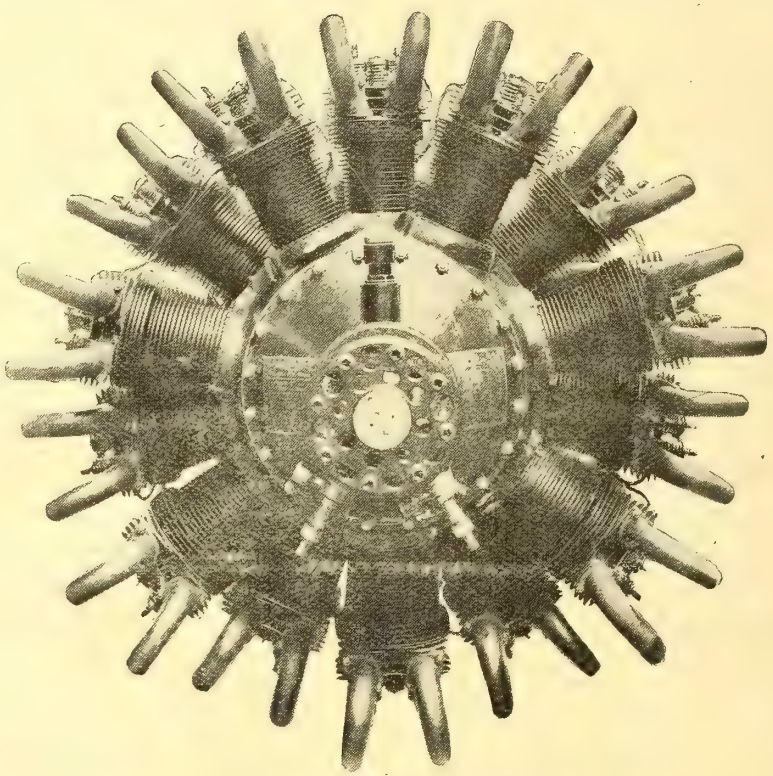

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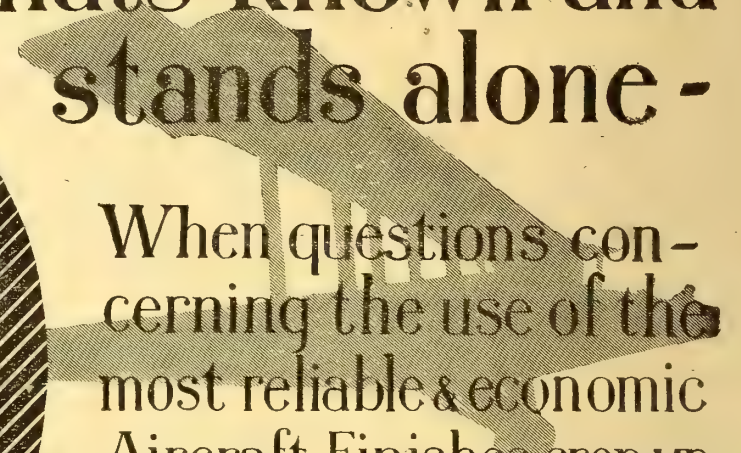

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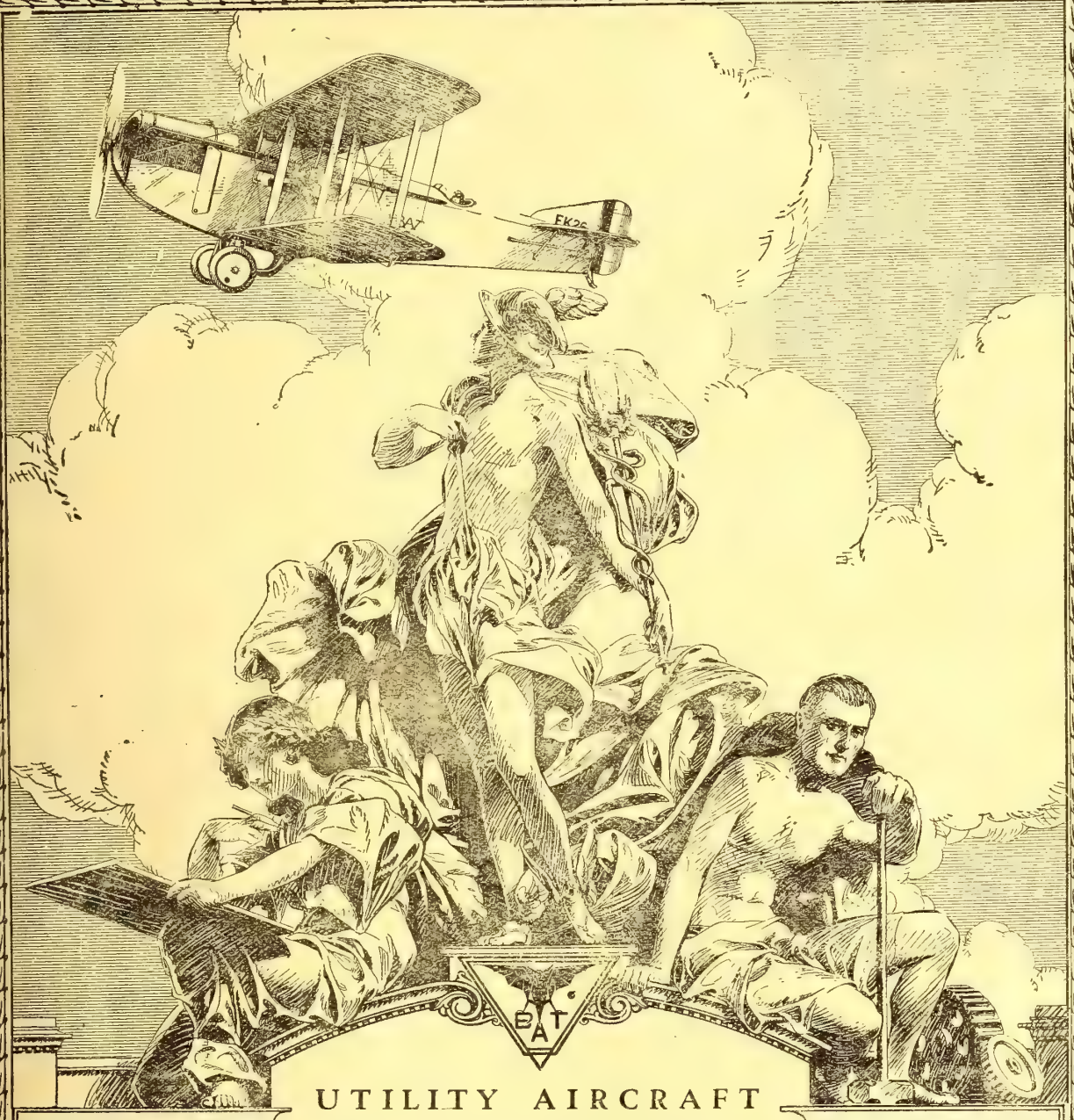

UTILITY AIRCRAFT

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THE WEEKLY COMMENTARY.

The subject of the leading article by "Strasbourg" in this issue is one which applies to a very much wider field than that of Aeronautical Engineering. It has, however, its definite bearing upon this subject, and the sting thereof is mainly to be found in its tail.

A letter from an anonymous correspondent, which complains of a practice to which "Strasbourg" has drawn attention, will also be found in this issue.

It becomes daily more and more clear that the methods adopted by British Government Departments for the encouragement of industry constitute a grave menace to the prosperity of the country.

The series of articles upon "Modern British Aeroplanes" has been interrupted temporarily in this issue. As a slight variant a page of illustrations of certain machines which are typically German in design, with a brief comment on the peculiarities, is given.

The article by M. Frantzen on French parachute systems is continued on page 435.

ON THE EVILS OF LOW PRICES.

AN ESSAY IN ECONOMICS WITH AN AERONAUTICAL APPLICATION.

By "STRASBOURG."

Great Britain has just emerged from a great war into what is—so one is assured—a victorious and a profitable Peace.

As a result, if not entirely of that Peace, at least of some of the methods employed in attaining it, the price of every commodity in the country has approximately doubled, and Industry, if not actually at a standstill, is in a parlous state.

The British were ever a feeble-minded race, and in no manner is this so plainly shown as in the effect upon them of figures.

Figures constitute the simplest and the most definite of the many forms which can be used for the expression of fact. The Briton being just sufficiently instructed to imagine that he knows what a figure means, particularly if that figure bears the prefix £, is most easily put into fear by their use.

When, however, there is question of some matter too complex to be expressed in such a simple form which needs, therefore, be talked around, he, understanding nothing, but being soothed by the sound of many voices, uttering familiar, but usually meaningless, words, willingly and of a light heart, embarks on the most perilous and speculative of enterprises.

Thus this great nation is paralysed with fear at the idea of an advance in the price of coal of 6s. per ton, having barely noticed three times that increase in the past few years, but rejoices exceedingly at the signing of a Treaty of Peace, which, were it to be enforced according to the popular interpretation thereof, would probably involve the world in irretrievable disaster.

There be those who doubt the reality of such rejoicing. To such one can only point to the worthy citizens of Luton, whose enthusiasm led to the use of their own Town Hall as a bonfire.

On the other hand, no one can doubt the reality of that fear—panic were an almost better word—which is caused by the present high level of prices.

Even in Government departments its effects have been noticed. That such effects should in the main have tended to a still greater rise is interesting, not in itself particularly curious, but may have a very definite relation to the hitherto unexplained phenomenon that this country, despite its collective idiocy, continues to prosper.

It is an old and apparently a well-substantiated belief that there is something of the nature of a special providence which watches over the welfare of drunkards and fools.

Is not the explanation merely that the efforts of such are usually so ill-directed that they produce an effect quite contrary to that which might be expected; and, similarly, may not the prosperity of this country be due to the fact that its policies—social, industrial, and foreign—have been invariably directed with idiotic intent, and invariably carried out in an imbecile manner? Thus the results produced have generally been excellent and the exact contrary to those which logically might have been deduced from the proclaimed intentions upon which those policies have been based.

A general high level of prices throughout the markets of any community may indicate one of two things.

Either there is an actual shortage of supplies, or that the community lives well, works well, earns well, and pays well. Money is cheap amongst such a community.

To a very large extent prices are high in this country and throughout the world because there is a shortage of all classes of consumable goods.

For the last four and a half years a very large proportion of the world's labour and of its manufacturing appliances have been diverted from the production of useful articles to the manufacture of goods intended either to be themselves reduced, or to reduce other goods, to smoke and ashes.

This part of the world's industry has been so effec-

tively directed that to-day that surplus over the bare needs of existence which normally provides man with those comforts and conveniences which distinguish his life from that of the brute has nearly ceased to exist.

For that shortage there is one remedy, and one only. That remedy is work—work efficiently directed to make up the past four and a half years' waste.

Provided the work is done and the goods are produced, the prices will fall—effectively if not nominally.

If the goods are not produced, or are ill and inefficiently produced, it were fatal for prices to fall.

High prices at least discourage extravagance and waste, and extravagance and waste mean merely useless production.

Low prices artificially maintained in the face of a shortage of goods can but penalise the thrifty and economical to the benefit of the wasteful and extravagant.

The Low Price Fallacy.

This country has already suffered too much from low prices. In particular it has, and still does, suffer from low-priced and nasty labour.

Low-priced labour is nearly always uneconomical labour.

Low-priced colliers, working in meanly equipped collieries in Britain, produce roughly one quarter of the output of coal per man per year which is produced by higher-priced labour in decently equipped collieries in the United States of America, and produce that quarter at a higher cost.

Low-priced labour lives—has to live—under mean conditions, and grows a mean habit of mind.

Low prices, cheap labour, and a mean-minded population all go one with the other, and this country has far too much of all three.

The lowness of prices and the cheapness of labour do, it is true, appear to be vanishing, but the mean-mindedness is not declining.

The type of mean mind from which this country has most to fear is not the mind of the striking trade unionist so much as the mind of that semi-educated class which it has pleased some power—it were irreverent to suggest the Almighty—to put into effective control of our Government, its various offshoots, our commerce, and our industry.

The herd is acutely aware of the present shortage of supplies of all kinds. To its mind, if mind it can be called, this shortage appears not as a matter to be made good by hard work and thrift, but one remediable by Act of Parliament decreeing that prices shall fall.

Our good Government, being entirely composed of people just sufficiently intelligent to choose the simpler paths of temporary popularity, ordains that prices shall fall, and makes good the resulting deficit by piling on taxation.

Thereon further yowls of anguish from the herd, alleging extravagant expenditure on the part of the Government and its departments, the which, to placate the populace, are set about economising.

Of their methods in this effort the greater number are ludicrous, but there is one such method—and it is a method from which the Aircraft Industry has suffered much—which, if persisted in, must lead to disastrous consequences.

At the outbreak of war the British Aircraft Industry was a very small affair, and the number of those who had experience in the design and manufacture of aircraft was entirely insufficient to meet the war demands of the country.

Those concerns which had such experience were set to designing machines such as were needed, producing as many of them as was possible; to supplying drawings or samples to all sorts and conditions of people who could divert their labour, plant, and tools to the purpose of making aircraft or aircraft components.

The majority of such firms were pure copyists, and, having no experience of a specialised and refined industry, it became necessary to improvise a very complicated official inspection department. Thus alone was it possible to maintain a passable standard of workmanship.

Their ignorance of all the problems and principles of aircraft construction made necessary that wonderful organisation known as the Technical Department of the Department of Aircraft Production, in order that they might be assisted over those difficulties and problems.

All such new-comers to the Industry were thus supplied, often very ineffectively, with that knowledge and experience which the pioneer firms had purchased for themselves at a cost not to be expressed in terms of cash.

This state of affairs was justifiable under the conditions of the late war. Those whose faith and foresight had laid the foundations of the Industry were rewarded—perhaps inadequately, but at least appreciably—for their enterprise.

To-day this state of affairs can no longer be tolerated.

It cannot be expected that any business concern shall maintain a competent experimental and design staff to work out those problems which must be solved if the Industry in which they are concerned is to prosper unless they are to reap some fair proportion of the reward of their own enterprise.

An Air Ministry Fraud.

The Air Ministry is at this present moment engaged in an effort to defraud such as have carried out design and experimental work of all reward for their labour.

The process adopted is simply to persuade firms to attempt the production of some machine, instrument, or appliance which is thought to be necessary.

When any such article is produced to their satisfaction, a small order is placed with the originators, and

A MODIFIED GERMAN BOMBER.—A twin-tractor Gotha Bomber showing the abolition of the front gunner-observer's cockpit. It is noticeable in this and other pictures recently reproduced that the German designers are now devoting much attention to cleanness of outline in their large machines.

Langton Road, Cricklewood, N.W.2.

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complete drawings and specifications are called for, on the pretence that these are necessary for inspection purposes.

These drawings are reproduced, and are then issued to all and sundry who may care to tender for the manufacture of the article.

Contracts are placed on the basis, common to all mean-minded concerns, of the lowest tender.

As an inevitable result the bulk of the orders go to firms who have spent nothing upon experimental and design work, who know to a nicety how far they may venture in submitting bad work and poor materials to the inspecting authority, and who stand to lose nothing in reputation by the faulty functioning of their products because they have no reputation to lose, and, even had they, they can always disclaim responsibility for the design.

It is recorded that the principal of one firm which found itself in the act of suffering from this process laid his case before the particular official of the department encharged with the matter, and pointed out the hardship involved.

In reply the said official replied: "Well, of course, it's rather hard on you, but what would you? Business is business after all. If you go to an Oxford Street tailor and ask him to quote you for a suit, he will ask you ten guineas. If you go to a tailor in the suburbs you can get a suit made of similar material and of the same cut for five. Wouldn't you buy the five-guinea suit?"

To the parliamentary or other popular type of economist an argument unanswerable—except at the cost of votes, popularity, or the like testimonial to incapacity.

Fortunately he who was thus admonished possessed, possibly unconsciously, some truer sense of proportion, and replied: "As a matter of fact I don't do either. I go to a Saville Row tailor and pay fifteen guineas.

"What I do *not* do is to buy one first-class suit that fits me, rip it to pieces, and make patterns from it, and then have it reproduced by East End aliens of shoddy and at sweated prices."

Just as it is undesirable from the national point of view that there should be an East End populated by people of doubtful nationality, of dubious habits, sustaining a filthy existence by dint of underpaid bad work, and ever ready to initiate either a riot or an epidemic, so is it undesirable in the Aircraft and in all other industries that there should be any attempt made to reduce prices by methods which deprive the honest worker of a fair reward for work well done.

A GLOSSARY OF TECHNICAL TERMS.

Whenever a new and experimental industry gathers together into one or two colonies an assemblage of imaginative and ingenious people, it is extremely likely that that industry will within a short while improvise a specialised vocabulary.

Such a vocabulary is usually picturesque—frequently vivid—often unprintable—and always arouses the wrath of those of a pedantic mind.

The vocabulary developed amongst the pioneers of British aviation, congregated at Brooklands, Eastchurch, Hendon, and the like, was all these things and often more.

Brooklands, Eastchurch, and Hendon—as they once were—have departed for ever.

Aviation has become respectable—the leaders of the industry are now to be found ensconced in comfortable chairs in expensive offices rarely very far from Piccadilly, and it has become necessary that its proceedings should be described in terms which could not cause the readers of the "Daily Mail" to blush.

It is in many ways regrettable—it is certainly less amusing; it is, however, inevitable.

A loose terminology—loose in any sense—inevitably leads to confusion of one kind or another.

This has been the case with the Aeronautical Industry to a very marked extent.

It has increased and become an important branch of engineering in far too short a time for the vocabulary of its pioneers to have settled down to definite and generally understood terms.

The publication by the Royal Aeronautical Society of "A Glossary of Aeronautical Terms" is thus an important and a welcome event. This glossary represents the labour of some years.

As far back as December, 1909, the Aeronautical Society appointed a committee to draw up a list of words more or less special to the technics of aeronautics. In September, 1914, the list issued by this committee was enlarged, and again in October, 1916, it was felt that it was necessary to extend the list still further.

The Technical Terms Committee of the Royal Aeronautical Society was thereupon appointed, and has continued its labours to the production of the Glossary now in question.

It has worked in collaboration with the Aircraft Committee of the Engineering Standards Association has been recognised by them as the Aeronautical Terms Sub-Committee of the Engineering Standards Association, and has been assisted by officials of the Air Ministry.

A member of the American Aviation Headquarters in London has acted as liaison officer between the American National Advisory Committee on Aeronautics, and generally every effort has been made to render the results of their work as universally acceptable as possible.

It is recognised that a glossary such as this can only be provisional, as only the language of a dead nation or the vocabulary of a dead industry can be fixed, and it is proposed to issue successive editions of the Glossary with improvements, extensions, and emendations as these are suggested or found necessary. The Glossary itself covers a very extensive field, and has been made to embrace all the adjuncts to aeronautics, even where these adjuncts are common to other branches of applied science.

The general principles which have guided the Technical Terms Committee in compiling this work are summed up by the Committee itself as follows:—

The compilation of the Glossary has been framed on the following basis:—

(a) The coining or creation of new terms has been avoided.

(b) Terms which though used in aeronautics have the same sense as in their ordinary usage have been excluded with few exceptions.

(c) When current usage has been lax, a term has been restricted to that employment which was either dominant or most logically defensible.

(d) Terms already in common use have been crystallised by clearly defining their application.

(e) Cross reference has been made to many colloquialisms which have a reasonably wide use, but formal status has not been given to them.

(f) An agreed series of symbols has been introduced for those mathematical calculations which relate to aerodynamics.

(g) Terms of which the meaning in aeronautics has been narrowed down to some specialised significance have usually been included.

(h) The names, used in aircraft stores, of parts and materials have been listed and defined where necessary.

(i) Meteorology and its terms have been included as a part of the science of Aeronautics.

It remains only to be said that generally the terms which have been standardised appear to be on the whole well chosen and clearly defined.

There are certain cases where improvement might be made—as, for instance, on page 44, where "small end bush" of an aero-engine is defined as "a part in the connecting rod easily replaceable in the event of wear, employed when the gudgeon pin is fixed relatively to the piston." Not only does this leave one free to apply the term to any part in a connecting rod which may be easily replaceable and which is employed under the particular conditions laid down therein, but it expressly excludes that large number of small end bushes, properly so called, which are not easily replaceable.

Unquestionably, the Glossary should have a place in the library of every student of Aeronautics.

A GERMAN RUMOUR.

It is reported from Zurich (via Paris) that certain large German firms, including Krupps, are engaged on experimental work with an internal combustion turbine suitable for aeroplanes, and that machines fitted with this engine have already been built.

If there is any foundation for this statement, it is highly improbable that the turbine employed is actually an internal combustion engine.

It is just possible that a satisfactory diluted gas or oil turbine may have been produced, in which fuel is burnt under compression in a combustion chamber into which water is injected in fairly large quantities.

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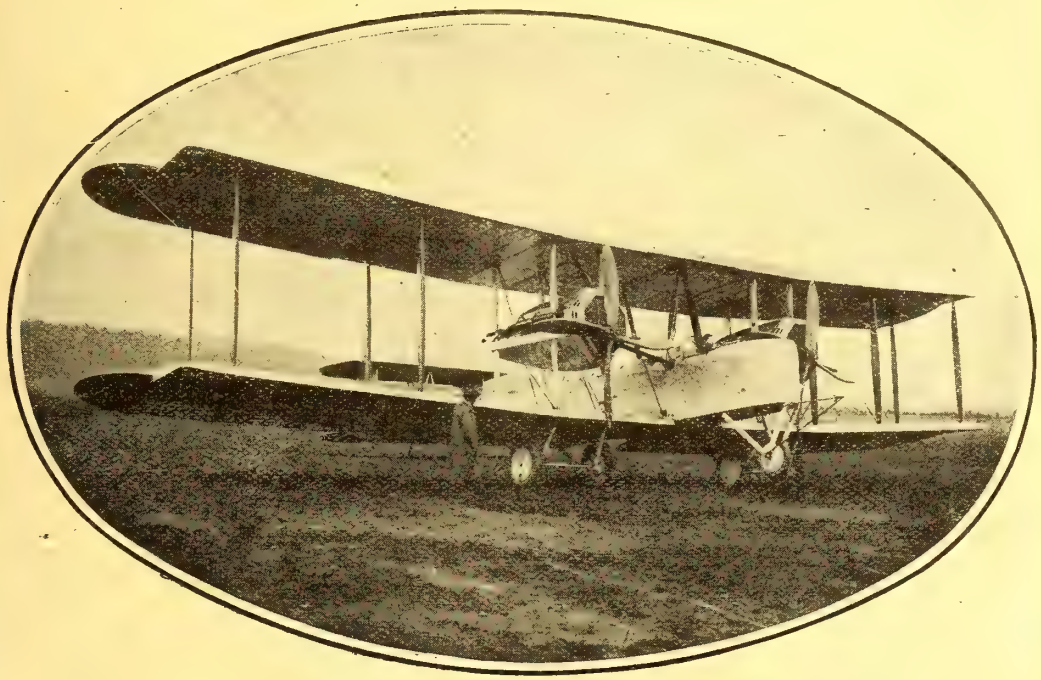

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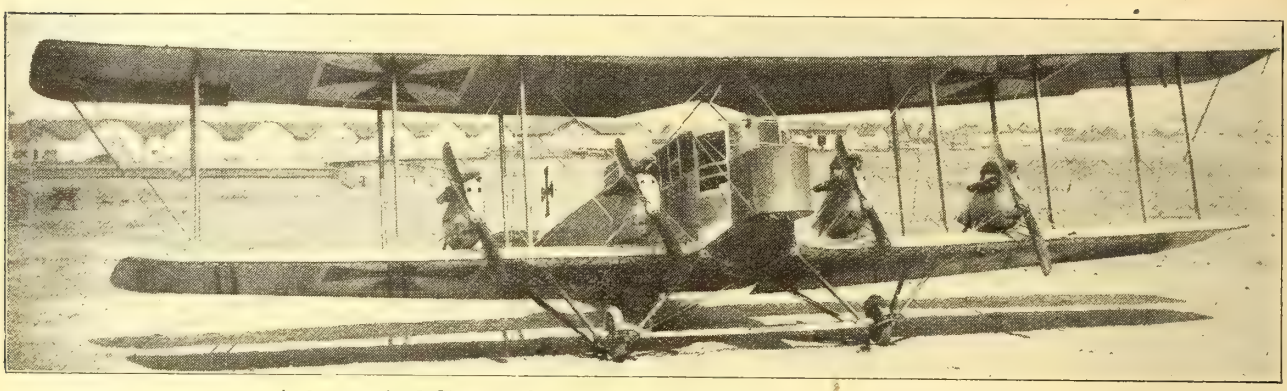
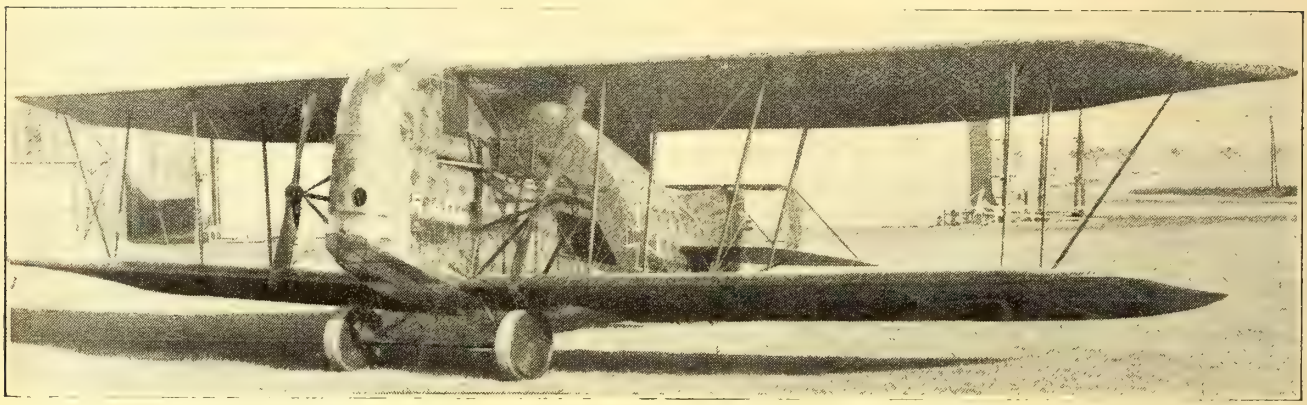
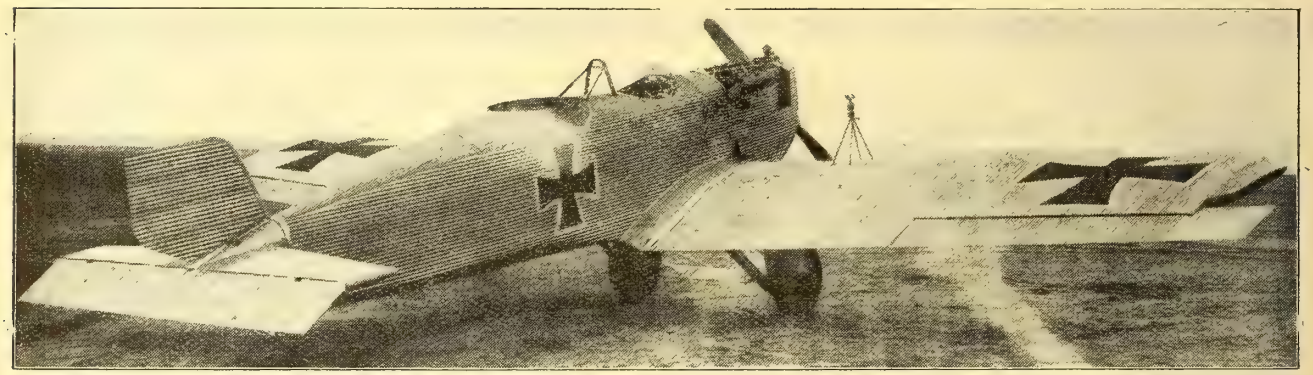


A four-engined Siemens Schuckert Biplane with 4-110 h.p Mercédès Engines.



A Linke Hoffmann Multiple-engine Biplane with engines inside the fuselage.

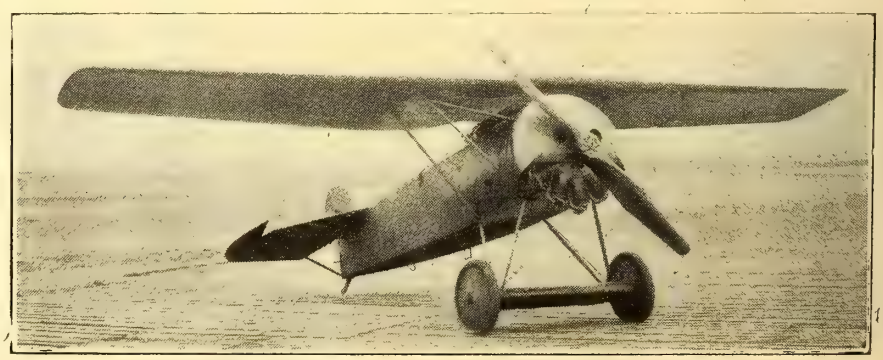


A Junker-Fokker All-metal Monoplane.

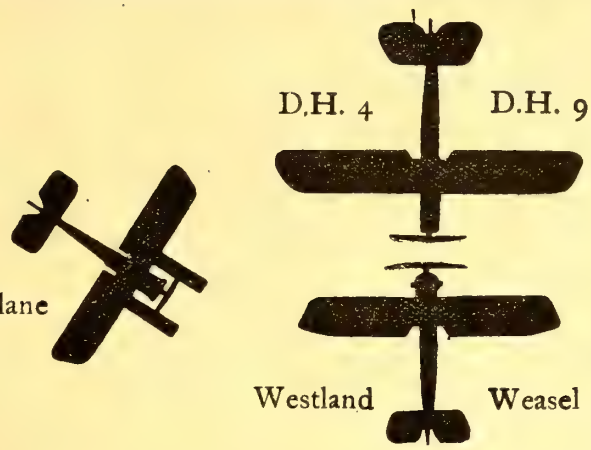
The pictures reproduced upon this page are typical of certain developments of German aeroplane design. The four-engined Siemens-Schuckert biplane represents one of the earliest efforts at producing a multiple-engined machine, and is largely based upon Sikorsky practice.

At the same time as this machine was being built (early 1915) the Siemens-Schuckert firm were experimenting with a number of engines enclosed in the fuselage driving airscews on the wings by gearing. Though not a Siemens-Schuckert product, the Linke-Hoffmann "Giant" is of this type—so far unexploited in any other country.

The third picture gives an excellent idea of the general features of the All-metal Junker-Fokker monoplane, devoid of all wing bracing. The corrugations in the thin sheet metal forming the fuselage, wing and tail coverings can be plainly seen. The parasol monoplane is one of the steps in the development of the Junker-Fokker type.



The All-metal Fokker Parasol Monoplane (rotary engine).



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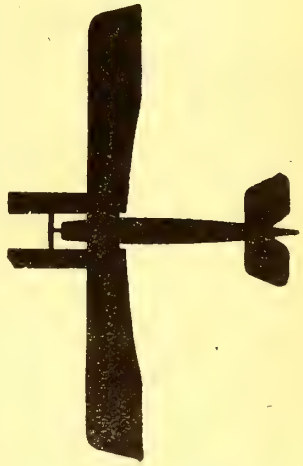
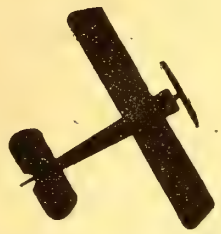
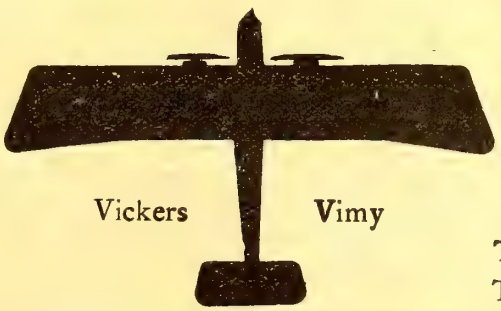

Short Seaplane
225 HP. Sunbeam


Sopwith 1½ Strutter

D.H. 9A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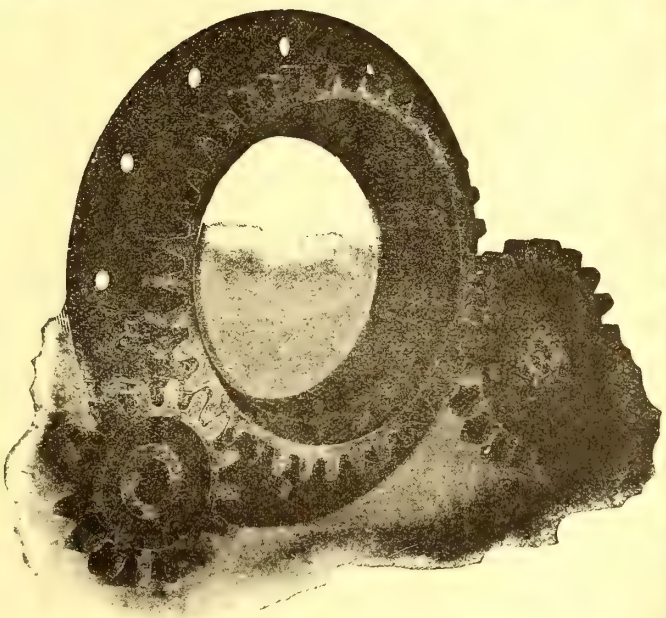

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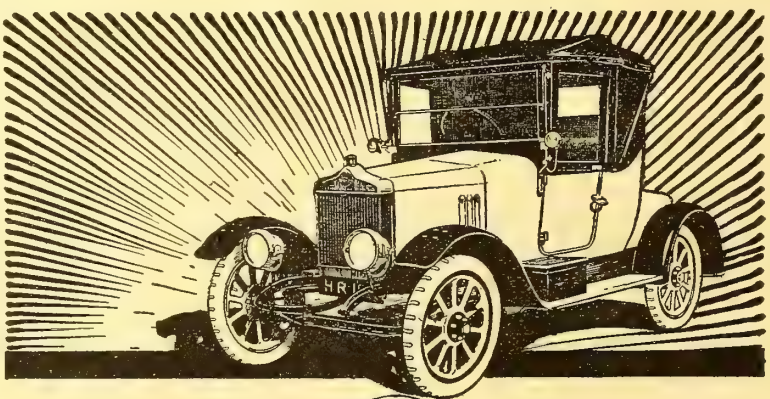

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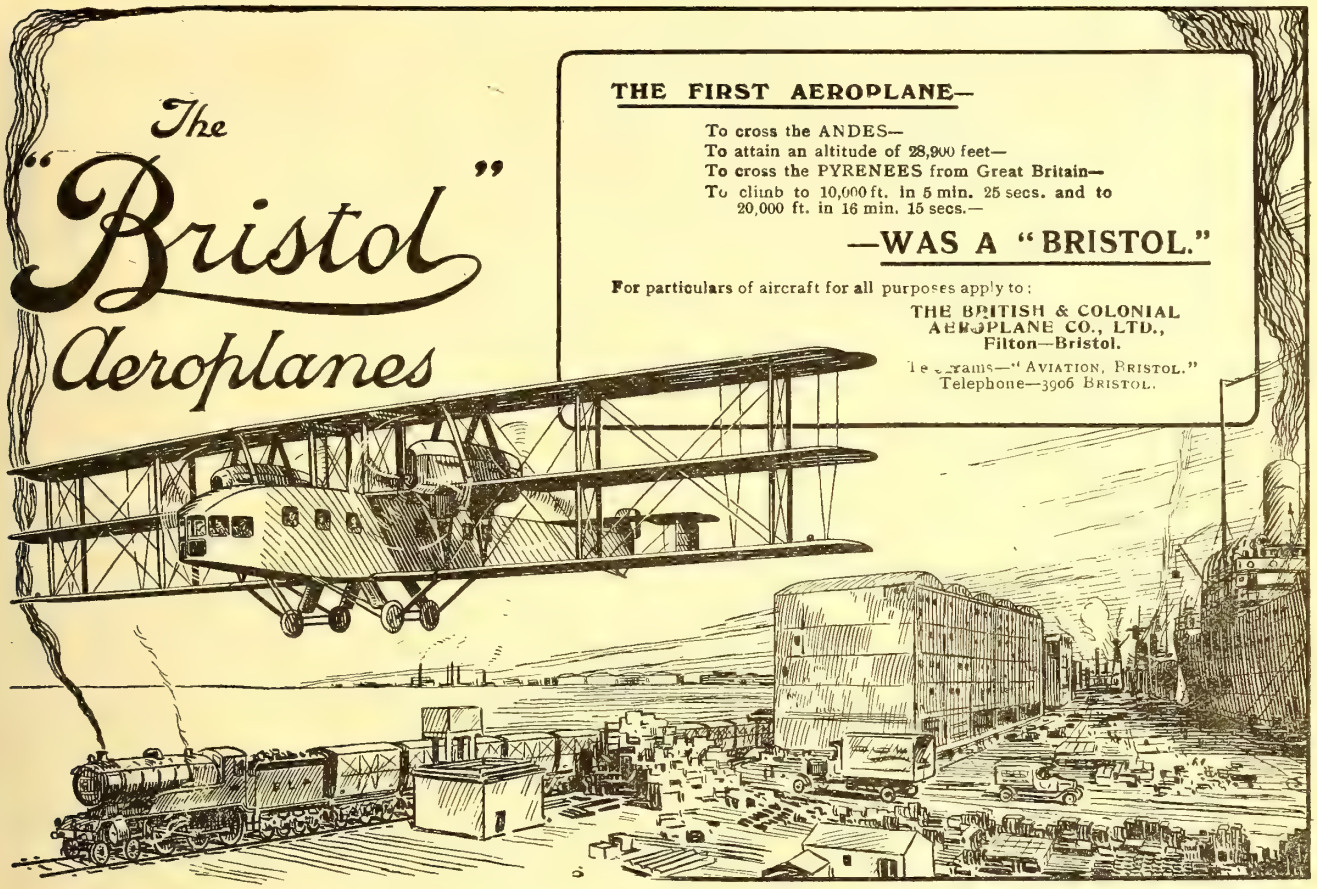

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Imperial Light, Ltd., 123, Victoria Street, London, S.W.1. "Edibrac, 'Phone, London." 3540 Victoria (3 lines).

Aeroplane Manufacturers—

Aircraft Manufacturing Co., Ltd., Hendon. "Airmanship, Hyde, London." Kingsbury 220.

Armstrong, Sir W., Whitworth & Co., Ltd., Newcastle - on - Tyne. "Armstrong Aviation, Newcastle-on-Tyne." Gosforth 500.

Blackburn Aeroplane & Motor Co., Ltd., Olympia, Leeds. "Propellors, Leeds" Roundhay 345 (3 lines).

Boulton & Paul, Ltd., Rose Lane, Norwich, "Aviation, Norwich." Norwich 851.

British Aerial Transport Co., Ltd. Head Office: 28, Conduit Street, London, W.1. "Batigram Reg London." Mayfair 637, 638.

Works: Hythe Road, Willesden, London, N.W.10. "Aerbrirans, Phone, London." Willesden, 2272, 2273

British & Colonial Aeroplane Co., Ltd. (The Bristol Co.), Filton, Bristol. "Aviation, Bristol." Bristol 3006.

Central Aircraft Co., High Road, Kilburn, N.W.6. "Aviduction, Phone, London." Hampstead 4403 and 4424.

Dawson, John, & Co., Ltd., Newcastle-on-Tyne. "Dependable, Newcastle-on-Tyne." Central 2604 (2 lines).

Eastbourne Aviation Co., Ltd., Eastbourne. "Aircraft, Eastbourne." Eastbourne 1176.

Gosport Aircraft Co., Gosport "Flight Gosport." Gosport 217.

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London Office, 12, Regent Street, S.W.1. Regent 2084.

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Mann, Egerton & Co., Ltd., Norwich. "Motors, Norwich." Norwich 482 (4 lines).

Martinsyde, Ltd., Brooklands, Byfleet, "Martinsyde, Weybridge." Woking 331; Byfleet 171.

"Nieuport" & General Aircraft Co., Cricklewood, London, N.W.2. "Nieuscout, Crickle, London." Willesden 2455

Phœnix Dynamo Manufacturing Co., Ltd., Thornbury, Bradford. "Dynamo, Bradford." Bradford 3700 (4 lines).

The Regent Carriage Co., Ltd., 126/132, New King's Road, Fulham, S.W.6. "Carbodis, London." Putney 2240-2241.

Roe, A. V., & Co., Ltd., Manchester. "Triplane, Manchester." City 8530-8531, Manchester.

Saunders, S. E., Ltd., East Cowes, I.O.W. "Consuta, East Cowes." Cowes 193.

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Sopwith Aviation Co., Ltd., Kingston-on-Thames. "Sopwith, Kingston." Kingston 1988 (8 lines).

The Supermarine Aviation Works, Ltd., Southampton. "Supermarin." Woolston 37 (2 lines).

Vickers, Ltd, Imperial Court, Basil Street, Knightsbridge, S.W.3. "Vickerfyta, Knights, London." Kensington 6810.

Waring & Gillow, Ltd., Hammersmith. "Warisen, Ox, London." Museum 5000.

Westland Aircraft, Yeovil "Aircraft, Yeovil." Yeovil 129.

White, J. Samuel, & Co., Ltd., East Cowes. "White, East Cowes." Cowes 3.

Airships—

Airships, Ltd., High Street, Merton. Wimbledon 1314.

The North British Rubber Co., Ltd., Castle Mills, Edinburgh. "Weba, Edinburgh." Edinburgh 3880 Central. (5 lines.)

Short Bros., Rochester, Eastchurch, and Whitehall House, S.W. "Tested, 'Phone, London." Regent 378.

C. G. Spencer and Sons, Ltd. (See under "Balloons").

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Coan, R. W., 219, Goswell Road, London, E.C.1 "Krankases, Isling, London." City 3846.

Balloons—

The North British Rubber Co., Ltd., Castle Mills, Edinburgh. "Weba, Edinburgh." Edinburgh 3880 Central. (5 lines.)

C. G. Spencer and Sons, Ltd., 50A, Highbury Grove, N.5. "Aeronaut, London." Dalston 1893.

Bent Timber Parts—

Hopton & Sons, George Street, Euston Square, London, N.W.1. "Hoptons, Eusquare, London" Museum 496.
Also at Market Harborough, Leicestershire. "Hoptons, Market Harborough." Market Harborough 15.

Bearings (Etonia Cast Phosphor Bronze)

Brown Bros., Ltd, Gt. Eastern St., E.C.1.

Yorkshire Engineering Supplies, Ltd., Wortley, Leeds. "Yes, Leeds." Central 3927.

Blowpipes (Oxy-Acetylene)—

Acetylene Corporation of Great Britain, Ltd, The, 49, Victoria Street, Westminster, S.W.1 "Flamma, Vic, London." Vic. 4830

Imperial Light, Ltd, 123, Victoria Street, London, S.W.1. "Edibrac, 'Phone, London." Vic. 3540 (3 lines).

Bolts—

Mitchell Wedgewood & Co., Campbell Works, Stoke Newington, London, N.16 Dalston 2500 (2 lines).

Books (Aero Engines)—

Dykes' Auto Encyclopedia, Gillam, 149, Strand, W.C.2

Buildings—

Boulton & Paul, Ltd., Rose Lane, Norwich "Aviation, Norwich." Norwich 851

Rubery Owen & Co., Darlaston, South Staffs

Cable Coverings and Cable Controls—

The Bowden Brake Co., Ltd., Tyseley, Birmingham. "Bowden, Acock's Green." Acock's Green 103 & 104

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Nieuwhof, Surie & Co., Ltd., 5, Lloyds Avenue, London, E.C.3 "Suricodon, Fen, London." Avenue 34 and 35.

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Dunhill's Ltd., Euston Road, N.W.1. "Dunsend, London." North 3405-6.

The North British Rubber Co., Ltd., Castle Mills, Edinburgh. "Weba, Edinburgh." Edinburgh 3880 Central. (5 lines.)

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Accles & Pollock, Ltd., Oldbury, Birmingham "Accles, Oldbury." Oldbury 111 (4 lines).

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Central Aircraft Co., High Road, Kilburn, N.W.6. "Aviduction, 'Phone, London." Hampstead 4403 & 4404.

Thompson Bros. (Bilston), Ltd., Bradley, Bilston, England "Thompson Bros., Bilston." Bilston 10.

Cords, Tapes, and Threads—

MacLennan, J., & Co., 30, Newgate Street, E.C.1. And at Glasgow. City 3115.

Dopes—

Titanine, Ltd., 175, Piccadilly, W.1. "Tetrafree, Piccy, London." Gerrard 2312

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The British Emaillite Co., Ltd., 30, Regent Street, S.W.1. "Ridleypren, Piccy, London" Gerrard 280.

Cellon, Ltd., 22, Cork Street, London, W.1. "Ajawb, Reg, London." Gerrard 440.

Robt. Ingham Clark & Co., Ltd., West Ham Abbey, E.15. "Oleotine, Strat, London." East 955.

Engines and Parts—

Allen, W. H., & Co., Ltd., Bedford. "Pump, Bedford." Bedford No. 1.

Arrol-Johnston, Ltd., Dumfries. "Mocar, Dumfries" Dumfries 281-282.

Beardmore Aero Eng., Ltd, 112, Great Portland Street, W.1. "Beardmore, London." Gerrard 238.

The Cosmos Engineering Co., Ltd., Fishponds, Bristol.

Dudbridge Iron Works, Ltd (Salmson), 87, Victoria Street, London, S.W.1. "Aeroflight, Vic, London." Vic 7026.

Gordon Watney & Co., Ltd., Weybridge. "Mercédès, Weybridge." Weybridge 550 (7 lines).

Green Engine Co., Ltd., Twickenham. Richmond 1203.

Gwynnes, Ltd., Hammersmith, W. "Gwynne, Hammersmith." Hammersmith 1910.

Napier & Son, D., Ltd, 14, New Burlington Street, London, W., and at Acton, W. "Nitrifier, London" Gerrard 8926.

Rolls-Royce, Ltd, 14 and 15, Conduit Street, W.1. "Rolhead, London." Gerrard 1654-5-6.

The Siddeley-Deasy Motor Car Co., Ltd., Coventry. Coventry 954. "Deasy, Coventry."

Sunbeam Motor Car Co., Ltd., Wolverhampton. "Moorfield, Wolverhampton." Wolverhampton 985.

The Gnôme & Le Rhône Engine Co., Ltd., 27, Buckingham Gate, S.W.1. "Elevenfold, London." Walthamstow 811 (2 lines).

Walton Motors, Ltd., Walton-on-Thames. "Motors, Walton-on-Thames." Walton-on-Thames 220

Electrical Accessories—

Belling & Co., Montague Road, Upper Edmonton, N.18. "Belling, Edmonton." Tottenham 1984.

Brown Bros., Ltd., Gt. Eastern St., E.C.1.

Johnson & Phillips, Ltd., Charlton, London, S.E.7. "Juno, London." Central 2207; London Wall 1564.

The Rotax Motor Accessories Co., Ltd., Victoria Road, Willesden Junction, N.W.10. "Rodynalite, 'Phone, London" Willesden 2480.

Electric Cables—

E. Kalker and Co., Coventry. "Kalker, Coventry." Coventry 248.

Johnson & Phillips, Ltd., Charlton, London, S.E.7. "Juno, London." Central 2207; London Wall 1564.

Electric Lighting and Power—

Johnson & Phillips, Ltd., Charlton, London, S.E.7. "Juno, London." Central 2207; London Wall 1564.

Mann, Egerton & Co., Ltd., 117, Cleveland Street, London, W. "Installing, Euston road." Museum 70 (4 lines).

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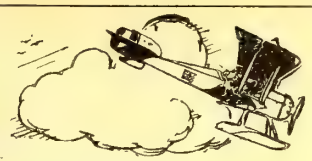

Fluxes—
Imperial Light, Ltd., 123, Victoria Street, London, S.W.1. "Edibrac, 'Phone, London." Victoria 3540 (3 lines).
The Auto Controller Co. (Fluxite), Vienna Road, Bermondsey, Eng.

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Gosport Aircraft Co., Gosport. "Flight, Gosport." Gosport 217.

Galvanising—
Boulton & Paul, Ltd., Rose Lane, Norwich. "Aviation, Norwich." Norwich 851.

Gauges—
J. A. Prestwich & Co., Northumberland Park, Tottenham, N.17.
Voucher, Co., Auto Tool Works, Walsall "Voucher Walsall." Walsall 0196.

Gears—
Moss Gear Co., Ltd., Thomas Street, Aston, Birmingham. "Mosgear, Birmingham." East 407.

Glue—
Cannon, B., & Co., Ltd, Lincoln. London Office, 110, Cannon Street, E.C.4. "Beccecolin, Cannon, London." City 1206.
Improved Liquid Glues Co., Ltd, Gt. Hermitage Street, E. (Croid.) "Excroiden, 'Phone, London." Avenue 4611-2.
Mendine Co., 8, Arthur Street, E.C. Bank 5873.

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Triplex Safety Glass Co., Ltd., 1, Albemarle Street, Piccadilly, W.1. "Shatterlys, Piccy, London." Regent 1340

Heating and Ventilating—
Chas. P. Kinnell and Co., Ltd., 65 & 65A, Southwark Street, London, S.E.1. "Kinnell, London." Hop 372 (2 lines).
The Thames Bank (Blackfriars) Iron Co., Ltd, Upper Ground Street, London, S.E.1. "Hot Water, Friars, London." Hop 763.

Instruments—
British Wright Co., Ltd., 33, Chancery Lane, W.C.2. Holborn 1308.

Instruments (Scientific, Altimeters, etc.)—
Short & Mason, Ltd., Macdonald Road, Walthamstow, E.17. "Aneroid, Phone, London." Walthamstow 180.

Insurance—
Aviation Insurance Association, 1, Royal Exchange Avenue, E.C.3 London Wall 6944.
Bray, Gibb & Co, Ltd., 166, Piccadilly, W.1.
S Sackville & Sons, Duchy Chambers, 4, Clarence Street, Manchester.
Harold Townend, Ltd., 13-14, Abchurch Lane, King William Street, E.C.4. "Carinsur, London." Central 156 (2 lines).
Percy Wingfield, 22, Newgate Street, E.C.1. City 4672.

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Herbert Terry & Sons, Ltd., Redditch. "Springs, Redditch." Redditch 61.

Magnetos—
The British Lighting & Ignition Co., Ltd., 204, Tottenham Court Road, W.1. "Vicksmag, Phone, London." Museum 430.
The British Thomson-Houston Co., Ltd., Lower Ford Street, Coventry. "Asteroidal, Coventry." Coventry 278.

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Metals in General—
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Metal Parts and Fittings—
Accles & Pollock, Ltd., Oldbury, Birmingham. "Accles, Oldbury." Oldbury 111 (4 lines)
Arnott & Harrison, Ltd, Hythe Road, Willesden Junction. Willesden 2207.
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Blackburn Aeroplane & Motor Co., Ltd., Olympia, Leeds. "Propellors, Leeds." Roundhay 345 (3 lines).
British Metal (Kingston), Ltd., Kingston-on-Thames.
Brown Bros., Ltd., Gt. Eastern St., E.C.1.
Mann, Egerton & Co., Ltd., 177, Cleveland Street, London, W.1 "Installing, Eusroad, London." Museum 70.
Rubery Owen & Co., Darlaston, South Staffs.
Sankey, Joseph, & Sons, Ltd., Wellington, Shropshire. "Sankey, Wellington, Salop." Wellington 66.
The Pulvo Engineering Co., Ltd., 10 to 16, Dane Street, High Holborn, London, W.C.1. "Pulvipult, Phone, London." Holborn 410.
The Selsdon Aero & Engineering Co., Ltd., 1, Albemarle Street, Piccadilly, W.1. "Selaero, Phone, London." Regent 1181.
The Rotax Motor Accessories Co., Ltd., Victoria Road, Willesden Junction, N.W.10. "Rodynalite, Phone, London." Willesden 2480.
Thompson Bros., Ltd., Bradley, Bilston. "Thompson Bros., Bilston." Bilston 10.

Metric Bolts—
Cashmore Bros, Hildreth Street, Balham, S.W. Battersea 415.
Rubery Owen & Co., Darlaston, South Staffs.

Miscellaneous—
Anderson, D., & Son, Ltd. (Roofs), Belfast. "Anderson, Belfast." Belfast 4033-4034-4035
British Metal (Kingston), Ltd., Kingston-on-Thames.
Brown Bros., Ltd., Great Eastern Street, E.C.1 "Imbrowned, Bethroad, London." London Wall 6300.
Herbert Frood Co., Ltd., Chapel-en-le-Frith. "Frodobrake, Birmingham." Central 793
MacLennan, J., & Co., 30, Newgate Street, E.C.1., and at Glasgow. Tapes, Cords, and Threads. City 3115.

Motor Cars—
Arrol Johnston, Ltd., Dumfries. "Mocar, Dumfries." Dumfries 281-282.
Mann, Egerton & Co., Ltd., 379/381, Euston Road, London, N.W.1. "Manegecar, Eusroad, London." Museum 70.
Standard Motor Car Co., Coventry. "Flywheel, Coventry." Coventry 530 (4 lines).

Nameplates and Labels—
British Metal (Kingston), Ltd., Kingston-on-Thames.
The Clegg Metal Engraving Co., Ltd., Worthing. "Clegg, Worthing."

Observation Panels—
Triplex Safety Glass Co., Ltd., 1, Albemarle Street, Piccadilly, W.1. "Shatterlys, Piccy, London." Regent 1340.

Oils—
C. C. Wakefield & Co., Ltd, Wakefield House, Cheapside, E.C.2. "Cheery, Cent, London" Central 11305 & 13466.

Parachutes—
E. R. Calthrop's Aerial Patents, Ltd., Eldon Street House, Eldon Street, London, E.C. "Savemalivo, Ave, London." London Wall 3266-3267.
The North British Rubber Co., Ltd., Castle Mills, Edinburgh. "Weba, Edinburgh." Edinburgh 3880 Central. (5 lines.)
C. G. Spencer & Sons, Ltd. (See under "Balloons").

Piston Rings—
The Standard Piston Ring and Engineering Co., Ltd., Don Road, Sheffield. "Ocean, Sheffield." Sheffield 2149

Presswork—
Rubery Owen & Co., Darlaston, South Staffs.
Terry, Herbert, & Sons, Ltd., Redditch. "Springs, Redditch" Redditch 61.

Propellers—
The Aircraft Improvements Co., Mornington Works, Arlington Road, Camden Town, N.W.1
Blackburn Aeroplane & Motor Co., Ltd., Olympia, Leeds. "Propellors, Leeds." Roundhay 345 (3 lines).
Boulton & Paul, Ltd., Rose Lane, Norwich, "Aviation, Norwich." Norwich 851.
Ebora Propeller Co., 11 & 12, Surbiton Park Terrace, Kingston-on-Thames "Ebora, Kingston." Kingston 672.
Integral Propeller Co., Ltd., "Aviprop, Hyde, London." Hendon 9. Kingsbury 104
Lang Propeller, Ltd., Weybridge. "Aerosticks, Weybridge." Weybridge 520-521.
Oddy, W. D., & Co., Leeds. "Airscrews, Leeds." Leeds 20547-8.
Westland Aircraft, Yeovil. "Aircraft, Yeovil." Yeovil 129.

Pyrometers—
The Foster Instrument Co., Letchworth, Herts. "Foster Instruments, Letchworth." Letchworth 26.

Rawhide Hammers—
Ira Stephens, Whitelands Leather Works, Ashton-under-Lyne. "Stephens, 709, Ashton." Ashton 709.

Rigging for Aircraft—
Cradock, Geo., & Co., Ltd., Wakefield, England. "Cradock, Wakefield." Wakefield 466.

Rubber Tubing & Accessories—
Hancock, James Lyne, Ltd., 106, Goswell Road, London, E.C.1 "Masticator, Isling, London." City 3811 & 3812
The North British Rubber Co., Ltd., Castle Mills, Edinburgh. "Weba, Edinburgh." Edinburgh 3880 Central. (5 lines.)

Safety Belts—
C. H. Holmes & Son, 38, Albert Street, Manchester. "Semloh, Manchester." City 4432.

Screwing Die Heads—
Voucher, Co., Auto Tool Works, Walsall. "Voucher Walsall." Walsall 0196

Screw-driving Machines—
Russell Bros. (Redditch), Ltd., Littleworth, Redditch. "Inventors, Redditch." Redditch 74.

Seaplane Manufacturers—
Blackburn Aeroplane & Motor Co., Ltd., Olympia, Leeds. "Propellors, Leeds." Roundhay 345 (3 lines).
Phœnix Dynamo Manufacturing Co., Ltd., Thornbury, Bradford. "Dynamo, Bradford." Bradford 3700 (7 lines).
Short Bros., Rochester. "Seaplanes, Rochester." Chatham 627.
Supermarine Aviation Works, Ltd., Southampton "Supermarin, Southampton." Woolston 37.

Searchlights & Landing Lights
Brown Bros., Ltd., Great Eastern St., E.C.1.
Imperial Light, Ltd., 123, Victoria Street, London, S.W.1. "Edibrac, Phone, London" 3540 Victoria (3 lines).
The Rotax Motor Accessories Co., Ltd., Victoria Road, Willesden Junction, N.W.10 "Rodynalite, Phone, London." Willesden 2480

Shock Absorbers—
Luke Turner & Co., Deacon Street, Leicester Leicester 967.
Tubbs, Lewis & Co., Ltd., 29 & 30, Noble Street, E.C.2 "Elastics, London." City 22.

Sheet Metal Pressings—
Accles & Pollock, Ltd, Oldbury, Birmingham. "Accles, Oldbury." Oldbury 111 (4 lines)
Blackburn Aeroplane & Motor Co., Ltd., Olympia, Leeds. "Propellors, Leeds." Roundhay 345 (3 lines)
British Metal (Kingston), Ltd., Kingston-on-Thames.
Rubery Owen & Co., Darlaston, South Staffs.

Sheet Metal Work—
The Acetylene Corporation of Great Britain, Ltd., 49, Victoria Street, S.W.1. "Flamma, Vic, London." Vic 4830
British Metal (Kingston), Ltd., Kingston-on-Thames. [Staffs.
Rubery Owen & Co., Darlaston, South
The Selsdon Aero & Engineering Co., Ltd., 1, Albemarle Street, Piccadilly, W.1. "Selaero, Phone, London." Regent 1181
Imperial Light, Ltd., 123, Victoria Street, London, S.W.1. "Edibrac, Phone, London." Victoria 3540 (3 lines).

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Accumulators—
The Chloride Electrical Storage Co., Ltd, Clifton Junction, near Manchester. "Chloridic, Pendlebury" Central Manchester, 1638 Pendleton, 11

Acetylene Welding Plant—
Acetylene Corporation of Great Britain, Ltd, The, 49, Victoria Street, Westminster, S W 1 "Flamma, Vic, London" Vic 4830
Imperial Light, Ltd, 123, Victoria Street, London, S W 1 "Edibrac, 'Phone London" 3540 Victoria (3 lines)

Aeroplane Manufacturers—
Aircraft Manufacturing Co, Ltd, Hendon "Airmanship, Hyde, London" Kingsbury 220
Armstrong, Sir W, Whitworth & Co, Ltd, Newcastle-on-Tyne "Armstrong Aviation, Newcastle-on-Tyne" Gosforth 500
Blackburn Aeroplane & Motor Co, Ltd, Olympia, Leeds "Propellors, Leeds" Roundhay 345 (3 lines)
Boulton & Paul, Ltd, Rose Lane, Norwich, "Aviation, Norwich" Norwich 851.
British Aerial Transport Co, Ltd. Head Office: 28, Conduit Street, London, W 1 "Batigram Reg London" Mayfair 637, 638
Works: Hythe Road, Willesden, London N W.10 "Aerbrirans, Phone, London." Willesden, 2272, 2273
British & Colonial Aeroplane Co, Ltd (The Bristol Co.), Filton, Bristol "Aviation, Bristol" Bristol 3006.
Central Aircraft Co, High Road, Kilburn, N W.6 "Aviduction, Phone, London" Hampstead 2403 and 4424
Dawson, John, & Co., Ltd., Newcastle-on-Tyne "Dependable, Newcastle-on-Tyne" Central 2604 (2 lines).
Eastbourne Aviation Co, Ltd, Eastbourne "Aircraft, Eastbourne" Eastbourne 1176
Gosport Aircraft Co, Gosport "Flight Gosport" Gosport 217
Grahame-White Company, Ltd., London Aerodrome, Hendon "Volplane, Hyde, London" Kingsbury 120. London Office, 12, Regent Street, S W 1 Regent 2084.
Handley Page, Ltd., 110, Cricklewood Lane, N.W 2 "Hydrophid, Crickle, London" Hampstead 7420
Hooper & Co., Ltd., 54, St. James St, Piccadilly, London, S W "Sociable, St James, London" Regent 912
Mann, Egerton & Co, Ltd, Norwich "Motors, Norwich" Norwich 482 (4 lines)
Martinsyde, Ltd, Brooklands, Byfleet, "Martinsyde, Weybridge." Woking 331; Byfleet 171
"Nieuport" & General Aircraft Co., Cricklewood, London, N W 2 "Nieuscout, Crickle, London" Willesden 2455
Phoenix Dynamo Manufacturing Co., Ltd, Thornbury, Bradford "Dynamo, Bradford." Bradford 3700 (4 lines)
The Regent Carriage Co., Ltd., 128/132, New King's Road, Fulham, S.W 6. "Carbodis, London." Putney 2240-2241.
Roe, A. V., & Co, Ltd., Manchester. "Triplane, Manchester" City 8530-8531, Manchester
Saunders, S. E., Ltd., East Cowes, I.O.W. "Consuta, East Cowes" Cowes 193
Short Bros., Rochester, Eastchurch and Whitehall House, S W "Tested, Phone, London." Regent 378
The Siddeley Deasy Motor Car Co, Ltd, Coventry Coventry 954 "Deasy, Coventry"
Sopwith Aviation Co, Ltd, Kingston-on-Thames. "Sopwith, Kingston" Kingston 1988 (8 lines).
The Supermarine Aviation Works, Ltd, Southampton "Supermarin" Woolston 37 (2 lines).
Vickers, Ltd, Imperial Court, Basil Street, Knightsbridge, S W.3. "Vickerfyta, Knights, London" Kensington 6810
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Westland Aircraft, Yeovil "Aircraft, Yeovil" Yeovil 129
White, J. Samuel, & Co, Ltd, East Cowes. "White, East Cowes" Cowes 3.

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Yorkshire Engineering Supplies, Ltd., Wortley, Leeds "Yes, Leeds" Central 3927

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Imperial Light, Ltd, 123, Victoria Street, London, S W 1 "Edibrac, 'Phone, London." Vic. 3540 (3 lines)

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Dunhill's Ltd., Euston Road, N.W.1. "Dunsend, London." North 3405-6.
The North British Rubber Co, Ltd, Castle Mills, Edinburgh. "Weba, Edinburgh." Edinburgh 3880 Central. (5 lines.)

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Central Aircraft Co, High Road, Kilburn, N W 6. "Aviduction, 'Phone, London." Hampstead 4403 & 4404.
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Robt Ingham Clark & Co, Ltd, West Ham Abbey, E 15 "Oleotine, Strat, London" East 955.

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Arrol-Johnston, Ltd, Dumfries "Mocar, Dumfries" Dumfries 281-282
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Dudbridge Iron Works, Ltd (Salmson), 87, Victoria Street, London, S W 1 "Aeroflight, Vic, London." Vic 7026
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Gwynnes, Ltd., Hammersmith, W "Gwynne, Hammersmith" Hammersmith 1910
Napier & Son, D., Ltd, 14, New Burlington Street, London, W., and at Acton, W "Nitrificr, London" Gerrard 8920
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Walton Motors, Ltd., Walton-on-Thames. "Motors, Walton-on-Thames" Walton-on-Thames 220

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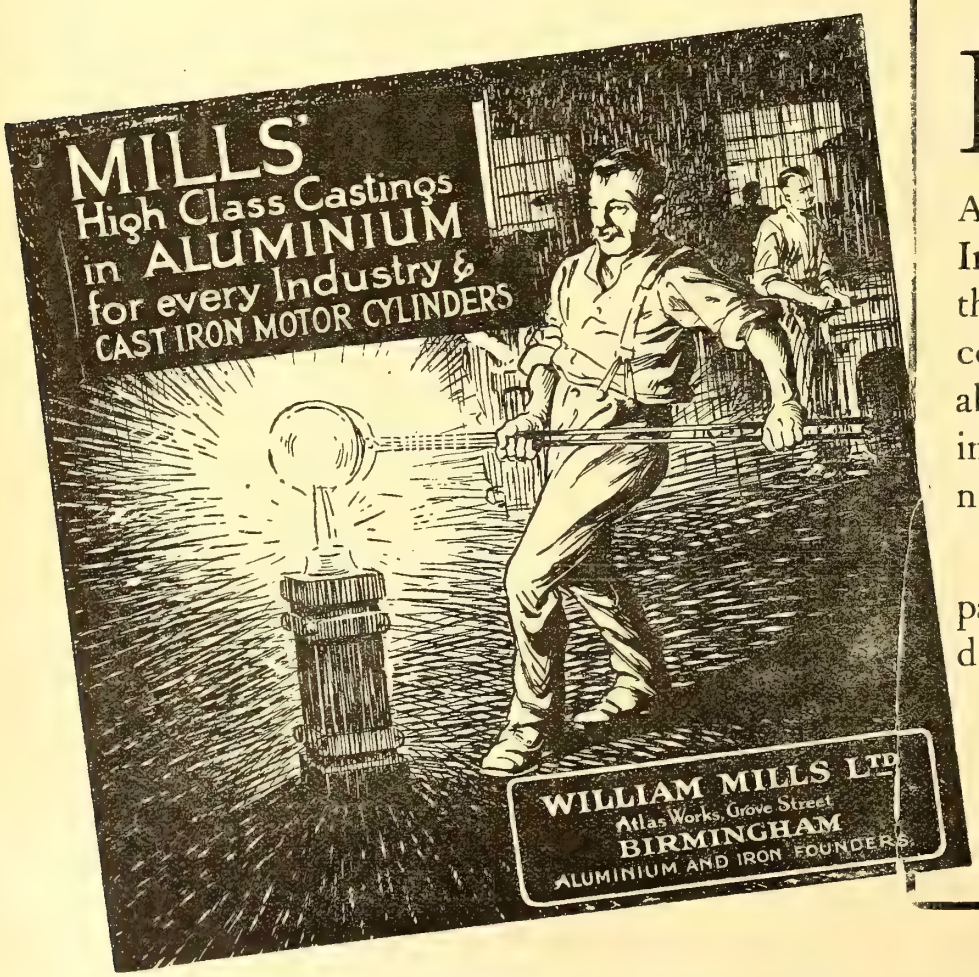

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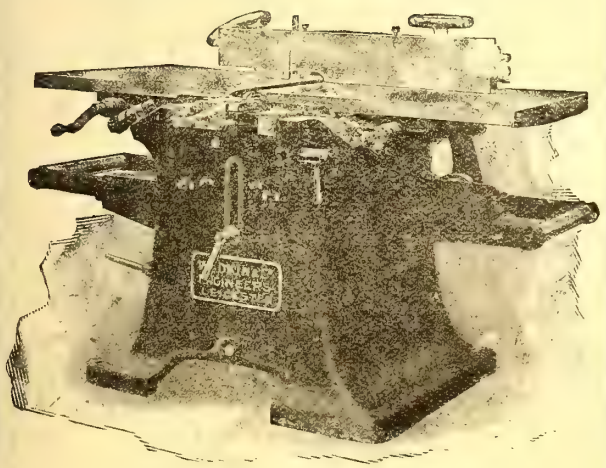

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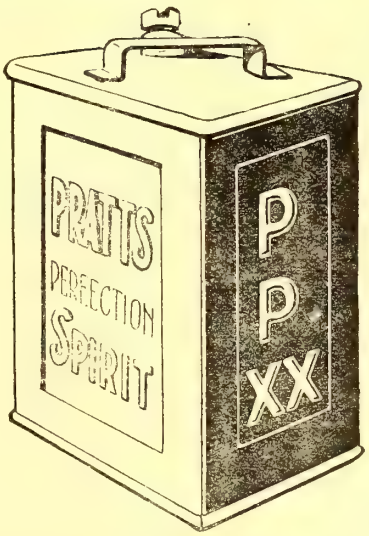

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AERIAL SAFETY AND THE AEROPLANE PARACHUTE.—(*Continued*).

BY L. P. FRANTZEN.

THE FRENCH ORS PARACHUTE (1918 TYPE).

The Ors parachute is 10 metres in diameter, and is made of French silk.

This parachute is folded up upon 12 circular wood frames which are attached one to another by small cords. It being so folded, the 12 frames are placed together and the suspension ropes carefully folded so as to avoid their becoming entangled.

The Ors type of parachute has two special features—(1) certainty of opening and (2) positive extension (*i.e.*, it is drawn out directly by the weight of the falling aviator).

In opening, air passes through the wooden rings and inflates the upper portion of the parachute first, the parachute opens gradually and produces a gradually increasing negative acceleration.

This type is amongst the most interesting and most certain of aeroplane parachutes.

M. Jean Ors himself has even descended from an aeroplane in one holding on by his hands alone.

TRIALS OF THE ORS PARACHUTE.

1st test. Parachute 10 metres diameter. Parachute opened gradually and with little shock, and descended at an average of 15 ft. per second.

2nd test. Parachute, 8 metres diameter, fitted beneath the body of a Bréguet biplane. Dropped at about 300 ft. The parachute opened gradually and descended at an average speed of 17 ft. per second.

3rd test. Parachute 9 metres diameter. Dropped from 325 ft. The parachute commenced to open at once, and opening was completed in 4 seconds, the upper part inflating first, and the parachute extended itself steadily to its full spread as it dropped.

The opening is so slow that the shock produced is very slight.

THE JUCHMES BALLOON PARACHUTE (MILITARY TYPE).

(Invented by M. Juchmès, Airship Pilot.)

Description. The case containing the parachute is made of rubber-proofed fabric, and is placed at the side of the nacelle. It is in form a truncated cone, fitted with wooden rings at each end. The case is fixed to the nacelle by a pyramid of cords which terminate in two rings.

The parachute is arranged at the base of the cone, and is held in the throat of the wooden ring by a spring clip which will stand a pull of 30 kgs. There emerges from the cone only a rope 3 metres long, which is attached to the aviator's harness by a snap-hook.

Dimensions of the case:—Height, 0.60 m.; diameter, summit, 0.25 m.; base, 0.40 m. Overall length of drawn out parachute:—Parachute, 5 m. cord fans, 5 m.; suspension ropes, 8.95 m.; harness rope, 3.0 m. snap-hook, 0.05 m. Total: 22 m.

The parachute has roughly a diameter of 10 metres. It is made in five zones, made up in panels, each 1 metre wide, making a total length of 5 metres when the closed parachute is pulled out. The four inner zones are of fine silk. The exterior zone is in heavier silk, or *ponghée*, with a corded edge.

The upper part of the parachute is pierced with a hole of about 0.5 metres diameter, which is cross-tied with cords. The suspension is in the form of 8 fans each of three branches, leading to eight suspension cords.

This parachute, which has saved the lives of numerous kite balloon observers, has also been tried from aeroplanes, but although it has given some results, it does not seem to be sufficiently developed for this application.

In the technical and practical tests a diagonal system of support and an internal collar were used, but the arrangement gave too little elasticity, and resulted in too sudden an opening, although the shock was not very great.

On July 31st, 1918, Captain Aviator Sarret made a test in Lorraine by leaving a two-seater Salmson biplane from a height of 500 metres with a Juchmès parachute with no special arrangements. This exploit gained for him the Cross of the Legion of Honour.

THE "SERVICE DE L'AVIATION MILITAIRE" PARACHUTE (S.E. AE. TYPE).

The model first tried was derived from the Juchmès balloon parachute, but a number of holes around the summit were added. These holes were fitted with an elastic device which allowed of their expanding under pressure. This arrangement was designed to halve approximately the shock of opening, but, on the other hand, it increased the rate of descent. The shock-absorbing qualities were good, but it was necessary to increase the diameter to reduce the mean speed of descent.

This parachute was 7 metres diameter, with a radius of curvature of 9 metres, and was made in 12 sectors, with 12 suspension ropes. It was made of cotton fabric, and weighed, with its envelope, about 20 lbs.

The parachute is folded accordeon-wise in a waterproof envelope. The suspension ropes are folded up in a separate compartment of the envelope. A cover is fitted to the envelope, held in place by cords.

This parachute has been tried from various heights. It was fitted in a compartment behind the observer in a Bréguet, and so arranged that it could be dropped over one side and hang just below the fuselage when the dummy or weight was to be dropped.

A dynamometer was fitted into the suspension system, which registered the maximum shock.

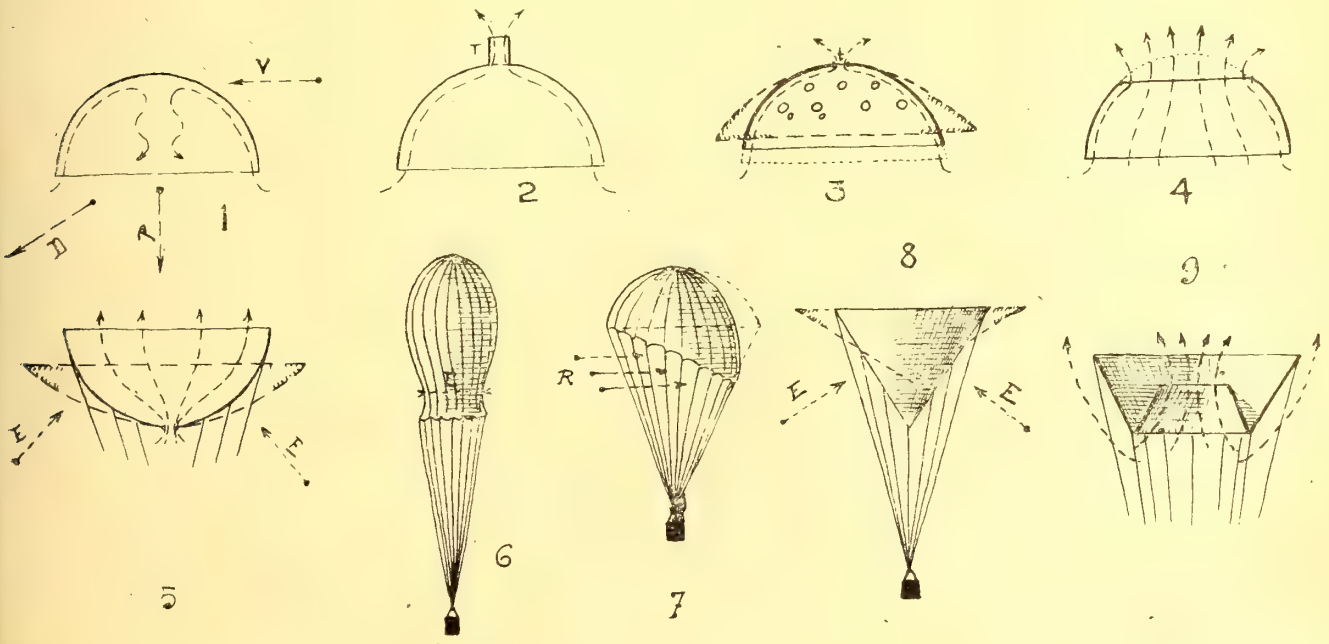
At the first trial the parachute dropped a long way before opening. Then it opened suddenly and with a fairly large shock. The speed of descent averaged 15 ft. per second.

As a result it underwent several modifications, and was again tried upon a Bréguet, upon which it was fitted in the same place and manner.

Launched from 150 ft., it made a bad opening, which produced a sudden change of speed and a shock which reached 1,000 lbs.

It was necessary then to make radical alterations in the system, and particularly in the suspension.

A further test was made at 600 ft., the parachute being carried in the cockpit. It was hung out over the body just before releasing.



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The result was bad, because the parachute fell owing to the small cords which held it in the case breaking through getting entangled in the tail, an accident which obliged the pilot to make a forced and brutal landing, thus demolishing the machine.

This has been the only accident in all the long series of tests made by the commission charged with the examination of aeroplane parachutes, but it formed a good lesson as to the precautions which must be taken in the future. It should be said that this parachute should be perfected shortly, and that it ought to be completely satisfactory.

To conclude this essay a diagram is given here of the divers forms which can be given to parachutes. The reader will be enabled to take account of the advantages and disadvantages of each system, and will probably conclude that the problem of the aeroplane parachute is still far from being settled, even in regard to the shape of parachute to adopt.

Description of the Diagram.

Fig. 1.—Primitive type of parachute. Hemispherical (inverted bowl) without hole in the top for the passage of the air current.

Disadvantage: Great pendulum oscillations due to eddies set up within the parachute.

Fig. 2.—Garnerin parachute, with "Lalande hole" (T), giving a better air flow.

Fig. 3.—Modern parachutes: Types 1: Less than a hemisphere; type 2: flattened hemisphere. The majority are fitted with a single escape hole, but some have multiple openings. These types give good air flow, but oscillate more or less, to an extent which depends on the shape and proportion of each parachute.

Fig. 4.—Hemispherical parachutes cut out too much at the top. This excessive cutting away, which greatly diminishes the surface, greatly accelerates the rate of descent, even to a dangerous extent. Also the oscillations are in no wise reduced by enlarging the hole.

Fig. 5.—Mouillard type parachute (1895). Tests made with rigid hemispherical parachutes turned upwards. Very good air flow and good sustentation were obtained. The experiment can be easily made with an umbrella turned inside out. Very little oscillation. The air reaction is shown by E.

Fig. 6.—Throttling (suction) effect (at E), which occurs with all ordinary types of non-rigid parachutes at the beginning of the fall. This may become very dangerous in a strong wind (or at a high speed), and may prevent the parachute opening at all.

Fig. 7.—Steering a parachute by shortening the suspensions on one side.

Fig. 8.—Inverted cone type parachute. Badly carried out by Cocking in 1834. An excellent shape, recognised by Sir George Cayley, and shown to be correct by Renaud, but difficult to make in practice. The descent of the inverted cone parachute is perfect, and is without oscillations.

Fig. 9.—Annular parachute, single or multiple (System A. Dauphin). Rigid or semi-rigid type.

On either theoretical or experimental grounds this is the best shape yet known, but, like the previous type, it is difficult to make.

A parachute of this shape, however dropped, automatically reverts to its normal position. It has no pendulum motion.

Further, this system, known as the "Reaction type," only needs half the surface necessary for the ordinary types, which is remarkable. This fact will be referred to again.

Amongst the types of parachute of French invention one must mention that due to M. Jean Stroescu, which is interesting on account of its turned-up edge. This inventor has obtained very striking results by making his parachutes to the profile shown diagrammatically in Fig. 10.

In this it will be seen that the air currents are more dispersed, and that a larger region of low pressure (D) is set up by the turned-up edges than is the case with the usual form (Fig. 11).

It is interesting to note that this principle of the turned-up edge is mentioned in an essay of Mouillard's upon dirigible parachutes dated 1895.

It should be remembered that Mouillard made very careful experiments with parachutes, and that he rejected in principle the Garnerin spherical or inverted bowl type of parachute, and recognised that the inverted umbrella, or "bowl right-way up," as theoretically better. But to make a practical flexible parachute of this form is a quite different affair.

The same is the case with the inverted cone type recommended by Sir George Cayley, and tried with such unfortunate results by the English painter, Cocking. It has not been possible to carry out this system yet without a rigid skeleton, which has caused it to be rejected for aeroplane work.

Nevertheless the principle is good. It is the same with the annular type of parachute devised by Dauphin.

Since Garnerin the shape of the parachute has remained practically unchanged, and it was only towards 1910 that attempts have been made to devise parachutes for aeroplanes which are automatically thrown clear of the machine.

It is correct to say that all modern aeroplane parachutes have been designed on this line. It is the author's opinion that this is not sufficient.

It is only necessary to read Mouillard on this subject. His criticisms are imperative, and to anyone who has studied in its entirety the parachute question it is impossible to accept as final the present spherical type, on account of the violent pendulum oscillations which occur during descent.

It has been extremely difficult to find suitable methods of carrying parachutes upon the various types of Allied machines in service.

In horizontal flight the matter is relatively simple, but when, as in the case in accidents, the machine may take up any position whatever, the problem becomes very difficult to solve. It has, however, been accomplished now.

The pre-war and early war trials with parachutes placed below the fuselage only met the one particular case, and could not be considered conclusive. A parachute should be always ready to operate, no matter what the conditions. The best methods ("L'Aérophile," March, 1919) in actual use are either to carry the parachute upon the aviator's back, or to place it in a special case which is carried in the fuselage immediately behind each aviator's seat.

A flat parachute (Fig. 3) produces a very decided sideways movement, a kind of glide.

A parachute too deeply curved gives rise to great pendulum oscillations.

A parachute with a large number of vent holes beside the central hole has a reduced shock when opening, but must have a large surface to prevent excessive speed of fall.

Most parachutes have been made either of silk or of cotton. Silk is incontestably the better material on account of its lightness and its strength. Silk allows of folding into a very small space, and is little damaged by being folded.

Parachutes should never be folded when wet.

Parachutes which have been used and repaired should never be used.

Parachutes which have been used and repaired and stowed very carefully. This needs in many cases a considerable time.

It is obvious that the case which contains the parachute should be fireproof. The parachute itself should be so treated. The Germans did not neglect this precaution, doubtless thinking that their parachutes might be attacked, although naturally it was the inverse which occurred.

INADEQUATE SENTENCES.

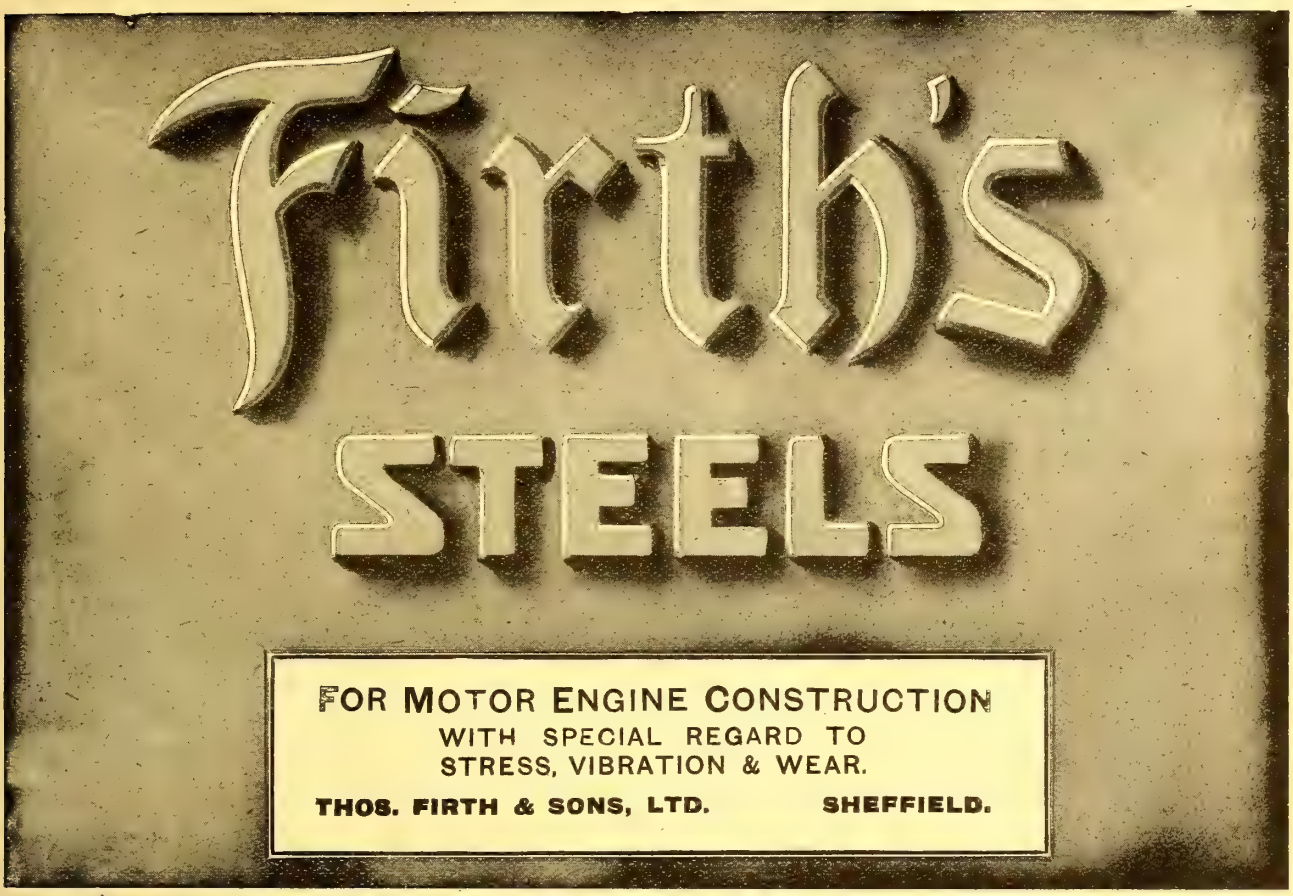
On Thursday, July 17th, at the Sheffield Police Court, W. S. Laycock, Ltd.; James Sedcole, manager of the engine department; Fred Miller, commercial manager; William Hunter, works manager; Edward Clarke, foreman fitter; and William Margerison, stores clerk, were charged under the Defence of the Realm Regulations with misleading an official of the Department of Aircraft Construction as to the quality of certain parts of an aeroplane engine by substituting for parts which had been inspected and approved by the Aeronautical Inspectorate Department certain other parts not so inspected and approved.

It was alleged that workmen were called upon to work during the night and in the absence of the inspectors to substitute defective cylinders for tested and approved cylinders upon engines manufactured by the firm and approved for delivery by the A.I.D. inspectors, and evidence was given by certain of the firm's workmen to that effect.

The defendants were convicted and fined: the firm £200 and 100 guineas costs; James Sedcole, £50; Fred Miller, £10; Wm. Hunter, £20; Edward Clarke, £2; and Wm. Margerison, £30.

A FACTORY FIRE.

Owing to the devotion of the staff, of which the majority were girls, nearly all the "spares" were safely removed from the building of Aero Coverings, Ltd., of Kilburn, on July 14th, when they had rather a bad fire. Two days after the occurrence work was resumed with full output.



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EMBUSQUE'S GRAB.

The following letter has been received :—

Sir,—We hear nowadays a considerable outcry from trade union circles demanding that certain customs and privileges enjoyed by trade unionists which had to go to the wall during the war shall now be re-introduced. Of the rights and wrongs of this question I do not wish to debate to-day, but it does seem to me—and, I should imagine, to the great majority of your readers—that, as well as trade unionists, other folk may also claim the return of their rights and privileges.

Few fair-minded men will deny that designing and inventive people during the war were subject to many hardships, particularly, for example, the more or less forcible seizing of their designs by the State, to be sub-contracted with all types of firms—good, bad, or indifferent—at the sweet will of the Government Department concerned. They were always assured that it was for the national cause and the national good, and therefore acquiesced.

Surely the necessity for this procedure is now long past. Under urgent war conditions this custom may have been necessary, and in many instances unquestionably did good, but under peace conditions I cannot see how any thinking man can see anything in it but bad. A designing firm may incur very heavy expenses in producing some new type of aeroplane, engine, or fitting, yet if this system is to go on his designs may be grabbed by the residue left in the Bolo muck-heap. He has then to enter into cut-throat competition for the honour of building at the cheapest possible rate his own choicest production against—in many instances—war firms of mushroom growth, whose only right to existence was the urgent needs of the war and the demands for enormous production and the continual surplus of orders.

Many of these firms are willing to take on work at any price to keep their organisation together, " always with the hope of something turning up," and are, of course, entirely saved the heavy expenses of a designing office, drawing staff, the frequent occasions on which the attempts to produce a design are abortive (but which have frequently resulted on further trials in a highly satisfactory production), not, of course, loaded with the heavy cost of experimental machines which often have to be scrapped in arriving at the result, or the maintenance of, or payments to, an experimental pilot.

I will inflict my opinions on your unhappy readers only by one final example, which is perhaps the most important of all. In many cases in the past where Governments have been buying in the cheapest market, some firm—whose design was its outstanding merit—continued to supply the trade (whatever it might be—engineering, shipbuilding, etc.) with their production, and sure enough, in a year or two, the supreme excellence of their production was so apparent to the Government that their production was finally purchased from this firm to the satisfaction of all parties concerned.

Under this new game of "Embusqué's Grab," as played on the " Bolo Rubbish Heap," the designs of this excellent firm would have been seized, executed by some firm which we will call " Messrs. Blackleg, Ltd.," to the worst possible limits which could be squeezed through the A.I.D., some underlying principle of the design quite ignored, and the design would have been a failure. Not only would the Government have acquired a cheap and shoddy article—which, always remember, matters very little to the gentleman whose greatest danger is that he might do a flat spin on his revolving office chair—but this very design acquires such a bad name that the unhappy firm cannot even do a reasonable trade with its own well-built article amongst its trade friends. For the sake of the spirit of fair play which one still believes is uppermost in all English hearts—whether they are trade or not—the time appears to be quite ripe for a really determined stand to be taken against this insidious form of " Boloism" at its worst.

Like other trade unionists, I do not sign this as I fear victimisation.

[Note.—The practice of which complaint is made in this letter is the subject of a leading article by "Strasbourg" in this issue. - Ed.]

RADIATORS.

At the invitation of the Motor Radiator Manufacturing Co. a small party of the technical Press and the motor trade visited the works of the above firm.

As mentioned by one of the members of the party, " a radiator was a thing that nobody took any notice of until it began to leak," and then the words of the English language were inadequate to express one's feelings for both the radiator and its maker.

Having seen how a radiator should be made in an all-too-short inspection of the works, one feels convinced that the only radiators that do leak do not emanate from the factory in Grete, Birmingham. Mr. Serck, the enterprising proprietor of the company, started making radiators back in 1907 in Bermondsey, and from that time the business has expanded to its present state, where in a factory covering an area of something over four acres it is estimated that when in full swing 50,000 radiators can be produced per annum, as well as supplying from their own tube mills sufficient tubing for all the aeroplane and car radiators manufactured in the United Kingdom.

During the latter part of the war the factory was taken over as a national one and its entire efforts were devoted to the needs of the Aircraft Industry, with the exception of a contract for a certain number of Tank radiators.

In the hurried tour of the factory one saw the presses and drawing mills making the tubes from blanks, the testing of the tubes for leaks by a water test, the cutting off into short lengths, annealing, and the shaping of the ends.

The finished radiator tubes are then assembled in frames ready for the soldering process, both sides of the radiator block being submerged to a depth of about 3-16ths of an inch in an acid bath and then in the solder.

The water spaces are then connected up and mounted ready for the final tests.

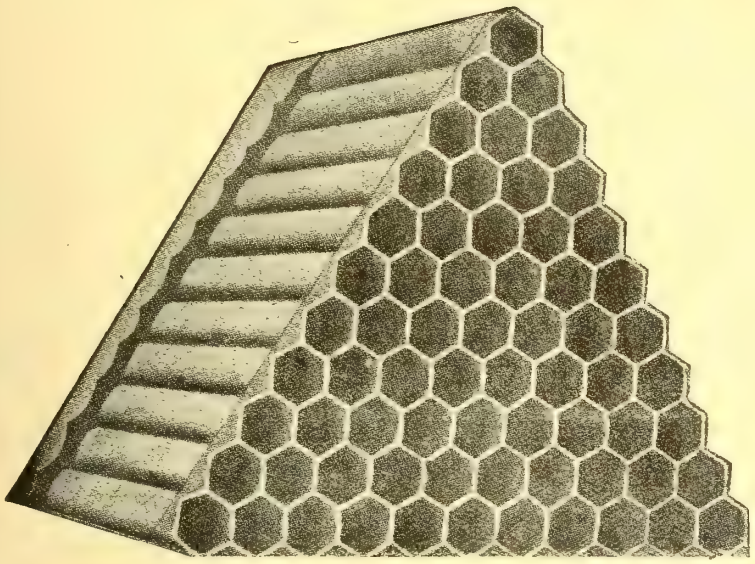
In the first test the whole radiator is submerged in water and blown up with air to detect leaks. In the second it is filled with water to a pressure of 7 lbs. In the third, known as the flow test, the water is forced through the radiator in order to detect any obstructions, etc.

It is again filled with water to a pressure of 7 lbs. and is then ready for packing and dispatch.

Now that the factory has been released by the Government, Mr. Serck has again assumed control, and one feels confident, having seen the thoroughness and keenness he displays in turning out the best article only, that he is going to improve on his old reputation if that be possible, more particularly in quantity production.

A GERMAN CURIOSITY.—A Twin-engined Schütte-Lanz Biplane of early 1915. It is apparently built almost entirely of metal. The engine and airscrew mounting is of particular interest.

YOU MUST HAVE AN EFFICIENT AND RELIABLE RADIATOR.



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PATENTS INDEX

The subjoined list of recent inventions has been specially compiled by The Aeroplane from the Current Official Patents Records :—

Patents Applications.

Baker, W. J. Providing forced induction for engines of aircraft, motor-cars, etc. No. 13113. May 24th.
Boothby, F. I. M. Fuel tanks for aircraft, etc. No. 13137. May 24th.
Busteed, H. R. Flotation gear for aircraft. No. 12666. May 20th.
Cordener, J. Aeroplanes, hydroplanes, boats, floats, etc. No. 12605. May 19th.
Feary, N. A. T. N. Constructional material for seaplanes. No. 13124. May 24th.
Fryman, H. Signalling apparatus for road vehicles and aeroplanes. No. 12513. May 19th.
Jones, E. A. Level-indicators for aerial machines, etc. No. 12828. May 21st.
Joseph, R. Toy aeroplanes. No. 13103. May 24th.
Kemp, J. R. Clinometer for aircraft. No. 12837. May 21st.
Kent, L. H. Screens for aircraft. No. 13039. May 23rd.
Leeming, J. F. Device for stopping aeroplanes. No. 12617. May 20th.
Lord, H. Means for directing aircraft during fog at night. No. 12996. May 23rd.
Lynch, G. Helicopters used in aircraft. No. 12687. May 20th.
Mackworth, J. D. Stabilisers and/or brakes for aircraft. No. 12677. May 20th.
Martens, H. Hangar or housing for airships. No. 12592. May 19th.
Parker, E. W. Toy aeroplanes. No. 12912. May 22nd.
Peterson, W. Safety suits for aviators. No. 12723 May 20th.
Potter, E. B. Aircraft. No. 12748. May 21st.
Tebaldi, A. Aeroplanes. No. 12597. May 19th
Thornton, R. Aeroplanes. No. 13109. May 24th.
Wake, A. J. Flying machines. No. 12609. May 20th.
Weis, J. A. Aeroplanes. No. 12791. May 21st.
Wells, T. R. Aerial navigation instrument. No. 13078. May 24th.
Bage, A. A. Elevator and rudder control on large aeroplanes. No. 12066. May 14th.
Bearcroft, R. L. C. Universal angle or inclination gauge for use on aircraft. No. 12052. May 14th.
Blair, C. Petrol or oil motor for motor-cars, motor-cycles, aeroplanes, etc. No. 11945. May 13th.
Butler, R. T. R. P. Ascertaining position on land or water or in the air. No. 12075. May 14th.
Cave, T. R. Cave-Browne. Airships. No. 12476. May 17th.
Cave, T. R. Cave-Browne. Airships. No. 12478. May 17th.
Cave, T. R. Cave-Browne. Envelopes for airships. No. 12447. May 17th.
Dacey, W. D. Apparatus for balancing and stabilising aircraft. No. 12010. May 13th.
Feary, N. A. T. N. Manufacture of fabric for aircraft. No. 12265. May 15th.
Feary, N. A. T. N. Flexible material for aircraft. No. 12266. May 15th.
Finer, H. J. Landing lights or ground flares for aerodromes, etc. No. 12034. May 13th.
Heiser, C. R. Parachutes. No. 12482. May 17th.
Hinkler, B. Instrument for obtaining calculus for aerial navigation. No. 12117. May 14th.
Hobbs, H. T. Aeroplane petrol tank. No. 12086. May 14th.
Mayers, C. Aerial transport system. No. 12026. May 13th
Medworth, A. Model balloon or airship. No. 12222. May 15th.
Mendel, L. T. Aeroplanes. No. 11821. May 12th.
Rowles, S. G. Clinometers for aircraft, submarines, etc. No. 12130. May 14th.
Thompson, N. A. Aircraft. No. 12485. May 17th.
Walker, S. T. Aircraft. No. 12188. May 15th.
Wright, M. E. A. Toy aeroplanes. No. 11867. May 12th.
Boulton and Paul. Metal spars for wings of aircraft. No. 14307. June 5th.
Brown, J. E. Chinnery. Apparatus for propulsion of tapering bodies through air and water. No. 14131. June 4th.
Christie, H. F. Aircraft. No. 13957. June 2nd.
Davis, R. H. Head-coverings for aviators. No. 14314. June 5.
Finer, H. J. Means for directing fire of ground batteries from aircraft. No. 14351. June 5th.
Hancock, W. H. Metal planes for aircraft. No. 14356. June 5.
Hooper, C. T. Glass-. Hauling down and housing of aircraft. No. 14317. June 5th.
Lender, M. Apparatus for instruction in management of aeroplanes. No. 13963. June 2nd.
Liversedge, A. J. Aerodromes. No. 14181. June 4th.
Mooney, D. J. Metal members for aircraft. No. 14051. June 4.
Neighbour, R. C. Toy aeroplane. No. 14136. June 4th.
Roberts, H. J. Model aeroplanes. No. 14541. June 7th.

Complete Specifications Accepted, prints of which can be obtained on and after June 12th, 1919.

126,342. Dec. 28th, 1916. Moore, E. H. Aeroplanes.
126,347. Dec. 29th, 1916. Dreyfus, C. Manufacture of hydrogen or other gas bags or containers and sheets applicable therefor.
126,350. Jan. 2nd, 1917. Roe, A. V. Mechanism for tilting or warping planes on aerial craft.
126,354. Jan. 6th, 1917. Sage and Co., F., and Tinson, C. W. Aeroplanes.
126,360. Jan. 10th, 1917. Smith, H. Aeroplanes.
126,365. Jan. 11th, 1917. Roe, A. V. Aircraft.
126,386. Jan. 25th, 1917. Vickers, Ltd., and Savage, H. A. Guns carried by aircraft.
126,391. Jan. 29th, 1917. Brown, E. E. Metal spars or girders for aircraft.
126,392. Jan. 29th, 1917. Sopwith Aviation Co., and Kauper, H. A. Means for synchronising the firing of a gun with the rotation of a propeller upon aeroplanes.
126,393. Jan. 29th, 1917. Lang, A. A. D. Hubs or bosses of aeroplane propellers.
126,399. Aug 4th, 1917. Dodson, E. Method of altitude control for carburettors of aircraft and like engines, and apparatus therefor.
126,417. April 4th, 1918. Sykes, H. W. Interrupter gears for aircraft guns.
126,432. May 1st, 1918. Bowden Wire, Ltd., and Sentinella, A. E. Bowden wire and like mechanism.
126,437. May 3rd, 1918. Gray, C. H. Frame-members for aeroplanes.
126,461. May 9th, 1918. Sage and Co., F., and Feary, N. A. T. N. Armouring fabrics.
126,492. May 22nd, 1918. Willson, E. A., and Dewar, J. Aeroplane hangars and the like.
126,496. May 23rd, 1918. Thomas, G. H., and Kettlewell, H. M. Fairings for use on aircraft.
126,505. June 4th, 1918. Cullen, W. H. Control levers of aeroplanes.
126,510. June 11th, 1918. Embiricos, A. A., and Beure, G. de. Aeroplanes.
126,515. June 14th, 1918. Nieuport and General Aircraft Co., Folland, H. P., and Preston, H. E. Attachment of the aerofoils of aeroplanes.
126,514. June 14th, 1918. Nieuport and General Aircraft Co., and Folland, H. P. Bodies or fuselages for aeroplanes and other aircraft.
118,839. June 26th, 1917. Bouteille, J. Internal-combustion engines particularly for use on aircraft.
126,556. Sept. 9th, 1918. Frassinetti, R. Aeroplanes.
126,568. Oct. 8th, 1918. Verner, J. F. Aeroplane controls.
126,575. Dec. 23rd, 1918. Hiscocks, S. W., and Edgar, E. J. Wheels for aircraft.
123,524. Feb. 22nd, 1918. Schultz, E. J. A. Device for reducing or multiplying speed.
126,665. Feb. 1st, 1917. Porte, J. C. Floats for seaplanes.
126,666. Feb. 1st, 1917. Porte, J. C. Flying-boat hulls.
126,669. Feb. 1st, 1917. Aircraft Manufacturing Co., Havilland, G. de, and Chapman, J. S. Liquid fuel tanks.
126,674. Feb. 5th, 1917. Brown, E. E. Girders and the like for aircraft.
126,680. Feb. 9th, 1917. Dodson, P. L. H. and Hugh, P. G. Winches or hauling apparatus for kites, observation or target balloons, and the like.
126,683. Feb. 9th, 1917. Bolotoff, S. V. de. Hydrocraft planing surfaces.
126,705. Feb. 20th, 1917. Nicholson, A. Fuel tanks.
126,710. Feb. 21st, 1917. Vickers Ltd., and Burgoine, S. F. Aircraft.
126,718. Feb. 24th, 1917. Dunlop Rubber Co., and Keegan, F. J. Wheels for vehicles, particularly aeroplanes.
126,727. March 3rd, 1917. Davis, R. H. Apparatus for use in testing breathing-appliances, and for other purposes.
126,730. March 6th, 1917. Vickers Ltd , and Challenger, G. H. Girders for aeroplanes, and airship and other construction.
126,827 May 28th, 1918. Gibbons, F. J. J. Appliance for safely carrying and dropping objects from aircraft.
126,858. July 10th, 1918. Blackburn Aeroplane and Motor Co., and Booth, H. Controlling-devices for aircraft.
126,860. July 13th, 1918. Morris, A. Aviator's level or inclinometer
126,872. August 15th, 1918. Saunders, S. E. Hollow spars for use in aircraft construction and for other purposes.
126,875. August 17th, 1918. Duncan, B. A. Construction of girder-like parts of aeroplanes and airships.
126,909. Nov. 28th, 1918. Palson, H. Aircraft.
126,911. Dec. 5th, 1918. Lesseps, P. de. Means for actuating the ailerons of aeroplanes.
126,934. March 14th, 1918. Vickers Ltd., and McKechnie, Sir J. Cars for aerial machines.

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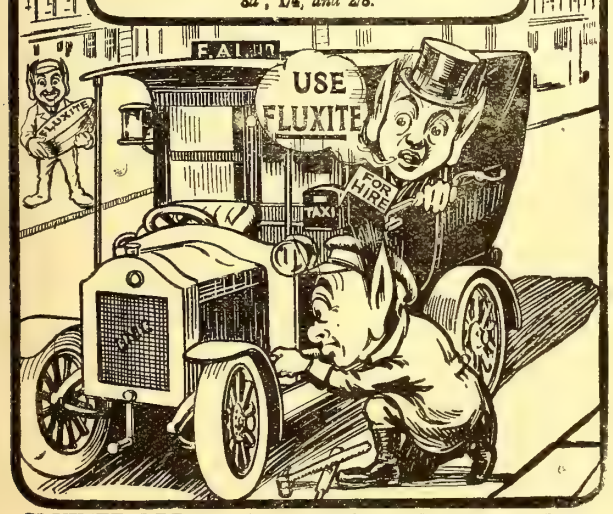

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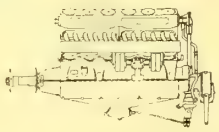

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MEN OF LITTLE FAITH.

By "MEDWAY."

"What Horace says is,
'*Eheu, fugaces*
Anni labuntur, postume, postume.'
Oh, for the years that are lost to me, lost to me!
Now, when the folk in the dance point their merry toes,
Sighing, I murmur, '*O mihi, preteritos!*'"

I believe this to be a perfectly good quotation from "The Ingoldsby Legends," but as I am depending on my unpelmanised memory it may be a little loose in details. Anyhow, it has the proper classical aroma, and the moral is above criticism.

I have put it at the head of this page mainly out of deference to the example of C. G. G., who, in a recent leader on "The Writing on the Wall," referred poetically to the casual behaviour of Daniel when called upon to act as a court interpreter. Daniel has been honoured by the attentions of more than one poet; for instance, of the gentleman who wrote:

"Daniel in the lion's den,
The lion as tame as a spaniel;
Daniel didn't care a damn for the lion,
Or the lion a damn for Daniel."

By which I mean to imply that I am not concerned with any question as to whether my opinion coincides with that of C. G. G., though he may take his choice between the parts of Daniel and the lion. I recommend to him the former, who was, I am credibly informed, a major prophet. On the other hand, I would back the lion in a disagreement without gloves.

Method in His Madness.

First and foremost, I venture the view that the British aircraft manufacturer is not such a red-corpuscular vital-serumy fool as he looks. There is method in his madness. If he will not lay his shirt on the commercial feasibility of an aerial service between Lapland and Timbuctoo, it is not because he shirks the job of convincing others, but rather because he cannot convince himself.

In some ways we are a modest nation. We underrate ourselves and our products. I have an uncomfortable feeling that, when I recently suggested a full-blown propaganda department in the interests of Commercial Aeronautics, I started at the wrong step. I am inclined to think that the first thing needed is to make the Industry itself feel perfectly certain that it is on a good thing. There is a curious strain of honesty running through even the best business man among us. We are no good at pushing a thing we don't believe in. Once our belief is sure, we go to the other extreme. We know that we are a stupid nation, and we argue thus:

"If *I* can see it, it must be obvious. Any fool can see it. In that case, why bother to tell him."

And we lie down on the backs of our tummies, waiting for orders that never come.

The Second Stage.

This, however, is the second stage, when we are sure that we, and the things we have to offer, are right. As yet I feel certain the Industry is not through the first stage. It cannot believe in its own achievement, and, until it does, it cannot force belief upon others. It recognises that it has created a fine weapon of war. It is not so sure that its sword can be beaten into a ploughshare and its products modified to form a really valuable weapon of peace.

There are a few men in the Industry who *know*. Others, who hesitate to share their instinctive knowledge, are prone to regard them as unbalanced enthusiasts. The pioneers become annoyed by the atmosphere of half-contemptuous tolerance, and are driven to extremes. Then they go too far, claim too much, and end by setting the open-minded man against them. The magnificent aerial performances over the Atlantic have had just the effect that I feared and anticipated. They have caused a swing of the pendulum in the wrong direction, due to a somewhat sudden and general realisation of the amount that we have yet to learn. The more we know, the more we appreciate the gravity of the difficulties that lie ahead, and the less are we disposed to take commercial risks.

This is why I am so much more certain of the great future of commercial aviation than are many of the men whose business it is to build and sell aircraft.

A Good Salesman.

Now the first essential of a good salesman is confidence. He must have it and convey it. He will then have gone a long way towards ensuring the subsequent success of the thing sold. The buyer starts by believing in it implicitly. If he has trouble, he then ascribes the fault to himself rather than to the machine. He studies it carefully to avoid further mistakes in the future.

On the other hand, if he is wheedled into buying something in which he has no faith—because the salesman himself never had any—the first failure will convince him of his own folly and tend to make him cut his losses and give up trying.

It takes a born politician, or some other inspired liar of almost equal calibre, to instil faith that he does not possess. The British business man certainly cannot do so. The first thing, then, is to stiffen our own beliefs and cultivate a consummate confidence in the future. By consistent effort, it is possible to train oneself to believe almost anything. In the case under consideration, no great effort should be needed, because there is really so much to be said for the proposition.

I admire the man who will not glorify his own wares at the expense of others, but no one admires the man who lacks confidence in his own utility. Nothing big was ever pulled through by people who believed that it could not be done.

The case is straightforward enough:—

Commercial aerial services will undoubtedly be a big factor in the future of the world's transport.

We can build machines and engines unexcelled by the products of any other country.

We have magnificent experience at our backs.

We led the world in the development of rail and ocean transport.

We have a scattered Empire crying aloud for improved communications.

We are an engineering and a pioneering nation.

We can start fair in the race for the world's trade in aircraft.

We have a heaven-sent opportunity of showing that when a British industry is not stupidly handicapped it can hold its own with anyone.

The Handicap.

The handicap we have most to fear is one of our own making. We can wait for others to prove that traffic can be built up to render aerial services commercially successful. If we do, we shall then have the doubtful pleasure of watching those who took the risk reaping their reward, and, as Horace, with the assistance of Barham, has pointed out, we shall watch people doing the Monkey Search (or whatever the dance of the period may be) while we lament the "fugaces anni" that "labunted" while we were making up our minds.

The first step towards success is, then, to put our backs into the job. To my mind, the next steps are largely in the nature of intelligent propaganda, prefaced by the lynching of a few obstructive officials.

I must warn my readers that I have not done with this subject. In fact, I have only just begun it, and, whether they like it or not, I intend to elaborate some of my ideas on the subject of propaganda in subsequent articles.

AERODROME LAY-OUT.

By Captain M. G. Kiddy (late R.A.F.), Assistant Secretary, The Society of Architects.

Some of the illustrations for Aeroplane Hangars which one sees in contemporary papers are, from the point of view of impossibility, rather amusing. In one of them the Hangar, a tent-construction of the "Bessonneau" type, is shown in the middle of the aerodrome, with both sides open. One Handley Page is depicted in the act of landing into the hangar from one end of the aerodrome, whilst a second "takes-off" from the other side of the hangar, executing an alarmingly quick turn on the ground as it does so.

This might be feasible if the wind were considerate enough to remain consistently in one direction. Aviators know, and architects desirous of facilitating the quick landing and getting away of machines should learn, that an aeroplane rarely leaves the ground or lands in the same direction for two days running, the direction being governed by the quarter from which the wind is blowing. "Side-slip" and "stunt" landings are no longer possible under the new Air Ministry Regulations for the control of Civil Aviation.

Artistic but Not Practical.

The bird's-eye view of the aerodrome lay-out, whether imaginary or not, which generally accompanies the illustrations is often good from an artistic point of view, but not from that of the aviator. The position of the offices, dwelling quarters, etc., is of comparatively secondary consideration in planning the lay-out of an aerodrome, though it is naturally more convenient to have them, particularly the workhops, in as close proximity to the hangars as possible. But it is the hangars themselves that matter. In typical illustrations they are built in several parallel rows, face to face and end to end, with the edge of each row of hangars against, and at a right-angle to, the edge of the meadow-surface of the aerodrome.

This would mean that all the machines would have to be man-handled to and from their sheds—a state of affairs that would cause an R.A.F. commanding officer to tear his hair! An aeroplane, particularly of the twin- or multi-engined type, takes a great deal of man-handling, any number up to twenty men being required to move the ordinary twin-engined Handley Page; and this is a waste of power, to say the least of it. In addition, the machines in the sheds farthest from the edge of the aerodrome would have to be wheeled along some 200 yards of the tarmac before reaching the freedom of the meadow.

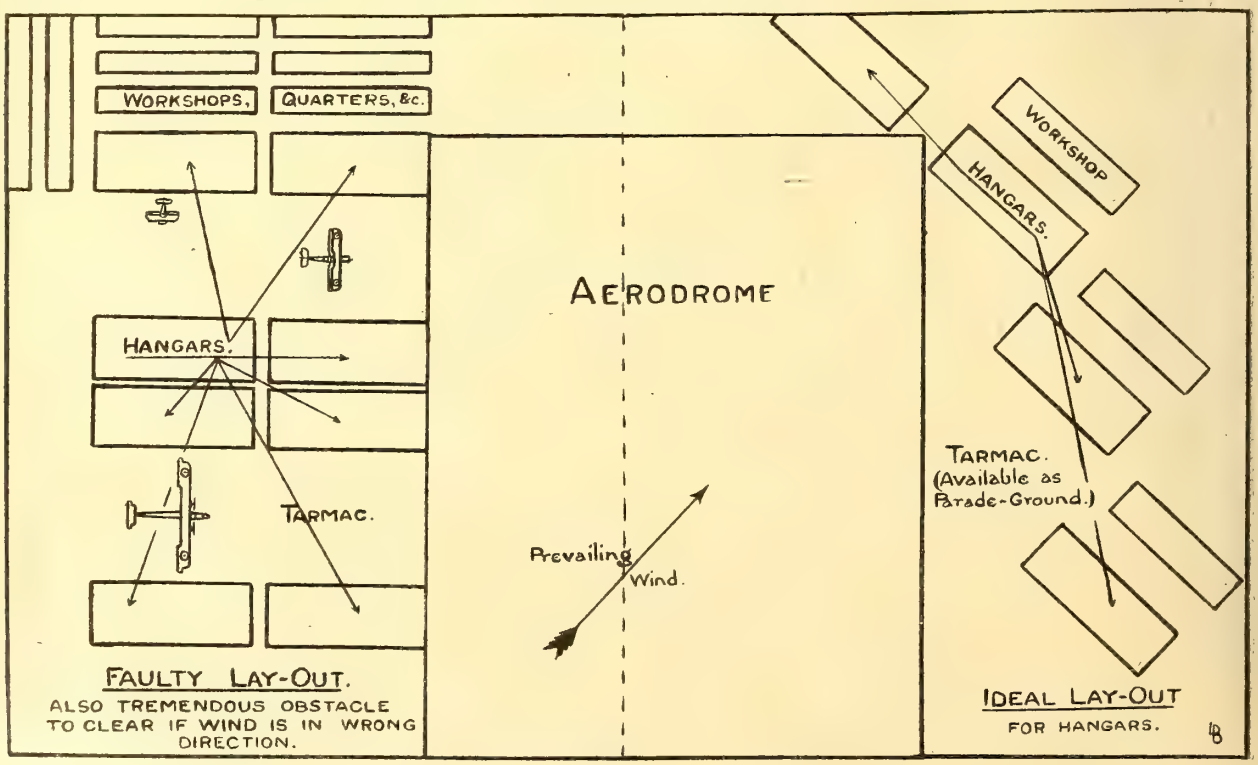
An ideal lay-out, from an aviator's point of view—which is the point that matters—must include hangars every one of which opens directly on to the meadow-surface of the aerodrome, so that machines can leave the sheds under their own power, with a minimum of man-handling, and can then taxi straight away preparatory to "taking-off."

The Things that Matter.

Practical considerations are of first importance to the average aviator, but there is nothing to prevent an artistic lay-out with the hangars in the proper position. Too much importance cannot be attached to the latter consideration, even if, as is the case in the majority of aerodromes, two sides of the meadow are taken up by the sheds. And the lower the hangars, and the flatter the roofs, the better will the pilots be pleased. One has known personally pilots who have been killed by gables on the roofs of hangars, where a flat roof would have saved both pilot and machine.

Another point worth noting is that, where possible, the row, or two rows, of hangars should open into the prevailing wind, so that nine days out of ten the machine can fly straight from its shed into the air, with no obstacles to pass over before it gains height. This has additional recommendations, such as facilitating the "running-up" of engines into the wind, without turning machines round, and similar technical details.

In the opinion of the writer, an ideal aerodrome in every respect is that at Catterick, in Yorkshire.



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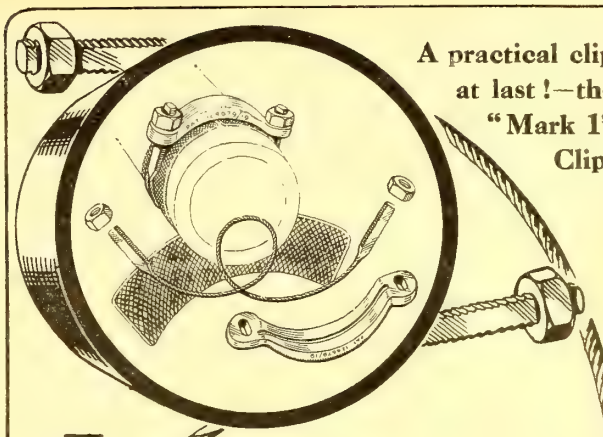

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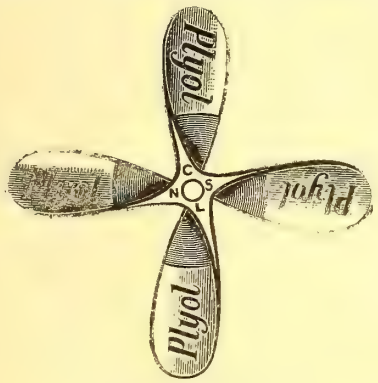

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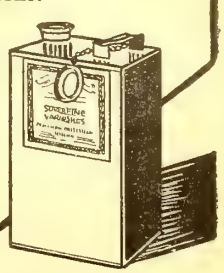

AIR TOUR AND TRAVEL IN THE NORTH.

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The table below shows the distances by train between well-known points, and the distance *saved* by going by air is shown alongside each :—

	Blackpool		Fleetwood		Harrogate		Lancaster		Leeds		Liverpool		Manchester		Middl'sboro'		Morecambe		Preston		Southport	
	Train	Air	Train	Air	Train	Air	Train	Air	Train	Air	Train	Air	Train	Air	Train	Air	Train	Air	Train	Air	Train	Air
Blackpool ..	—		9	1	89	26	33	13	81	19	48	20	49	8	130	39	35	15	18	3	33	21
Fleetwood ..	9	1	—		92	32	24	10	84	23	51	15	52	8	123	38	28	16	21	4	34	16
Harrogate ..	89	26	92	32	—		70	18	18	4	93	21	61	14	50	8	74	19	71	21	86	21
Lancaster ..	33	13	24	10	70	18	—		65	11	51	5	52	16	99	26	4	1	22	1	36	6
Leeds ..	81	19	84	23	18	4	65	11	—		75	10	43	7	68	13	69	14	63	15	76	15
Liverpool ..	48	20	51	15	93	21	51	5	75	10	—		32	2	143	35	35	9	30	3	20	4
Manchester	49	8	52	8	61	14	52	6	43	7	32	2	—		111	24	56	8	31	3	35	1
Middlesboro'	130	39	123	38	50	8	99	26	68	13	143	35	111	24	—		103	28	120	38	135	38
Morecambe	35	15	28	16	74	19	4	1	69	14	35	9	56	8	103	28	—		29	9	54	24
Preston ..	18	3	21	4	71	21	22	1	63	15	30	3	31	3	120	38	29	9	—		15	1
Southport ..	33	21	34	16	86	21	36	6	76	15	20	4	35	1	135	38	54	24	15	1	—	

This chart is most instructive, as it illustrates that there is a great saving not only in distance, but also in time, to be obtained by air travel as against the railways.

Business in joy flying at Blackpool and Southport has been well maintained, the outstanding features of the week being the visit of Alderman A. Parkinson, J.P., M.P., Mayor of Blackpool, and Mr. Little, Vicar of Blackpool, to Bolton by air, where they addressed meetings and returned to Blackpool by air.

Another interesting event was the flying of an entire wedding party of guests, bride, and bridegroom and best man at Southport. Altogether fifty people were flown after the wedding breakfast, and this in spite of clouds and mist within a hundred feet of the ground.

Another novelty was the flying from Southport in an "Avro" experimental scout of a pilot who appeared from his machine at the dinner party to Sir John Alcock, K.B.E., D.S.C., at Manchester aerodrome, having come over already dressed. He flew back between 10 and 11 p.m. in the same garb.

The "Avro" seaplanes are now installed at Windermere, Capt. Pixton, one of the pioneer pilots of the early days, being in charge there.

THE CENTRAL AIRCRAFT COMPANY AT NORTHOLT.

The one drawback to flying from London to another town or to the Continent is that one has to journey so far out of London before reaching an aerodrome. The Handley Page aerodrome at Cricklewood is probably the nearest and the easiest to get to from town, but even they cannot advertise that buses, trams, and trains stop at the door, although both buses and trams can be found just round the corner.

The Central Aircraft Company, whose works are at Kilburn, tried without success to start an aerodrome at Wembley and at Preston Road, both fairly accessible spots, but neither suitable nor possible for some reason—the latter place on account of a right of way over the ground.

They had to go farther out, and are now established at Northolt and have two hangars on the R.A.F. aerodrome there. Northolt Aerodrome is certainly more accessible than Hounslow Aerodrome, as a good service of trains is run to Ruislip from Baker Street (Met. Rly.), but the station is a good way from the ground. There is also a service from Marylebone and Paddington to Northolt Junction, but it is by no means good, although the station is within a few minutes' walk.

The aerodrome is very large, with an area of 350 acres, but the surface is very bad in parts, as the land was once ploughed, and the furrows make taxying a very bumpy business. However, a large stretch of cinders has been put down and all who can do so take off from and land on it.

The C.A.C. School of Aviation is under the personal supervision of Mr. Herbert Sykes, O.B.E. The school machine is the C.A.C. tractor biplane, an excellent instructional machine, fitted with an 80 h.p. Renault engine, and in appearance similar to the D.H.6. Later machines will be fitted with 100 h.p. Anzani engines. Although this machine was built in April, the Air Ministry have not yet sanctioned it as a passenger-carrying machine, and consequently it cannot be used for that purpose or for instruction. The Civil Aviation Department, like most other Government departments, keep so busy making other people fill up forms that they never have time to do the real work that is required of them. Already Germany has beaten us in getting civil aviation properly started: could we not borrow some of their organisers?

Passengers are being carried at Northolt in two- and three-seater Avros fitted with 110 h.p. Le Rhone engines. The Le Rhone engine is one of the sweetest rotaries in the world, when looked after by good mechanics and flown by good pilots, but some of those at Northolt did not run very well, and they have had rather bad luck with engine trouble, which is possibly due to bad treatment of the engines in the R.A.F. before they were demobbed.

An eight-passenger machine is being assembled at Northolt, and two others are being constructed at the works in Kilburn. This first machine should be ready in about a week. It is of a very solid design and fitted with two 160 h.p. Beardmore engines. The factor of safety is said to be 10.

Very delightful flights may be had over London from Northolt in the Avro machines, for which tickets can be obtained at the Lepacrial Travel Bureau in Piccadilly Circus, and at the aerodrome. As soon as the Government sanction the C.A.C. biplane the school of flying will start. A pupil is guaranteed his certificate for £125 with not less than 10 hours' actual flying, and he can also go through the works at Kilburn. He will be well taught, and leave the school knowing how to fly and knowing as much about the machine as he cares to learn.

AN AERIAL BOOKING AGENCY.

As is natural for a firm interested in travel and transport problems, who are far-seeing enough to appreciate the possible uses of aircraft, the Lep Transport and Depository, Ltd., of Castle Street, Long Acre, W.C.2, who were originally a branch of a well-known firm of shipowners and subsequently became an important and well-known transport agency under the above title, have opened a branch known as the Lepaerial Travel Bureau, in Piccadilly Circus, W.

Here they are acting as agents for Handley Page, Ltd., and have secured a large number of available seats throughout the season, with preference in the bookings of both passengers and cargo.

They are also acting as agents for practically all concerns who are running any form of civil aviation transport

A very ambitious scheme is on hand for putting into operation as soon as circumstances permit. It embraces not only Great Britain but also the Continent, and as far as goods and merchandise are concerned the firm are prepared to collect goods from the factory door and deliver them by the recognised air routes and thence by either rail, sea, or van to any destination.—L. L. B.

Capt. Sir John Alcock K.B.E.; D.S.C.

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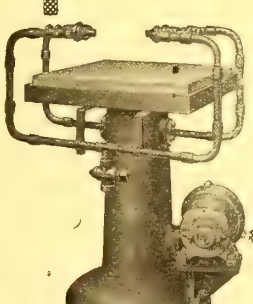

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TRAINING IN ITALY.—The Gabardini School in being at Cameri.

THE GABARDINI EXHIBIT AT MILAN.

Gabardini, of Cameri, whose company is sometimes, but rarely, called the S.P.I.D.A., as most people prefer to honour the pioneer by his own name, has a most interesting collection of small vehicles on view. The well-known and abnormally unbreakable school monoplanes are, however, quite put into the shade by the tiny biplane of 2½ metres span and 9 sq. metres spread which weighs 250 kilos. with 50 radial motor, and does 140 kilometres the hour, and is, as are the two bigger biplanes, of "semi-rigid" (if one may borrow the term) steel construction. A factor of safety of 15 is claimed for the miniature 'bus, which certainly looks as hefty as anything one has seen. To some extent the claim is borne out, too, by the low percentage of fatalities in this, the oldest and, I believe, the busiest, of the war schools. As well as the other biplane machines, which in common with the above have a skid so far forward of the tail as to be nearer the centre of gravity than anywhere else, one is shown the " stuffed " monoplane or " the embalmed one " as it is called in the vernacular, which appears to be on a jointed shaft fixed into a cemented platform, and is reminiscent of certain internally-perturbing country fair machinery productive of artificial mal-de-mer, but is intended merely to initiate beginners into the hang of levers and stability. Landini, the Cameri chief pilot, shows, too, a tiny foot-steered cycle-car, also to accustom pupils to foot-control without wasting the instructor's time. This idea I heard being warmly applauded by old teachers who appeared able to judge of its economy and utility.

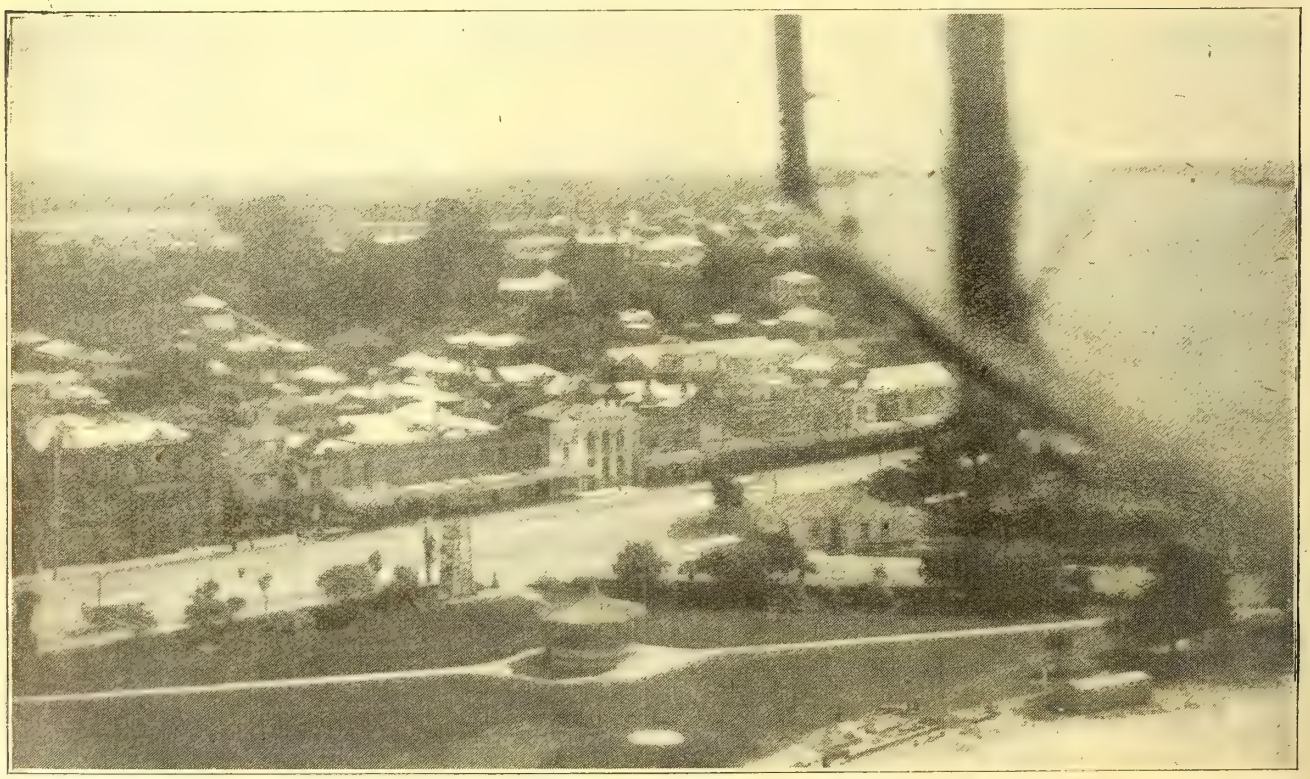
EXTENSION LADDERS.

In building big airships, such as the R.34, special ladders have to be used. Merryweather and Sons, of Greenwich, make a special design of self-supporting extension ladder, reaching to a height of eighty feet or more, which is used to facilitate access to any part of the envelope of the airship. These ladders are supplied to the British Government, and have also been adopted by the United States Government.

A RING SHOCK ABSORBER.

A patent shock absorber ring is now being manufactured by Messrs. Luke Turner & Co., of Leicester, and is already in use upon some of the best-known makes of machines.

The ring is constructed in a manner similar to the ordinary shock absorber cord. Besides the obvious ease of fitting and replacement, it is claimed that they offer a decided saving in weight and cost, and that a ⅞ in. cord will carry a load of 3,000 lbs. at 75 per cent. extension.



FLYING IN NEW ZEALAND.—Auckland, N.Z., photographed from one of Walsh Bros.' flying boats.

CIVIL AERIAL TRANSPORT NOTES.

GREAT BRITAIN.

Passengers are being taken up in Avro aeroplanes by A. V. Roe and Co., Ltd., at the following places:—Hounslow (London), Manston (Margate), Southsea, Weston-super-Mare, The Ladies' Mile, near Patcham (Brighton), Swansea, Blackpool, Southport, Fleetwood, Morecambe, Rhyl, and Waterloo Sands (Liverpool).

Seaplanes are on passenger service at Paignton (Torbay), and at the following towns on the Isle of Wight:—Cowes, Ventnor, Sandown, Shanklin, and Ryde.

Flying to the Races.

During the races at Goodwood and Brighton, Avro aeroplanes will carry passengers to those places.

The Railway Strike and the Stage.

When the railway strike threatened to hold up everyone going north Mr. Sydney Bransgrove, a touring manager going to Edinburgh with a new comedy, tried to arrange for the transport of his whole company from London to Scotland by aeroplane.

He approached one of the big flying companies, but as the terms were £56 per head for a company of twelve, £672 in all, the project was abandoned.

A Business Flight.

A highly commendable effort has been made by the "Financier" to demonstrate the utility of the aeroplane in commerce.

Mr. H. A. C. Ponsonby, of the "Financier," was representing the paper on the trip which was organised by Capt. Greig (late R.A.F.), of the Aircraft Manufacturing Company.

With Mr. M. D. Manton as pilot, they started from Hendon on July 21st on a D.H.9 machine, and arrived at Eastleigh in 52 minutes.

At Southampton, the Supermarine Company were interviewed. They then flew to East Cowes, where Mr. Ponsonby interviewed the Gosport Aircraft Company, J. Samuel White and Co., Ltd., and S. E. Saunders, Ltd.

On July 22nd they flew to Filton (near Bristol) from Cowes in 59 minutes, and at Bristol viewed the works of the Cosmos Engineering Co. and the British and Colonial Aeroplane Company.

On July 23rd they reached Coventry in the evening and visited the Armstrong-Siddeley Motor Company, the Daimler Company, the Standard Motor Company, and Humber, Ltd.

On July 25th they flew to Birmingham, after interviewing a large number of firms.

On July 26th they flew from Birmingham to Derby to visit the Rolls-Royce Works, and then returned to town, taking 65 minutes on this last journey, arriving at 4.30 p.m.

The total distance covered was 408 miles, and despite generally unfavourable weather and bad visibility throughout the flight after the first day, this flight was made to time.

An average speed of 100 miles an hour was maintained on the various journeys.

Mr. Ponsonby received from all the firms he visited many congratulations on the enterprise of the "Financier."

Birmingham.

Civilian flying started at Castle Bromwich on Saturday, July 19th, through the initiative of a number of private individuals, who have obtained an "Avro" three-seater. Despite the counter attraction of peace celebrations in Birmingham, quite a dozen people were taken up. Weather permitting there will be flying daily from 2 to 7 p.m.

Blackpool.

Upside-down flying for a first experience in the air is the record of one of the Avro passengers at Blackpool last week. The passenger was a grey-haired man of 50 years who ascended with Capt. Hinchliffe, D.F.C., A.F.C., whose machine was watched critically by the crowd on the aerodrome. The Avro climbed higher and higher, then it made a half-roll, turned on its back, and began a long downward flight upside down. The pilot turned the machine as easily as if it were right side up and then made a good landing. The passenger was surrounded by friends anxious to hear his experiences. He told them it was not so alarming as he had expected, but the pilot's account was rather more lurid.

The daily service to Manchester is beginning to pay its way. More and more passengers are availing themselves of the air journey to the coast. The service has run daily for close on three months without even a forced landing to disturb the even tenour of its way, and there is every hope that August will prove a record.

The time-table of this service reads as follows:—

Leave Blackpool daily (Sundays excepted) ..	Noon.
Arrive Southport	12.15 p.m.
Arrive Alexandra Park, Manchester	12.45 p.m.
Leave ,, ,, ,, ...	2. 0 p.m.
Arrive Southport	2.30 p.m.
Arrive Blackpool	2.45 p.m.

The fare is £4 4s. single and £9 9s. return.

Blackpool has excelled all records. Over 1,000 passengers have been taken up this week. The weather has been perfect, and the tides have not interfered with flying.

It is to be noted that although the North Country coal miners are quick enough these days to prove how very badly paid they are, yet they can find the necessary money for pleasure flying. Some of the most frequent and regular visitors to the Avro Company's aerodrome at Blackpool are the coal miners, who appear to think nothing of paying quite large sums for a really long flight, and willingly pay the extra money charged for "stunting."

Hamble.

After winning the 20-mile handicap at Hendon on Saturday, July 19th, at 77 m.p.h., Capt. Hammersley flew the Baby Avro back to Hamble.

The second twin-bomber fitted with A.B.C. engines was flown over to Martlesham Heath last week to be handed over to the R.A.F. Leaving Hamble just before 4 p.m. it reached its destination by 5.30 p.m. The course taken was by Winchester, Basingstoke, London, and Chelmsford.

One of the standard type Avros is being sent to Spain and is painted with the national colours of that country. With red wings and yellow fuselage, it looks quite cheerful.

Mr. A. V. Roe has just returned from a fortnight's holiday at Ventnor. During his absence he kept in touch with the Hamble works by seaplane.

London.

Hendon.—Miss Madge Saunders, the leading lady in "Going Up" at the Gaiety, is learning to fly at Hendon. May she not shut her eyes when she starts to sway.

EDUCATING LANCASHIRE.—An Avro giving demonstrations of landing during the Flying Carnival at Birkdale.

Owing to the better weather on Saturday, July 26th, the attendance at the London Aerodrome, Hendon, was rather more than usual. A 20-mile cross-country handicap took place for the Hendon Trophy and a prize of £20. The race was won by Major Draper on a Bat "Baboon." Major Draper, who received 37 secs. start, finished the course in 15 mins. 41 secs (handicap time). Major R. H. Carr, on an Avro biplane, started 19 secs. before Major Draper and finished 1 sec. behind.

During the afternoon free flights in connection with the late Victory Loan were given by the Airco pilots, Capt. H. J. Saint and Capt. C. Shaw. Persons who had found certain discs dropped from aircraft during the last three days of the Victory Loan campaign were eligible for these flights, the only condition being that they had invested £1,000 in the Loan. The type of machine used was a converted D.H.4.

A twenty-mile cross-country race will be held on Saturday, August 2nd, for the London Aeroplane Trophy, over a course round the aerodrome pylons and a point about two miles to the north of the aerodrome enclosure.

Special flying displays and passenger flights will be given on the afternoon of Sunday, Aug. 3rd.

On Bank Holiday (Aug. 4th), a speed handicap (for the London Flying Club Trophy), in two heats and a final heat, will be held during the afternoon.

The course is again around the aerodrome pylons, passing a turning point at Bittacy Hill on each circuit.

Passenger flights and special flying displays will be given during the week-end, and parachute descents on Bank Holiday.

After Bank Holiday, the regular weekly air races will be suspended until the Hendon-Brighton-Hendon Air Race, after which definite dates will be fixed for each meeting.

Hounslow.—The following cross-country flights were made from Hounslow by Avropilots during the week ending July 26th:

Three to Brighton, two each to Weston-super-Mare and Swansea, and one each to Southampton and Liverpool.

Over 5,000 passengers have been taken up at Hounslow since May 3rd.

Lieut. Robertson, an Australian officer, under instruction at Hounslow, made a very successful first solo after 4½ hours' dual. On his second solo he looped, rolled, and did Immelman turns, and completed his Royal Aero Club test.

Liverpool.

The Waterloo Aerodrome on the banks of the Mersey was opened last Saturday. As usual a huge crowd had collected, but with the aid of mounted police they were kept in hand. Picture, then, a gigantic yellow circle of sand with a radius of 200 yards, surrounded by a black band of humanity. In the centre of this place three Avros, and you have some idea of the inauguration of flying at Liverpool as seen from the air.

To the south-west New Brighton Tower, in course of demolition, stands gaunt and dark. One sees the wide sweep of the Mersey, choked with shipping unable to proceed owing to the dock strike, and on either bank the twin cities of Liverpool and Birkenhead basking in the sunlight.

Capt. E. Maitland Heriot, D.S.C., Lieut. Shanks, and Major McMinnies, A.F.C., were the pilots, whilst Lieut. Bambridge (who had the distinction of losing the tail of his machine at 15,000 feet in France and descending on the top plane more or less successfully) was in charge of the ground operations.

For four hours the machines were in the air. The fair-haired flapper in multi-coloured jersey, the prosperous shopkeeper and his wife, public officials of the town, young men and girls, all essayed the air. Trips to Southport and Blackpool and acrobatic displays were in great demand.

One lady and her daughter after half an hour's argument at the booking-office, where Lieut. Bambridge at last persuaded her that she would not be killed, booked a flight. "Two minutes only, two minutes only, and quite straight and level!" she kept repeating to her pilot. He made a short climb, a gentle turn, and a landing. Afterwards both passengers were disappointed that the flight was so short, and promised to come another time for more.

And so it went on until the crowd melted away, and the pilots and mechanics, tired out, set out in the gathering mists for their homes at Southport.

Margate.

Twenty "Daily News" free flight passengers were taken up in Avro's at Margate during the week ending July 26th.

Middlesborough.

The Government have offered the Middlesbrough Corporation the first refusal of the Redcar Aerodrome. The Corporation has decided that they have no use for it.

Morecambe.

General flying in the North has been as successful as ever. Morecambe is in full swing with Lieut. Macrae, M.C., of A. V. Roe and Co., in charge.

Sheffield

A flying exhibition was held at Coal Aston aerodrome on the outskirts of Sheffield, from July 23rd-26th, under the auspices of the Sheffield Development Committee. The aviation department of Vickers Ltd. gave two-guinea flights in four two-seater Avros, and demonstrated the commercial utility of a Vickers-Vimy aeroplane with a saloon body to carry ten passengers.

On July 26th the first delivery of aerial mail took place between Sheffield and Doncaster. A Vickers Vimy aeroplane was used, and the machine covered the distance in 9½ minutes.

Southport.

A flying party of cripples, who arrived on crutches and in bath chairs, was a feature of Wednesday's flying at Southport. It took five of the Avro's mechanics to lift one of the poor fellows into the machine.

A free flight was offered at Southport and Birkdale to the schoolboy who wrote the best essay on flying. It was won by William Stevenson, aged 10, of the Sefton Street Council School. His technical details were more or less correct, even if somewhat on the rosy side.

One woman passenger had 15 stunt flights during the week.

At Southport the Avro pilots received a visit from an inventor who apparently had a cure for every aeroplane ill at present known. His chief invention was a stabilising device for machines. It consisted of a series of balloons in the fuselage and a number of small propellers outside which could be driven either by wind or power.

When asked if he had an invention for preventing people from throwing themselves out of machines, he replied that he could provide for that, too. Having realised the advantage of his inventions, the pilot directed him to the proprietors of a rival aerodrome!

Windermere.

A. V. Roe and Co., Ltd., are going to take over the aircraft shed at Cockshot Point as early as possible. At a meeting of the Windermere Urban District Council on July 18th the committee recommended the council to give the company every support.

CANADA.

The regulations controlling flying, being under the War Measures Act, lapsed with the declaration of peace.

An Air Board has been created in Canada under an Act passed during the present session. The Hon. A. L. Sifton is chairman, the members including representatives of the militia and naval service departments, the Deputy Postmaster-General and the chief inspector of the department of Customs and Inland Revenue.

Regulations forbidding trick exhibitions or low flying over town areas have been announced already, and a full code of flying regulations is under consideration.

THE ARGENTINE.

The first party of a French Aerial Mission to the Argentine has left France. The object of this Mission is to open up a French aeronautical industry in the Argentine by giving exhibitions with French machines in order to prove their possibilties.

AUSTRIA.

The following is sent by the Scandinavian correspondent of The Aeroplane:—

Austrian information to be revealed at the end of the war includes a report of a helicopter, for which the Hungarian journal, "A Motor," claims success or almost complete succeeding.

Experiments were started by Lieut.-Col. (the Captain) Stefan Petróczys, as he found kite-balloons needing too much crew attendance, and being too easy prey of enemy aircraft. In his project from the first year of the war an electric motor was to be the power plant and the current to be supplied by cable from the ground.

The machine was built by the Austrian Aeroplane Works, Ltd. ("Oeffag"), in Vienna Newcity, the electric motor by the Austro-Daimler Company, the general director, Porsch, of which was responsible for a model of hitherto unattained lightness—in the words of the journal—300 b.h.p. being developed by a weight of 250 kilos. at 6,000 r.p.m., which number of revs. was reduced to 1,000 of the propeller shaft, yet had to be further diminished owing to shaft over-heating, the advantageous performance disappearing then again compared with the petrol engine.

As, further, the propeller results at the aircraft works were unexpectedly poor, prospects looked bad, when two Hungarians, the commander of the test department and the manager of the screw department of the flight arsenal, engineers Kármán and Asbóth, got charge of the experiments.

The Hungarian General Engine Works built a model that could stay in the air, powered by a compressed air motor, yet it did not come up to expectations.

Ae second test model of Professor Kármán was made by the Budapest firm, Liptág and Co., being provided with only two propellers against four of the first one, and rising with a petrol motor to an altitude of 50 metres. When the revs. of the motor once dropped the model side-slipped.

Asbóth, too, continued his experiments, having three more models built at the Hungarian Aircraft Works, yet fire broke out, and other conditions prevail now, the report concludes.

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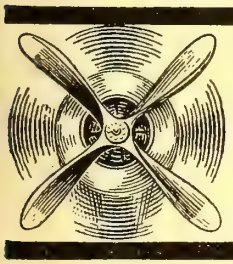

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SATISFACTION GUARANTEED.

The line-of-battleship lieutenant, Baron von Banfield, the foremost pilot of the former Austrian-Hungarian Navy, in command of the naval air station at Trieste at the time of the breakdown of the Austrian forces, was arrested while his share in the bombardments of Venedig was gone into. After 36 days he was released and, at his request, allowed by the Italians to go to German Austria, where he is now learning bookkeeping. He has announced his future plans of going abroad for flying.

BELGIUM.

According to the "Nieuwe Rotterdamsche Courant" of July 17th, the Belgian Government has appointed a commission to study commercial aviation in the Congo. The first trial will consist of a regular service between Kinshasa and Stanleyville, on which the aeroplane will carry mail and passengers. The journey is expected to take two days. The service will start in January, 1920, with 12 hydroplanes, each fitted with a 300-h.p. engine having a speed of about 70 m.p.h., and a carrying capacity about 18 cwt.

The Commission is presided over by Colonel Baron de Crombrugge, who is the officer in command of the Belgian Air Force.

The following is from the Paris correspondent of THE AEROPLANE :—

H.M. the King of the Belgians opened the Aeronautical Exposition at Brussels on July 19th, and presented the colours to the Belgian Aviation Corps.

A Handley Page, several other British, and some French machines arrived, and performed evolutions for the benefit of the crowd. Many German aeroplanes were exhibited, as well as numbers of machines of all types used by the Belgian army.

FRANCE.

The following is from the Paris correspondent of THE AEROPLANE :—

The holiday season in France this year is starting on about August 1st, and on that date a good deal of flying is due to start, including the Toulouse-Casablanca aerial post—a service which has been planned by M. Latecoère during the last eighteen months. in view of the high insurance rates for aviation, M. Latecoère proposed sinking a fund with the leading French aviation firms for the purpose of insuring their own machines.

Farmans have sent a machine to Cabourg for the season to fulfil an old-standing engagement with the Town Council for passenger and exhibition flying. As there is no aerodrome in the vicinity, flights will be made from the golf course.

Flying should have commenced at Deauville, but there is some dispute over the land that had been chosen for the aerodrome.

The Société des Transports Aéronautiques du Sud-Ouest have obtained permission to fly at Biarritz. One Farman machine has been sent there, and three more, including a Goliath, are going next week.

The Compagnie Aérienne Française, who take photographs for the Press and for all sorts of commercial concerns, have executed some big orders satisfactorily. This work seems to have been neglected in England, but it has a great future in commercial survey work in the Colonies.

The Farman Flying School has turned out the first three pilots to obtain their brevets since the war. The Farman terms are £100, including everything.

Caudrons are reopening their school at Crotoy in the first fortnight of August. Instruction will be given on the Caudron G3.

The Paris newspaper "Excelsior" sent Mme. Favre Tavrier over to London in a Farman aeroplane to report on the Victory procession £80 was paid for the return trip.

The Farman aerodrome at Toussus le Noble had a record week-end on July 19th giving passenger flights.

This enterprising firm make a regular weekly announcement in the Paris "Daily Mail." That of this week is given below :—

"TO THE BELGIAN VICTORY FETES BY AEROPLANE.

"This week the Goliath will leave for Brussels as usual on Tuesday morning, returning to Paris on Friday morning. Passengers will thus be enabled to witness the splendid fêtes that our Belgian allies are holding in celebration of victory.

"Messrs. Farman beg to announce that, besides the regular flights made by the Goliath, they can place at the disposal of business men or tourists a number of aero-taxis for one or two passengers and aero-limousines for parties of at least four passengers at the rate of 2 francs per kilometre and per person, as well as Goliath aerobuses for parties of at least ten passengers at the rate of 1 franc 25 centimes per kilometre and per person.

"It will be seen from the foregoing that the charge for an aeroplane flight is very nearly equal to and sometimes less than the charge for a journey by automobile."

A munitions store at Le Bourget aerodrome, near Paris, blew up one afternoon last week. Several pilots were killed and wounded, and several sheds with about twenty German machines were destroyed. The store contained Michelin bombs and a large quantity of rockets and cartridges.

So far no French aircraft firms have arranged to exhibit machines at the Amsterdam Exhibition.

The French Aeronautical Club, which was suspended during the war, is now reconstructed, and will promote aerial touring, and instruct and recruit men for military and civil aviation.

French pilots can join a trade union called La Ligue des Pilotes Aviateurs, which is doing good work.

Lieut. Roget, the French aviator, left Soesterberg, near Amsterdam, at 3 p.m. on July 28th, and landed at Evere, near Brussels, at 4 p.m., having covered the 112 miles in one hour.

GERMANY.

The following is sent by the Scandinavian correspondent of THE AEROPLANE :—

German war aviation stuck to few makes of almost one type—viz., the six-cylinder vertical fixed model, the Army favouring the Mercédès with top camshaft, made compulsory by other works, too, than the German Daimler Co., the Navy adopting chiefly the Benz push-rod model. The Loeb and Co. LUC Motor Works were known to manufacture the Austrian Hiero motor under licence, though it cannot be stated whether for German or Austrian needs.

When scouts required power plants beyond the Oberursel capacity along Gnome and le Rhone lines, the Siemens—camshaft and cylinders opposite rotating—and Goebel rotaries came to the fore, while of the new German fixed motors a British technical report was promised on a captured specimen of the Opel, the power plant of the early Hanoveraner aircraft, and another published on the Selve motor, chiefly employed on Rumpler biplanes and Sablating monoplanes of the long-distance patrol type, as well of giants, both being products of automobile works, having turned out experimental engines for the Emperor aero-motor competition.

The last German war-time favourite amongst motors for scout and altitude work was the Bavariaor B.M.W., as initials standing for Bavarian Motor Works, being successors to the Rapp Motor Co., in Munich. This motor was considered less durable in reliability than Mercédès and Benz, but was used for its good carburation qualities in high flying.

A syndicate was formed at Dusseldorf on July 3rd to establish an aerodrome there as a station for the future aerial post service.

Ten owners of contiguous gardens and estates in Gothenburg have sold their properties, on which an aerodrome is to be constructed.

The Zeppelin Company have stated that regular airship services between Germany and the United States will not begin until next spring.

HOLLAND.

On July 24th a Handley Page aeroplane, which was on a voyage from England *via* Brussels for Amsterdam, arrived at Soesterberg Aerodrome.

A. V. Roe and Co., Ltd., are exhibiting a model of the 504K type at the Amsterdam Exhibition.

Five Avro machines will fly from Manchester to Amsterdam, *via* London, Lympne, Dunkirk, and Belgium, to take up passengers during the Exhibition. Some passengers can be carried en route.

ITALY.

The 700 h.p.-engined Fiat aeroplane which arrived at Kenley from Rome on July 16th, having flown at a speed of over 160 m.p.h., is reported to have crashed at Marquise between Boulogne and Calais. It left Kenley on Saturday, July 26th, for Amsterdam. Lieut. Brack-Papa, the pilot, and Lieut. Bonaccini were uninjured.

SCANDINAVIA.

Major Galpin, R.A.F., of N4044, the British naval flying boat, which has just arrived in Norway reports that negotiations are opened between the Norsk Luftfartrederi and a British company for a future service between Norway and Scotland, and it will probably begin this year or early next spring.

* * *

The following is sent by the Scandinavian correspondent of THE AEROPLANE, and has been entered under Scandinavia, as it refers generally to Norway, Sweden and Denmark :—

The Norwegian Parliament has placed £3,300 at the disposal of the Trade Department as a first contribution towards air traffic developments and aeroplane mail service preparations, though there was some opposition on the ground that the money was required for no definite proposition.

* * *

Having last year organised the first Scandinavian aero exhibition at Christiania, the "Northern Aircraft, Ltd.," will inaugurate the first Norwegian flying school, buying Allied equipment —viz., British Avros and French Caudron biplanes.

* * *

The first step towards fostering and regulating air traffic taken by the Swedish Aero Club was a prize offer, open to Scandinavian competitors, for the most suitable type of air-traffic shed, the prize going to a Swedish winner, while, too, the drawings of a Norwegian engineer were bought.

* * *

Availing themselves of the low mark value prevailing owing to Germany's bad export situation compared with the import

amounts, the Swedes bought first three Friedrichshafen seaplanes and four Benz spare engines for them for the Navy. When the twin-engined A.E.G. biplane made its non-stop demonstration flight to Eksjö and on to Malmslätt, the aviation centre of Sweden, five A.E.Gs. were ordered, three of which were one Sunday to be delivered by air from the Berlin works.

The aeroplanes encountered bad weather. One dived into the Baltic Sea off Warnemünde, its crew of three men, including an army officer pilot, being killed. The two other aircraft were forced to land, one owing to engine trouble, the other from lack of petrol.

As later a fatal accident with one A.E.G. biplane was only avoided at Malmslätt by the skill of the pilot, Lieut. Segebaden, and as Lieut. Eckerström, of the Naval air service, with his engineer passenger, was killed on a Friedrichshafen seaplane, good luck cannot be said to have followed German aircraft.

The Swedish Lieut. Herrström has returned from England with aircraft bought there, some Avros going to be demonstrated by British pilots at Stockholm.

* * *

The end of hostilities has almost affected neutral aircraft activities more hard than doings in the belligerent countries. The Swedish Thulin works in Landskrona were undoubtedly the largest aero enterprise in any of the neutral countries left, not excepting the Hispano-Suiza company in Barcelona, business having been mainly built up upon deliveries of chiefly rotary motors (mainly of le Rhone type) and a number of scout monoplanes to Holland, some motors and aeroplanes of Morane monoplane and Thulin tractor biplane types having further been supplied to Sweden, Norway, Denmark, and Finland, permit having just been obtained for exporting the first motors to Japan, when the war stopped at a most inconvenient time for the Thulin concern, as the capital was going to be increased and the Dutch contracts for rotaries had been completed, while the first series of 160 h.p. water-cooled motors (Maybach fashion) and German type tractor biplanes had only just been supplied to the Swedish Flying Corp. The shares dropped from 250 to 60, the manufacture was stopped, only 100 workmen out of 2,000 being kept, and Dr. Thulin was dismissed as managing director on complaint of not having prepared after-war trade.

The Thulin Aeroplane Works run their own aerodynamical laboratory and the largest Scandinavian flying school.

Being himself a skilful pilot—his last notable flight being from Christiania to Landskrona on his own monoplane after the first aero show in the Norwegian capital last year—Dr. Thulin was appointed to the committee sent by the Swedish Government to England, France, and Italy to study war aviation developments and the stand of air traffic preparations, that were for the latter part found less than expected, and on his return practised fancy flying, when he was slung out of his aeroplane and got beheaded by falling on a ship.

The Thulin works have now turned their attention to the manufacture of motor-cycles and agriculture tools.

* * *

Major C. H. R. Johnstone, late R.A.F., and Capt. K Saunders, late R.N.A.S., are now in Sweden working for the P.O. Flygkompain. They have two Avro biplanes and a D.H.6 machine, and are at present employed in passenger flying, but will at a future date start a school. Their only competitors were two Germans on Phœnix machines (240 h.p. Mercédès engines), who did practically no stunting at all. Major Johnstone and Capt. Saunders says that the Swedish Air Force consists of a few Blériot, Morane Parasol, and Albatros machines, all of pre-war types.

SPAIN.

According to a "Daily Express" report, regular air services will be started shortly between Malaga and Melilla (Morocco), and between Barcelona, Alicante, Rabat (Morocco), and Toulouse.

A representative of a French aviation firm arrived at Seville on July 21st, to organise a Paris-Bordeaux-Madrid-Seville-Algiers flight.

SWITZERLAND.

The Swiss Federal Council has approved a Bill for the temporary regulation of aerial traffic. It is provided in this Bill that foreign aeroplane owners and pilots will only be admitted in special circumstances by a permit from the Military Department.

Insurances covering third-party risks up to 15,000 francs (£600) must be taken out for each aeroplane. Pilots will not be allowed to fly over large towns at a height under 1,000 metres and over other towns at less than 500 metres. No stunting will be allowed.

SYRIA.

A number of British Officers with a Handley Page aeroplane have left Cairo for the Damascus-Bagdad aerial route. The distance is approximately 500 miles, and is partly over the Syrian Desert.

U.S.A.

Mr. F. G. Dillon, the president of the United Aircraft Engineering Corporation of New York, is at present in London in connection with the development of commercial aviation.

Mr. Dillon has said that the Americans are most optimistic over the future of commercial aviation, and are now in the position where they expected to be in 1920. Plans have been laid and are maturing for a commercial air service between Chicago and New York (900 miles), which will save a whole day's journey on the railway. A New York to San Francisco service is also being considered.

At present in the United States there is rather a lack of control, as a Government board issues licences for pilots and machines with very little formality, but laws are being drafted to cover these questions.

The Treasury gives no support to the aircraft firms, but this is not necessary, as there is no lack of financial backing.

The Government will be asked, and doubtless consent, to establish meteorological stations at intervals over the country.

On July 21st an airship, with which it was intended to start a passenger service, was engaged in test flights from its hangar at the White City Amusement Park at Chicago.

The airship was on its third trip over the city in the late afternoon at a height of 500 ft. when it burst into flames and broke in two.

Three men out of the five who were in it left the gondola with parachutes, and two of them landed safely in the crowded streets. The third was caught by the flaming wreckage and with it crashed through the glass roof of the Illinois Trust and Savings Bank, where 200 employees, mostly girl clerks, were at work. The building caught fire. The petrol tanks exploded inside. Eight clerks were burned to death and 27 severely injured.

The airship was 162 ft. in length, had two 80 h.p. engines, and a gas capacity of 100,000 cubic feet, and was sister to the A.4, which is in service with the American Army.

On July 25th, 20 pilots employed for the transportation of mails by air notified the Postmaster-General that they would cease work unless two of their number recently discharged were reinstated.

The two pilots were discharged because they demanded improved machines in place of the older types. The strikers declare that the present aeroplanes are unsafe, and that they are not allowed safety appliances. In one week there were 15 accidents and two deaths in the service.

The pilots protest against the rate of pay, which is the same for them as for the groundmen, both receiving £400-£700 a year, according to length of service.

All the Government aeroplanes carrying mail flew on July 25th as usual, the Government saying that reserve pilots were used. The strikers claim that they were hired strike-breakers.

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THE IDEAL PYROMETER FOR HIGH TEMPERATURES.
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Testing of any Type of Aircraft undertaken.
5 years' experience—3½ years as Official Test Pilot.
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AIRCRAFT FINANCE

THE DEVELOPMENT OF PLEASURE TRIPS.

The idea of popularising flips by providing advance booking facilities "through the usual agents" is sound. Such a method seems to carry conviction that flying is a serious commercial proposition, and should do a lot to dissipate the notion that it is a hobby intended especially for those who like to take a plenitude of risk, and, in the language of a living statesman, to "damn the consequences."

Insurance Facilities.

Conceivably the popularisation might be expedited if the insurance facilities were prominently explained. These facilities are adequate, and after glancing at the schedule one is convinced of the simplicity of the procedure. It is a matter that should be taken up seriously by those who are developing pleasure trips and passenger business generally.

Simplified Methods.

The scheme of the Aviation Insurance Association may be quoted as an example. The risks covered are :—

Aerodrome pleasure flights as specified in the policy per half-hour or part of half-hour.

Seaplane coastal flights as specified in the policy per 50 miles or part of 50 miles.

Cross-country flights as specified in the policy per 50 miles or part of 50 miles from the starting-place.

Cross-country flights as specified in the policy per 100 miles or part of 100 miles from the starting-place.

Cross-country flights as specified in the policy per 200 miles or part of 200 miles from the starting-place.

Special flights X to X as specified in the policy.

Premiums Quoted.

There will be quoted premiums for each of the above risks under, say, two different schedules of benefits. Each risk being defined per a separate proposal form, a rate will be made for each risk, and the scale of rates so arrived at will be incorporated in a covering policy.

The Combination of Policy and Ticket.

When booking his or her ticket, the passenger will be asked if he desires to effect insurance for death only, or benefits, or death and benefits, and under which scheme. The requirements being defined, and the tariff of rates supplied being consulted, it should not take the average clerk more than a second or two to ascertain the rate.

Procedure.

The terms being accepted, a form will be filled up and completed by the passenger signing his name and at the foot of the facsimile impression thereof. The passenger secures his copy. The form could be used as part of the ticket, even if insurance were not effected.

Three records of the transaction being made by the use of carbon sheets, one copy might be posted the same day to the insurance office concerned, and the premium stated thereon would be debited to the holder of the policy and collected in due course.

Benefits That Should Accrue.

The simplicity of such a scheme should commend itself to everyone. The settlement of the preliminaries between the transport company and the underwriters would be easy and quick. The type of risk being clearly defined, and, of course, an understanding being arrived at prohibiting any deviation from the ordinary business to be done, the underwriter would soon calculate a minimum rate.

It would be impossible to quote a flat rate covering all risks embraced under such a scheme. At least it would be unreasonable to expect such a low premium, because the underwriter would have to assume it would be an even chance that the most dangerous risks would be more or less paramount and raise the rate accordingly.

Without a doubt the proposal seems attractive, and should be beneficial to the growth of the pleasure business. Insurance gives a sense of security.

CURRENT TOPICS.

Unsettled Conditions.

Little consolation is afforded by reflecting that the labour troubles were inevitable soon after Peace was fixed up. They unsettle everything, and unsettlement is the worst possible thing for business, whether it is financial business or industrial. Hence, the Financial World is not in a happy state with transactions cautiously entered into and restricted wherever possible.

The Floating Debt.

Already a considerable quantity of floating debt has been eliminated as a result of the big loan operation. The amount approximates £206,350,000. But £724,117,000 is still outstanding in the form of Ways and Means advances granted to the Treasury, and, in addition, £670,000,000 in the form of Treasury Bills. There will be a further reduction, but a hefty lump will remain, and one would hope that some inspired financial genius would come along and wipe out the whole of it. The Nation would be healthier. But it is hopeless to expect anything of the sort.

The Whitehead Prospective Purchaser.

There is no business in Whitehead Aircraft descriptions, but there are would-be buyers quite prepared to take considerable quantities of the ordinary shares at about 4s. Possibly this may not be unconnected with those interests which are to make an offer to acquire the undertaking on terms to be decided after the examination of the position. Rumour says that certain people originally associated with a popular Store business are the prospective purchasers.

By the bye, a meeting of unsecured creditors, whose claims aggregated £30,000, passed a resolution to the effect that their best interests would be served by voluntary instead of compulsory liquidation of the company.

Motor and Aircraft Supplies Company Liquidation.

At a meeting of the creditors, presided over by Mr. O. Sunderland, a statement of affairs showed liabilities £61,404, while the assets were estimated to realise £34,072. From the latter had to be deducted £931 13s. 6d. for preference claims, leaving net assets of £33,140. The company was registered in 1916, as the Aircraft Supplies Co., Ltd., but the name was changed to the present one in March of the present year. The capital of the company was not sufficient to carry on the undertaking, and it was financed by the Beecham Trust, Ltd., and the Bank. The former had advanced £16,266 19s. 2d., for which they were creditors, and there was an overdraft at the London, Westminster and Parrs Bank, of £27,380. So far as the company was concerned those were unsecured claims. The Beecham Trust held no security, but the overdraft at the bank had been guaranteed by Mr. James White. Following the Armistice there was a great slump in the Aircraft business, and a corresponding falling off in the value of the large stock held by the company.

The Chairman said he understood that there were some very heavy contingent liabilities in connection with broken contracts. He understood that the claims in that direction might result in the liabilities being doubled.

MORTGAGES, CHARGES AND SATISFACTIONS.

Aero Stations, Ltd.—Mortgage on New Salts Farm, Lancing, to secure £4,268. Registered June 10th, 1919. Holder, Mrs. A. C. J. Easter, Old Salts Farm, Lancing.

AIRCRAFT IN PARLIAMENT

The following oral answer was given on July 21st:—

AIR CONVENTION.

Major-Gen. SEELY, the Under Secretary of State for Air, replying to Capt. WEDGWOOD BENN, said: The Supreme Council of the Peace Conference have agreed to the immediate publication of the Air Convention.

* * *

The following written answers were given on July 21st:—

ROYAL AIR FORCE—TECHNICAL PAY.

Major-Gen. SEELY, replying to Lieut.-Col Sir F. HALL, said: The Technical pay which has been awarded in the past to officers graded Category "A" Technical, has been according to rank, viz.: 2nd Lieut. 2s., Lieut. 3s., Capt. 4s., Major 6s. 6d. per day

This pay dates back to April 1st, 1918, or to the later date on which the officer was so graded, and is also given to officers demobilised before the decision was arrived at. The technical pay does not affect the gratuity.

AIR MINISTRY (CORRESPONDENCE).

Major-Gen. SEELY, replying to Mr. MACQUISTEN, said: Mr. Norman Thompson's urgent letter, addressed to the Air Ministry, of July 20th, 1918, was acknowledged two days later on behalf of Lord Weir, and Mr. Thompson was informed that it had been forwarded to the Director-General of Aircraft Production, Ministry of Munitions, whom it concerned.

NORMAN THOMPSON FLIGHT COMPANY.

Mr. MACQUISTEN asked the Parliamentary Secretary to the Ministry of Munitions whether a member of the Contract Claims Department of the Ministry of Munitions, acting for the Lubbock Committee of the Treasury, made a recommendation to the Aircraft Finance Department of the Ministry of Munitions to purchase Messrs. Cox and Company's debenture in the Norman Thompson Flight Company and re-vest the control of the company in Mr. Norman Thompson and his co-directors; why the Government gave orders to the receiver after neglecting to do so to the Norman Thompson Company; and whether it is an established custom or rule of the Treasury not to give orders to a receiver.

Mr. JAMES HOPE: The answer to the first part of the question is in the negative. As to the second part, it was only after the appointment of a receiver that a decision was reached as to the design of the flying boat in question. The Treasury do not issue any orders in a case of this sort. During the War, however, the Ministry of Munitions sometimes gave orders to a receiver in cases where there was a reasonable prospect of obtaining supplies which were urgently needed.

* * *

The following oral answers were given on July 22nd:—

FLYING-BOAT SERVICE.

Lieut.-Comdr. KENWORTHY asked the Under Secretary of State to the Air Ministry whether it is intended to establish a regular service by flying-boat between the North-East Coast of England and Northern Europe; and, if so, under what conditions?

The UNDER SECRETARY of STATE for AIR (Major-Gen. SEELY): It is not intended to run a Government service between the East Coast of England and Northern Europe. Those flights which have been and are being undertaken are to demonstrate the possibility of such flights and to gain experience.

Lieut.-Comdr. KENWORTHY: Will encouragement be given to private enterprise to establish some such service?

Major-Gen. SEELY: Oh, yes, Sir. Every encouragement that can properly be given will be given. There is no doubt a great future for flying boats, especially to these countries.

Capt. BENN: Are any negotiations going on with the Post Office towards setting up an aerial mail?

Major-Gen. SEELY: Perhaps it would be better to put a question to the Postmaster-General on that point. In regard to flying-boats no actual proposals are now before me, but any such proposals will receive careful consideration.

Lieut.-Comdr. KENWORTHY: Have any negotiations taken place with Northern neutral countries, with a view to joint action in establishing such services or assisting them by private enterprise in the matter?

Major-Gen. SEELY: That is rather a large question. Perhaps the hon. and gallant gentleman would put down a question on that specific point.

* * *

The following written answers were given on July 22nd:—

WINCHESTER REPATRIATION CAMP (LEAVE).

Major.-General SEELY, replying to Mr Lunn, said: The Royal Air Force Repatriation Camp at Flowerdown, Winchester, was formed in May last. Leave is given at frequent intervals.

AERODROME, FLOOKBOROUGH.

Mr. TYSON WILSON asked the Secretary of State for War whether he is aware that the construction of a large aerodrome was commenced at Flookborough during the War; that railway sidings were laid down and workmen's huts built, but that the same was discontinued owing to the then shortage of steel for constructional purposes; and whether he will consider the advisability of reconsidering this matter with a view to affording Messrs. Vickers, of Barrow, an opportunity of continuing to cater for this trade?

Major-Gen. SEELY: The question is for the Admiralty, and perhaps the hon. Member will address that Department accordingly.

* * *

The following written answers were given on July 23rd:—

AEROPLANES CONSTRUCTION (CYPRESS).

Mr. REMER asked the Under Secretary of State to the Air Ministry whether he can now make any further statement as to the serious losses caused in his Department by the sanction of the use of cypress on aeroplanes; whether he has been able to establish the blame for this loss, and whether he is now in a position to make a statement as to his decision to strengthen his advisory committee with practical expert opinion in order to avoid such blunders in future.

Major-Gen. SEELY: With regard to the first two parts of the question, I would refer my hon. friend to the answers given to him on May 1st, 21st and 26th, and June 26th. In accordance with a suggestion made by my hon. friend the Conjoint Board of Scientific Societies were invited to consider the co-option of representatives of the National Federation of Sawmill Proprietors. The absence of the chairman of that body in America has involved delay, but he has now returned, and I will inform my hon. friend shortly what decision has been come to.

AMSTERDAM EXHIBITION.

Capt. W. BENN asked the Under Secretary of State to the Air Ministry what firms have received from the Air Ministry permission to exhibit machines and engines made under Government contract at the Amsterdam Exhibition.

Major-Gen. SEELY: The following firms have received Air Ministry permission to exhibit machines at the Amsterdam Exhibition:

Gosport Aircraft Company, F.5 Flying-boat.

Messrs. Handley Page, V.1500.

The Aircraft Manufacturing Company, D.H.10a

DISABLED OFFICERS (PENSIONS)

Major-Gen. SEELY, replying to Mr. W. NICHOLSON, said that Lieut. P. A. Baker, R.A.F., who is in hospital as a result of a crash in France in Sept., 1917, and who has been marked for a further six months' treatment, has been informed that he is to be gazetted out of the Air Force. His pay as a Lieut. in the R.A.F. is 14s. per day with free maintenance, but his disability pension cannot be stated until the Ministry of Pensions have examined the case. The normal rate of pension in such a case, if the officer is fully disabled is £175 a year, plus a bonus of 20 per cent., from which a deduction of 4s. 6d. per day is made if the officer is maintained in hospital This officer has received the utmost advantage and consideration that the Regulations allow. Eighteen months is the fixed period for an officer to receive full pay before his case is taken over by Pensions Board. In this case the period has been exceeded by six months.

* * *

In the course of the debates on the Naval Estimates on July 24th, the following allusions to aircraft were made:—

Mr. LONG, replying to Capt. Wedgwood Benn, said the final arrangements between the Admiralty and the Air Ministry about the construction of airships and the transfer of that department to the Air Ministry had not been completed.

Mr. LAMBERT: Is the Navy to have its own air service, or is it to be placed under the Air Ministry? I think the Air Ministry, if it is under the War Office, will have considerable difficulty in persuading the Admiralty that the air service of the Navy should be under the War Office.

Mr. LONG: It is not settled yet.

Rear-Admiral ADAIR: I observe on the Paper to-day a Motion to the effect that in the opinion of this House the Army, Navy, and Air Force should be brought under the supreme direction of one Cabinet Minister, and that there should be one war staff college.

Lt.-Comdr. KENWORTHY: The question of airships concerns the Admiralty, and I should like to ask the First Lord to give pause before he proceeds to relate the programme of airship building. These airships cost £350,000 each, and there are great sheds which will be of doubtful value in the future The reason is that aeroplanes and seaplanes are advancing in efficiency so rapidly that an airship will have about as much chance with the aeroplane as a sailing ship has today with a cruiser.

The analogy is this—that the sailing ship was useful for a certain time, and then it became obsolete, and this is the same as the airship, which, I believe, will be dead in spite of a non-inflammable gas or any other improvements. Therefore I do beg the right hon. gentleman not to spend too much money on airship building programmes. The money should be spent rather on aeroplanes. There is little enough money, and it should be laid out to the best advantage.

I do not think of the airships from the military point of view. People keen on airships are naturally keen on their weapons, but unfortunately the Admiralty is responsible for airships, and the Air Minister for aeroplanes, and therefore the airship schools have an unfair pull in the councils of the war.

Captain BENN: At the present time there is a programme of airships. There are six big airships being built at a total cost of over £2,000,000. These are being built by the Admiralty, and under the control of the Board of Admiralty. Are they being manned by the Air Force personnel, or by the Admiralty personnel? Perhaps the right hon. gentleman will tell me?

Dr. MACNAMARA: I should say off-hand by the Admiralty personnel; but I speak subject to correction.

Captain BENN: When I ventured to ask the First Lord of the Admiralty to make a statement on the subject he brushed the whole matter aside and refused to deal with it; so that the Committee will not lay it to my charge if I had not got all the information that I ought to have for this purpose.

Everyone with experience in air matters is unanimous that everything that goes in the air should be under one control

One of the great mistakes made by the first Coalition Government was that they did not unify the Air Service in 1915, or we should have had the Germans beaten in the air much sooner than we did. Why is it absolutely essential that you should not have two Departments of the Government both constructing air parts? The reason is perfectly obvious. The Department over which the right hon. gentleman presides, in the olden days, used to go into the market and compete for the same engine with the Department presided over by the Secretary of State for War. I know cases—everybody knows them—where the manufacturer had bids from the War Office and the Admiralty for the same machine. Very wisely he made the best bargain he could. But is it not ridiculous that you should have two Departments of the same customer competing for one article? Yet the right hon. gentleman opposite says that everybody is not agreed that they ought not to exist.

Mr. LONG: The hon. and gallant gentleman said everybody was agreed that there should be one control of the Air Service. All I suggested was that everybody was not agreed.

Captain Benn: It is a most extraordinary thing that the Secretary of State for War of this House should assert the principle of an undivided control of air matters, while the right hon gentleman opposite tells us that it is a highly debateable point.

Mr. LONG: I said nothing of the kind.

Captain BENN: Then what does the right hon. gentleman say? I do not know. The Committee must judge.

Mr. LONG: Hear, hear.

Captain BENN: I lay it down that the unanimous opinion of all those competent to form an opinion is that everything that flies in the air should be under one control. I understood that that was the policy of the Government. If it is not the policy of the Government perhaps the right hon. gentleman will say so; then we shall have a Debate to see what the opinion of the House of Commons is on the matter. As to material, take an airship and an aeroplane. Is it not absurd that you should have two Departments constructing the same thing. The R34 had the same make of engine as is used in an aeroplane, except, of course, the gasbag, which is of a totally different

material, and there is not much in that point As regards the war equipment of an airship, it is very similar to the equipment of an aeroplane. You have the machine-guns, the bombs, and the releases, a set of photographic apparatus, and the like, and I think it is an uneconomical and thoroughly bad system under which you have the Admiralty and the Air Ministry both constructing the same thing. I understand that that had been abandoned, and that it was one of the four points upon which the second Coalition Government was formed.

There is no difference in many respects between the work done by an airship and an aeroplane. Take some of the things we are most backward in, such as correct bombing and aerial gunnery. Aerial gunnery is in its infancy, and two persons go and fire point-blank at one, and that is the state into which we have got. The airship affords the most direct means of making experiments and progress in aerial gunnery, and yet the airship is under one control and the aeroplane is under another Department

Take the question of the Davies gun. That has been experimented with in aeroplanes, but the airship is a better platform for it. Now the right hon. gentleman is going to make those experiments, and the thing is absurd, and this is a very highly reactionary step in the policy of the Government.

Take photography. The difficulty of working photography in an aeroplane is very great because of the speed, the rush of air, and the quick movement of the machine, and the constrained state in which you work. If it does not work it is very difficult to put right, whilst in an airship you have much more room, and you can walk about, and therefore you can make experiments in photography in an airship which you cannot make in an aeroplane. We get one right. hon. gentleman controlling the aeroplane, and another the airship, and consequently the benefit of united experience is wasted.

With regard to the manufacture and use of airships it is absurd that there should be division of control. I have been speaking of these machines as war weapons. I understand that this kind of aircraft is being arranged entirely to carry as their load war munitions, and they are not being fitted to carry commercial loads. If you are spending £3,000,000 upon airships of this kind for war purposes, I think that is a policy which this Committee should never sanction.

Now I turn to a really much more important side of the question, which is the civilian use of this craft. Everybody knows that the airship possesses certain great advantages over the aeroplane.

I hope the right hon. gentlemen opposite (Mr. Long and Dr. Macnamara) will give me their attention, as it is not much to ask It is only the courtesy of debate in this House to do so, and this is just as urgent as any of the grievances which have been raised in debate today.

There is no doubt that there is a big commercial future for the airships. Nevertheless, as a means of testing the atmosphere and making experiments in the way of aerial navigation, there is no doubt that the airship has got a very great future before it But the airship is under the control of the right hon. gentleman and has nothing to do with the Ministry. The right hon. gentleman would be the first to resent the idea that any part of his Department is under the control of the Air Ministry. We thus see a tendency to divide once again the Air Service, and all the experience which the right hon. gentleman's Department has collected under the guidance of sailors, who are the very people who can contribute most at this time to aerial advancement. is not in any way correlated to the work of the Air Ministry.

Supposing you are making experimental flights for the Egyptian mail, and you have an airship which is going to Taranto and Port Said. If the Air Ministry are testing a big machine with multiple engines over the some route, are they to have separate crews doing the same thing? It is absurd. It is perfectly obvious that to secure the necessary experience and the necessary certainty for these aerial routes you must have everything that flies under one control. I recognise the very great service that the Admiralty have rendered to the cause of aviation. At the beginning of the War, when the present Secretary of State for War (Mr. Churchill) was at the Admiralty, great advances were made in the way of aviation in the Royal Naval Air Service, but that was succeeded by a period of blight, when, instead of encouraging aviation, the Admiralty did the very reverse. I know what I am speaking of, because I served in the Royal Naval Air Service for some part of the War, and I know that the thing was controlled in some cases by people who had no sympathy and no knowledge.

Lieut.-Col. MOORE-BRABAZON: It is not very often that I agree with my hon. and gallant friend (Capt. W. Benn)—we differed the other day on the question of the protection of such things as chicory and saccharine—but we do agree to-night on the protection of the dear old gas-bag. As the Member for Chatham, I am a believer in the Blue Water School, but I am also a believer in the Blue Sky School, if one may pay such a delicate compliment. To-night I want, not to attack the Admiralty, but, I suppose, the Navy. The Admiralty in the matter of aviation appear to me to have done very well, but the whole tradition of the Regular Services has been always to be behind the spirit of advancement and always to have it forced upon them. It was upon the initiative of the Aero Club that the pilots in the Navy were taught to fly. There is no doubt, however, that aviation relatively to naval matters did come into its own towards the end of the War, but that was forced upon the Navy by the civilian element in this country.

I want to say a word with regard to airships in general. The only possibility of any future for the airship from the military point of view is the substitution of one of the inert gases for the present highly inflammable gas, but that is a very difficult and expensive matter, and it will be long before we shall see one of those invulnerable airships flying in the air. It is a very curious thing that the Admiralty, through the most amazing obstinacy, has gone on, right through this War, building an airship which clearly was of no use during the War, but now turns out to have a certain use from the commercial point of view We must remember now that aviation is to be found to be of use to this Empire, and I am serving on a Committee which is to see in what way we can help to link up our various Dominions by air service.

I wish to ask the right hon. gentleman two questions. The first is, whether he has any news as to the allocation to Great Britain of the big Zeppelins made in Germany that have been surrendered to the Allies. Some of these are as good as the latest big airships, and we ought to know as soon as possible what share of them will come to this country. My second question is as to the policy to be taken by the Government with regard to airships in future

Dr. MACNAMARA, replying on the Debate, said (among other things):—

The responsibility of the Admiralty for aviation is confined to the construction and maintenance, including repairs, of such rigid and non-rigid airships and airship stations as the Naval Staff desire for war services. The Director of Air Division looks after the requirements of the Navy, and maintains the necessary relations with the Grand Fleet, the Senior Naval Officers of Bases, the Air Council, and the Admiralty Departments concerned.

We are going on with the construction of six rigid airships, at a total estimated cost of about £2,200,000, and further with the shed for the R34, which cost approximately herself £350,000, the cost of the housing shed, together with extensions and wind screens, being about £166,000. The R34, I should say, goes on R rates.

WEATHER FORECASTING.

The following article by the "Times" meteorological correspondent appeared in that paper on July 28th:—

The necessity for a co-ordination of the various official and Service organisations engaged on weather problems, in relation to flying, makes it opportune to recapitulate the conditions which have led to the present anomalous conditions under which weather information is collected and disseminated.

At the outbreak of war, the Meteorological Office of Great Britain was the only governmental organisation devoted to meeting civil and service requirements in matters and problems connected with the weather.

This establishment, under the directorate of Sir Napier (then Dr.) Shaw, F.R.S., one of the ablest meteorologists of our times, was, and still is, openly admitted, even by Continental departments, that have every reason for rivalry, to be among the best organisations of its kind in the world. With the dispatch of an expeditionary force to France and Belgium in 1914, however, the inauguration of a subsidiary military service became essential, and this was formed and proceeded overseas early in 1915.

Later in the same year it became a section of the Royal Engineers under the command of Captain (now Colonel) Gold, D.S.O., F.R.S.—until then Superintendent of the Statistical Division of the Meteorological Office, and previously Schuster Reader in Meteorology at Cambridge. The commissioned ranks of the unit were drawn almost entirely from the professional staff of the Meteorological Office.

Throughout the war this offshoot of the central department proved itself of great value to the Expeditionary Forces in France, Salonika, and Italy. In 1915 also certain junior members of the Meteorological Office staff obtained commissions for work in connection with the airship section of the R.N.A.S., and used their opportunities to such good purpose that they formed in course of time the nucleus of the extensive organisation which, after the fusion of the R.F.C. and the R.N.A.S., became known as the Royal Air Force Meteorological Service.

At this juncture a few officers continued with the Admiralty, and constitute to this day a small Naval Meteorological Service. A large majority, however, in common with other R.N.A.S. officers, were transferred to the R.A.F. Much valuable work has been accomplished by each of these several organisations, but it is not quite accurate to state that an absolutely vital branch of modern meteorology—the exploration of the upper air—was "more or less neglected" before the formation of the R.A.F. Meteorological Service.

For many years before the outbreak of war this branch of meteorological study had received the undivided attention of Mr. W. H. Dines, F.R.S., Director of Experiments on the upper air for the Meteorological Office, formerly at Pyrton Hill, latterly at Benson (Oxon). He is responsible for many of the methods and instruments through which upper air data are rendered available. The results obtained by the establishments at South Farnborough and Upavon and by Capt. C. J. P. Cave's co-operation with the Meteorological Office at Ditcham Park, Petersfield, are still the classical studies of the upper air in this country.

The procedure employed by the Air Ministry Service was devised and the instruments used were supplied by the Meteorological Office, and it is only fair that the pioneers in this matter should not be deprived of the credit which is their due. The rapid increase of aviation and of high-angle gunnery associated with the early stages of the war found a sudden and unexpected practical use for the large accumulation of upper-air data already in the possession of the Meteorological Office. New methods were also devised and perfected during the war by the scientific staff attached to Naval Ordnance.

Forecasting for different parts of the world has to deal with a great variety of aspects of meteorology, but for the British Isles and the middle latitudes of the Atlantic forecasting on the lines laid down by the Meteorological Council in 1879 is not a difficult matter, and there are instances in which juniors of the Meteorological Office staff have undertaken the duty in other establishments.

Forecasting is not yet by any means infallible, even for those who have long years of experience, and its improvement on scientific lines requires the most advanced meteorological training.

THE EAST LONDON COLLEGE COURSE.

The East London College (University of London), at which important aeronautical work has been conducted during the war, is arranging for two courses of instruction in aeronautics beginning in September next.

The first course is of one year's duration, and is suitable for those who have some knowledge of engineering and science subjects. The second is a three years' course in engineering and aeronautics for the B.Sc. (Engineering Degree of the University of London), and will be conducted by Mr. N. A. V. Piercy, B.Sc., a recognised teacher of aeronautics of the University.

Experimental wind tunnel work will form an important part of the course. Particulars of these courses may be had on application to Mr. E. J. Wignall, registrar of the college

AERONAUTICS and The LAW

THE SOVEREIGNTY OF THE AIR.

By THE LINCOLN IMP.

"The contracting States recognise that every State has complete and exclusive sovereignty in the air space above its territory." This tolerably momentous declaration forms Article I of the new Convention relating to International Air Navigation—to give the treaty its full and tedious title.

When any new and large domain comes for the first time under the control of man he casts about him for some suitable analogy to follow, and great importance may attach to the analogy which he selects.

Thus motoring was hampered in its infancy by the analogy of the steam-roller, while the study of electricity was helped by the analogy of water. Ways on rails have been both helped and hindered in their development by coach and road analogies.

As with physical domains so with intellectual. As new worlds were discovered in the past the practical question soon arose, under whose control were they to be put? To this problem the analogy of the old world gave no answer. In the old world title to territory was traced through history, and in theory title was never new. The new worlds at first were distributed by Papal Bull—west of such and such a line to Ferdinand and Isabella, east of it to Portugal—on the analogy of sovereign grants of land to subjects. Later the Roman Law of *occupatio* was called in aid to give the new-found worlds to their discoverers and to the settlers in them; *quod nullius est id ratione naturali occupanti conceditur*—"land that is no man's naturally is given to whoever comes and occupies it."

To Whom Shall It Belong?

The untamed air is now made subject to man's domination. Whose shall it be? What is the analogy which we should follow?

If we turn again to Roman Law we get an answer. The Emperor Justinian in his Institutes (published A.D. 533) wrote: "Some things are the common property of everybody, some are public property, some belong to municipalities, some belong to nobody, but most belong to individuals. The following are the common property of all:—The air, running water, and the sea, and (because of the sea) the seashore." Here we have a physical analogy—the sea—and an intellectual one—the common property of all. The high seas are not the subject of sovereignty or property. They are public highways open without distinction to the craft of all nations. In the Roman Empire this was so, and it is still so now, but it has not always been the accepted rule. "History is full of claims to sovereignty or dominion over the open sea, . . . the claims of Spain . . . and of Portugal . . . were the most outrageous of any in respect both of their geographical extent and of their refusal even of innocent passage. They were repudiated and practically set at nought by the Elizabethan English and by the Dutch, and called forth the '*Mare Liberum*' of Grotius, to which Selden replied by the '*Mare Clausum*' in support of the much narrower but still extravagant pretensions of England" (Westlake).

But in contrast with the boundless unowned sea we have the much-owned, boundary-ridden land with its innumerable partitionings, its many States, its great and petty sovereigns, and its endless owners.

The analogies available conflict with one another and a choice has to be made between them. Is the widespread air more like the sea expanse and therefore free, without a sovereign and not partitioned? Or, being set above the seething national States, is it divided by their boundaries, owned by their owners, and under the jurisdiction of their sovereigns? Regarded as a means of transit, is the air to be open and free and trackless as is the sea, or is it to be mapped out in routes and subjected to way-leaves, rights of way, and suchlike?

Coelum Clausum.

The adopted solution of this conundrum is something of a compromise. In principle the land analogy is followed, and the high skies are to be closed to all non-national traffic. *Coelum clausum* is to be the principle.

The skies of the future are to be painted with the colours of the flags which flutter beneath them. The fused glory of the evening sky, the canopy of heaven over the nations, is ordained to be hidden by a patchwork quilt having its underside circled and crossed with red, white, blue; spangled with stars and stripes; spotted with suns and crescent moons and still more stars; and bespattered here and there with blood-red rays and yellow, black, and green, and all the colours of the paint-box. Each small State will have a mansion in the skies to be its castle and eke its manger (if it chooses) to keep its dog in. The nations' hope of heaven is to exclude all others from it. That is the principle adopted.

Coelum Liberum.

The principle is largely qualified and almost rendered nugatory by a bargain between the States which are parties to the contract.

"Each contracting State undertakes in time of peace to accord freedom of innocent passage above its territory . . . to the aircraft of the other contracting States" (Art. 2).

Ifs and Buts.

But "the freedom of innocent passage" is hedged round with so many safeguards, so many qualifications and provisoes, and so many ifs and buts that it is hard to give the phrase a meaning. The right of passage only exists if the conditions of the Convention are observed and subject to regulations imposed by the subjacent State; areas may be prohibited to foreign aircraft for military reasons or for reasons of public safety; air thoroughfares (international airways) require the consent of the subjacent States; aircraft which pass from one State into another may be compelled to land in the latter; subjacent States may fix air routes for aircraft flying over them; aircraft signalled to land must do so. Finally, the right of innocent passage only exists in time of peace. "In case of war the provisions of the present Convention do not affect the freedom of action of the Contracting States either as belligerents or as neutrals" (Art. 39).

The Annexes.

Lest you grow wearied with matters of high and grave diplomacy the Imp will turn now to the lighter literature of the annexes. "The provisions of the present Convention are completed by the Annexes A—H, which

have the same effect and come into force at the same time as the Convention itself" (Art. 40).

The annexes, the Imp regrets to state, appear to be almost entirely an English production. "Regret" is the word the Imp uses because these annexes consist largely of pestilent rubbish. They include most that is bad in the English Air Regulations, though the zone blunder which the Imp pointed out has been rectified.

ANNEX E.

This contains the "Minimum Qualifications Necessary for Obtaining Certificates as Pilots and Navigators."

They include "A flight . . . during which the pilot shall remain for at least an hour . . . above the point of departure! Also, "A flight *without* landing around two posts (or buoys)." The former is not considered a test of skill; the latter is, though the Imp would consider a flight more skilful which was "*with* landing around two posts (or buoys)"!

They also include "A practical knowledge of international air legislation." A pilot must know the whole Convention and its annexes; he must satisfy the medical requirements—at the terminology of which, with its dioptres of hypermetropia, etc., the world has already laughed; and, worst of all, he must understand Annex G, compiled by the meteorologists.

ANNEX G. THE HEIGHT OF PROFUNDITY.

BBBDD FwwTT ALBMR wwVHS βbbF_1F_2
RRMMX (or RRmmX) ρTTHH

What! Meaningless to you, you say? And you claim to be a pilot! You'll have to change your avocation and be apprenticed to a pirate! Those symbols are but the alphabet of meteorology, without a knowledge of which it is impossible lawfully to fly. Besides these elements, you must learn aerostatics, orientation, azimuth, star globes, astronomy, astrology, astrolaby, chronology, chronometry, hour angularity, wet airology, drift, dead reckoning, live wangling, boxing the compass, swinging the lead, adjusting the truth and deviating from it and without precipitation, and so forth.

THE DEPTH OF DEPRAVITY.

A pilot who scarcely could jazzenough
Failed rightly to calculate azimuth;
His reck'ning was dead,
But his drift, it is said,
Was *di*-optres hypo or hypersuff.!

They told him he hadn't a heart,
Lungs, kidneys, or system of nerves,
Which—his hypermetropia apart—
Would yield him a good crop of curves.

They tested his knowledge of law,
Of the stars in their courses; and codes
They found out a serious flaw—
He had mixed up the ρ's with the Roads!

He didn't know β from Beer,
Couldn't hover or land around posts;
Though utterly void of all fear,
Faced examiners blanched as by ghosts.

It was true he had downed many Huns,
It was true he could fly like a beetle,
But—you can't bribe a bailiff with buns,
Or an Expert by showing you've mettle.

In all seriousness, the Imp considers the examination provisions imposed by our mandarins as either ludicrous or wicked. Ludicrous if intended to display the depth of the Expert's profundity; wicked if seriously intended to operate as—a red flag of the air.

If put to the test, the Imp would retort with Chaucer's reply to the eagle who offered to teach him the stars:

"Wilt thou lere of sterres aught?"
"Nay certeinly,' quod I, 'right naught,
And why? For I am now to old,
Elles I wolde thee have told."

THE AIRMAN'S AIRING.

(Being the Description of an aviator and his habits taken from a feuilleton).

It was a beautiful day for an air-trip, so Rudolph was up before sunset, pouring oil into the petrol tank of his trusty mechanical bird. He found a wire dangling loose between the planes, and deftly twisted it about one of the posts that help to hold an aeroplane together. His mechanics had not yet come in; but your true airman knows his machine, and is not dependent on paid servants.

He was alone!

In a moment he would be aloner still!

He sprang into his machine and touched a button.

The engine began to spin, and he felt a sudden thrill.

He was away!—a minute more and he was but a speck in the blue.

The engine raced, and the wheels spun round as he fled along the aerial highway.

Then, without warning, all was changed. The engine felt a sudden thrill, and Rudolph began to spin.

He felt the pressure on his safety belt, and knew that he must be flying upside down. His nerve was unshaken, however, and with great *sang froid* he righted the machine and continued his flight.

Rudolph was one of those rare and beautiful specimens of manhood—a civilian flier. He had steadily resisted the temptation to which so many young men yield in these days, to become a Service man.

"War," he would state nobly—throwing back his magnificent head and straightening his mighty shoulders—"is a dirty trade. It is always muddy in the trenches; and even in the air one is never sure but that one may accidentally fall into the mud."

So the noble fellow preserved his individuality, and remained unattached to any of the forces, of land, sea, or air.

On the day of which we write, he had scarcely been flying 10 minutes before he was overtaken by a high wind and driven into a bank of clouds. He completely lost his bearings—his machine was caught by the contending winds (pronounce wYnds) of heaven and blown hither and thither like a feather. Before many hours he had lost consciousness.

A cool breeze fanning his beautiful auburn hair restored him, and he regained his senses. At first he could not imagine where he was, but a careful examination revealed the startling fact that he was seated on top of a Zeppelin. It was clear to him that his machine must have turned upside down, and the breaking of the life-belt had caused him to fall—luckily while just over the airship.

But what was he to do? Thoughts of escape flashed through his mind, but none of them seemed feasible.

Just as he was giving up all hope a familiar sound caught his ear His aeroplane—his faithful companion—had kept as close to his master as the somewhat unusual circumstances would permit.

Rudolph whistled, and the delighted aeroplane climbed up to him and taxi-d along the top of the Zeppelin till it came to rest by his side.

Rudolph felt his steed anxiously, but it was sound in wheel and wing, so he quickly mounted to his seat. The aeroplane seemed to understand what a duty it had to perform that day, and sprang forward with a sharp bark.

Steadily they flew till the spire of the town hall of Jublopping-ton came in sight—and their dangers were over past.

Once home, Rudolph donned his most civilian spotted tie and went to tea with his betrothed—this being Thursday.

"Dearest!" she cried, on catching sight of him—"I thought you were lost; you have been away four hours."—MEZZO CAMMIN.

AIRCRAFT FACTORY FOR SALE.

The American aircraft factory at Shaw, near Oldham, is for sale by private treaty. The factory covers six acres of land, and its buildings are mainly of brick construction with concrete floors and timber roofs covered with ruberoid.

NAVAL & MILITARY AERONAUTICS

GREAT BRITAIN.

FROM THE COURT CIRCULAR.

BUCKINGHAM PALACE, July 24th.

The King, who was accompanied by the Prince Albert, held an Investiture for the Royal Air Force in the Quadrangle of the Palace at 11 o'clock this morning.

The following Officers were severally introduced into the presence of His Majesty, when The King invested them with the Insignia of the Orders into which they have been admitted :—

THE DISTINGUISHED SERVICE ORDER AND THE DISTINGUISHED FLYING CROSS.—Major Lawrence Pattison, and Capt. Harry Goode.

THE MOST EXCELLENT ORDER OF THE BRITISH EMPIRE (Military Division).—Officer.—Lieut.-Col. Lionel Rees, V.C. (also received the Air Force Cross).

His Majesty then conferred decorations as follows :—

BAR TO THE DISTINGUISHED SERVICE CROSS AND THE DISTINGUISHED FLYING CROSS.—Capt. Cecil Darley.

THE DISTINGUISHED SERVICE CROSS AND THE DISTINGUISHED FLYING CROSS.—Major Anthony Arnold

THE DISTINGUISHED SERVICE CROSS AND THE AIR FORCE CROSS.—Capt. Frank Fowler.

THE DISTINGUISHED SERVICE CROSS.—Lieut. Robert Peel.

BAR TO THE MILITARY CROSS AND THE DISTINGUISHED FLYING CROSS.—Capt. John Norton.

THE MILITARY CROSS AND BAR AND THE DISTINGUISHED FLYING CROSS.—Capt. James Slater.

THE MILITARY CROSS AND THE DISTINGUISHED FLYING CROSS.—Capt. Basil Catchpole, Capt. Frank Dutton, Capt Dennis Latimer, Capt. Cyril Lowe, Capt. James Mitchell, Capt. Charles Robbins, and Lieut. Clifford McEwen.

THE MILITARY CROSS AND THE AIR FORCE CROSS.—Lieut.-Col. Reginald Mills, Major Cyril Patteson, Capt Eustace Grenfell, Lieut. John Boret, Lieut. Allan Boyle, and Lieut Charles Laing.

THE DISTINGUISHED FLYING CROSS.—Lieut.-Col. William Primrose, Lieut.-Col. Francis Roxby.

Capt. Christopher Brand, Major Kenneth Dowding, Major Evan Gilchrist, Major Wilfrid McClaughy, Major Francis Moller.

Capt. Robertson Affleck, Capt. Samuel Anderson, Capt. Thomas Angus.

Capt. George Bailey, Lieut. James Batting, Capt. Rene Bayley, Capt. William Benn, Capt Eric Betts, Capt. Robert Birkbeck, Capt Clifford Bowman, Capt. Edward Burling.

Capt. John Candy, Capt. Walter Carlaw, Lieut. Allan Churchman, Capt. Charles Cleaver, Capt. Eric Coles, Capt. Lawrence Coombes, Lieut. Herbert Coombs, Lieut. Philip Cummings.

Capt. Sydney Dalrymple, Capt Rupert Darnton, Lieut. Frederick Deane, Capt. Roger Delhaye, Capt. Euan Dickson, Capt. John Dickson, Lieut. Roy Dodds, Capt. John Doyle.

Lieut. Dudley Evans.

Capt. Ray Fagan, Capt. Karl Falkenberg, Capt. Ernest Fletcher, Lieut. James Foreman, Capt. Richard Gammon, Capt. Denys Gilley, Capt. Clive Glynn, Capt. Herbert Golding, Lieut Robert Gordon, Capt. Frank Gorringe, Capt. Arthur Groom.

Capt. James Hardman, Capt. George Harrison, Capt. Reginald Hellier, Capt. John Hopkins.

Capt. Harold Ireland.

Capt. William Jackson, Capt. Thomas Jefferies, Capt. Olans Johnsen, Capt. Norman Jones, Lieut. Reginald Jones

Capt. Francis Kempster, Capt. Leslie King

Lieut. Charles Lavers, Capt. Walter Lawson, Capt. Harry Lett, Capt. Gwilym Lewis, Capt. Hugh Lloyd.

Major Donald MacLaren, Lieut. Finlay MacQuistan, Capt Frank McClurg, Capt. Thomas Middleton, Capt. Bertie Millson.

Lieut. Allen Nock

Capt. Harold Pearson, Capt James Pearson, Capt. John Pinder, Lieut. Walter Preston, Lieut. Harry Puckle.

Capt. Frank Ransley, Capt. William Redgate, Capt. Robert Reeve, Capt. George Reid, Capt. George Riley, Capt Leonard Rochford, Lieut. Herbert Rough.

Capt. Gordon Fox-Rule, Capt. Reginald Rusby.

Capt. William Samson, Capt. Alfred Sanderson, Capt. George Scaramanga, Capt. Thomas Sharpe, Capt. Percival Slater, Capt. John Austin-Sparks, Capt. James Sprott.

Lieut. Douglas Alliban, Capt. Charles Anderson, Lieut. Gerald Anderson, Lieut. Gordon Apps.

(To be continued.)

BUCKINGHAM PALACE, July 25th.

The following had the honour of being received by His Majesty :—Major-Gen. Sir Hugh Trenchard (Chief of the Air Staff), Brig.-Gen. C. L. Lambe (Director of Equipment, Royal Air Force) and Colonel A. M. Longmore, Royal Air Force.

BUCKINGHAM PALACE, July 26th.

His Majesty held an Investiture in the Quadrangle of the Palace at 11 o'clock.

The following were severally introduced into the presence of His Majesty, when The King invested them with the Insignia of the respective Divisions of the Orders into which they have been admitted :—

THE MOST EXCELLENT ORDER OF THE BRITISH EMPIRE.—Commander.—Military Division.—Lieut.-Col. Bryan Bartley, R.A.F.

THE DISTINGUISHED SERVICE ORDER.—Major Selden Long, R.A.F.

His Majesty then conferred decorations as follows :—

BAR TO THE DISTINGUISHED SERVICE CROSS.—Major Charles Bartlett, R.A.F.

THE MILITARY CROSS.—Major Stanley Clarke, Dorsetshire Regt., attd. R.A.F.; Capt. Overton Preston, R.A.F.; Lieut. Basil Smyth-Pigott, R.A.F.; Lieut. Leslie Williams, R.A.F.

NAVAL.

ADMIRALTY APPOINTMENT.

JULY 24th.—Wt. Shipwts.—R. S. Cole, to "Pegasus," July 23rd.

It is reported that at Pulham Airship Station the Air Ministry is testing whether airships can safely be moored by the nose to a mast from which they swing freely instead of being housed in sheds. These mooring experiments are said to be proving satisfactory. R.24, one of our older rigid airships, has been at the mooring mast for about three weeks. The steadiness with which she has ridden out winds up to 40 miles an hour has impressed spectators.

* * *

The British Naval flying-boat F.5-N.90, Major W. G. Sitwell, D.S.C., R.A.F., in command, which left England on July 19th for Scandinavia, arrived at Helsingfors from Reval at 6 p.m. on July 21st.

* * *

On July 21st a British Naval flying-boat, Major Galpin, R.A.F., in command, arrived at Christiansand from Dundee, and proceeded to Christiania the same day. This boat was one of the two flying-boats which recently started on an official tour of Scandinavia.

Of the two F5 boats which left Felixstowe for Christiansand only one (N 4044) has been successful. N4041 during its flight from its base to Dundee was forced to descend in Orford Bay, and owing to a thick fog only arrived at Dundee Seaplane Base on the 13th, two days after her sister ship.

Both left Dundee on the 20th for the trip across to Christiansand, but N4041 was forced to return to the Tay. From there she has made several attempts to continue her flight to Norway, but has now been recalled to her base at Felixstowe. N4041 left Dundee on the morning of July 25th for Felixstowe.

The Air Ministry have apparently recalled N4041 owing to the inclement weather conditions.

* * *

A body has been washed ashore by the sea at Salthouse, Norfolk, and it is thought to be that of a Flight Serjeant of N.S.11. The Naval Airship Station at Pulham, Norfolk, has been advised.

MILITARY.

FROM THE "LONDON GAZETTE."

WAR OFFICE, July 17th.

REGULAR FORCES.—Oversea Forces.—Canada.—New Brunswick R.—Temp. Lt. (actg. Maj.) P. C. Sherren, M.C., ceases to be secd. for duty with the R.A.F., May 2nd. 1st Cent. Ontario R.—Temp. Capt. G. M. Brawley ceases to be sec. for duty with the R.A.F., May 14th. Western Ontario R.—Temp. Lt. J. V. McKenzie ceases to be sec. for duty with the R.A.F., May 31st. Alberta R.—Lt. J. P. Cuninghame ceases to be sec. for duty with the R.A.F., July 2nd.

TERRITORIAL FORCE.—Hampshire Aircraft Parks.—Sec. Lt. A. L. Bird resigns his commn. and retains the rank of Sec. Lt., April 6th, 1918.

WAR OFFICE, July 22nd.

REGULAR FORCES.—INFANTRY.—5th Bn. Lancs. Fus.—Lt. S. H. Hodges is seconded with R.A.F., July 24th, 1918.

MEMORANDUM.—Sec. Lt. C. Probets, attd. R.A.F., retires, receiving a gratuity, July 23rd.

WAR OFFICE, July 24th.

REGULAR FORCES.—MEMORANDUM.—Col. H. O'Donnell, from Comdt., R.A.F. Sch., to be Comdt of a Rest Camp, vice Hon. Brig.-Gen. F. D. Lumley, C.B., O.B.E., ret. pay, May 6th.

INFANTRY.—Rif. Brig.—F. W. F. Turner (temp. Sec. Lt., R.A.F.), to be temp. Sec. Lt., Sept. 14th, 1918.

REGULAR FORCES.—OVERSEAS FORCES.—CANADA.—Nova Scotia R.—Temp. Maj. V. Hodson ceases to be secd. for duty with the R.A.F., April 2nd.

QUEBEC R.—Temp. Capt. W. I. Bailey is secd. for duty with the C.A.F. as a Flying Officer (Adjt.), Feb. 8th. The following cease to be secd. for duty with the R.A.F. :—Temp. Lt. G. A. Barry, April 19th; Temp. Capt. M. L. Doyle, D.F.C., Temp. Lt. E. J. Mills, July 6th; Temp. Lt. (actg. Capt.) P. O. B. L. Baucher dit Morency, July 7th; Temp. Lt. G. M. Guillon, July 7th.

EASTERN ONTARIO R.—Temp. Lt. L. R. McKenna ceases to be secd. for duty with the R.A.F., July 3rd (substituted for "Gazette" notification May 23rd, page 6440, incorrectly specifying date as April 25th). Temp. Lts. cease to be secd. for duty with the R.A.F. :—A. E. de M. Jarvis, D.F.C., A. C. Lobley, July 7th. Temp. Lts. are secd. for duty with the C.A.F. as Lts. (Flying) :—A. E. de M. Jarvis, D.F.C., A. C. Lobley, July 8th.

1ST CENTRAL ONTARIO R.—Temp. Lts. cease to be secd. for duty with the R.A.F. :—F. V. Heakes, July 3rd; K. B. Conn, D.F.C., July 7th; Temp. Capt. J. O. Leach, M.C., D.F.C., ceases to be secd. for duty with the C.A.F., July 8th; Temp. Lt. F. V. Heakes is secd. for duty with the C.A.F. as Lt. (Flying), July 4th; Temp. Lt. A. G. Lough is secd. for duty with the Technical and Supply Branch, C.A.F., as Lt. (Technical), May 17th to July 7th

2ND CENT. ONTARIO R.—Temp. Lt. J. C. McKeever ceases to be secd. for duty with the R.A.F., July 7th; Temp. Lt. J. C. McKeever is secd. for duty with the C.A.F. as Lt. (Flying), July 8th

WEST ONTARIO R.—Temp. Lt. L. Rimmer, M.M., ceases to be secd. for duty with the R.A.F., July 4th.

Manitoba R.—Temp. Lts cease to be secd. for duty with the R.A.F. :—J. Whitford, July 7th; S. M. Oibson, July 8th; Temp. Lt. J. Whitford is secd. for duty with the C.A.F as Lt. (Flying), July 8th.

Saskatchewan R.—The following ceasc to be secd. for duty with the R.A.F. .—Temp. Lt. (actg. Capt.) C. McEwen, M.C., D.F.C., Temp. Lt. W. L. Rutledge, M.M., July 7th; Temp. Capt. R. Duncan, M.C., July 8th; Temp. Lts. are secd for duty with the C.A.F. as Lt. (Flying) :—(actg. Capt.) C. McEwen, M.C., D.F.C., W. L. Rutledge, M.M., July 8th.

Alberta R.—Temp. Lts. cease to be secd. for duty with the R.A.F. :—J. S. Russell-Rigby, July 3rd; H. G. Clements, July 6th.

Can. Mach. Gun Corps.—Temp. Lts cease to be secd. for duty with the R.A.F. :—(actg. Capt.) J. L. M. White, D.F.C., J. E. Palmer, D.C.M., July 7th; Temp. Lt. J. E. Palmer D.C.M., is secd. for duty with the C.A.F. as Lt. (Flying), July 8th

Can. Cyclist Corps.—Temp. Lt. H. L. Holland, M.C., ceases to be secd. for duty with the R.A.F., July 7th; Temp. Lt. H. L. Holland, M.C., is secd. for duty with the C.A.F. as Lt. (Flying), July 8th.

Can. A.S.C.—Temp. Capt. D. Carruthers ceases to be secd for duty with the R.A.F., July 7th; Temp. Capt. D. Carruthers is secd. for duty with the C.A.F. as Lt. (Flying), July 8th.

War Office, July 25th.

Regular Forces.—Memorandum.—Lt. G. M. Lees, M.C., D.F.C., R.A., to be temp. Capt. while empld. as an Asst. Political Officer, March 14th

War Office, July 26th.

Regular Forces Establishments.—R.F.C.—Mil. Wing, Flying Officer.—The appointment of temp. Sec. Lt. R. E. Stewart, Gen. List, is antedated to Aug. 23rd, 1917.

Memorandum.—Sec. Lt. H. Shoosmith, R.A.F., to be temp. Sec. Lt., Gen. List, June 27th

AIR FORCE.

From the "London Gazette."

Air Ministry, July 15th.

CONFERRED BY THE KING OF THE BELGIANS.

Croix de Commandeur de l'Ordre de Leopold.

Maj.-Gen. Sir W. S. Brancker, K.C.B., A.F.C. (R.A.), Ret List.
Maj.-Gen. Sir F. H. Sykes, K.C.B., C.M.G. (15th Hrs.).

Croix d'Officier de l'Ordre de Leopold, avec Croix de Guerre.

Lt.-Col. H. A. V. Ryneveld, D.S.O., M.C.

Croix de Chevalier de l'Ordre de Leopold, et Croix de Guerre avec Palme.

Capt. (actg Maj.) C. G. Beatson (Midd'x R.).
Capt. (actg. Maj.) J. A. Cochrane, M.C. (5th R. Sc. F.); Maj. (actg. Lt.-Col.) J. A. Cunningham, D.S.O., D.F.C. (R.A.), Ret. List
Lt.-Col. H. M. Meyler, D.S.O., M.C. (Bord. R.).

Croix de Chevalier de l'Ordre de la Couronne, et Croix de Guerre avec Palme.

Lt.-Col. A. S. Barratt, C.M.G., M.C. (R.A.)
Maj. G. Henderson (C.I. Horse).
Maj. R. E. Saul, D.F.C. (4th Squadron).
Lt. F. Whitehead (late 5th Squadron) (Lanc. Yeo.).

Croix de Guerre (Belgian).

Lt. A. H. A. Alban, D.F.C. (53rd Squadron) (R.F.A.); Lt. H. A. Allback (36th Balloon Sec.); Lt. (actg. Capt.) C. P. Allen (204th Squadron); Lt. E. O. Amm, D.F.C. (29th Squadron); Maj. A. R. Arnold, D.S.C., D.F.C. (79th Squadron); Capt. R. N. G. Atkinson, M.C., D.F.C. (206th Squadron); Lt. C. T. Aulph (10th Squadron).

Capt. G. W. Biles, D.F.C. (202nd Squadron); Capt. (actg. Maj.) G. H. Bowman, D.S.O., M.C., D.F.C. (3rd R. War.) (41st Squadron); Lt. N. K. Brooks (32nd Balloon Sec.) (R.F.A., S.R.); Sec. Lt. H. D. Buchanan (108th Squadron); Sec. Lt. C. H. Bullen (10th Squadron); Capt. L. A. K. Butt (2nd Bde.) (S. Staffs. R.).

Capt. (actg. Maj.) K. L. Caldwell, M.C., D.F.C. (74th Squadron); Sec. Lt. R. O. Campbell (65th Squadron); Maj G. V. Carey (2nd Wing) (Rif. Bde.); Sec. Lt. (Hon. Capt.) W. A. Carruthers, D.F.C (206th Squadron (Can. Inf.); Sec. Lt. (actg. Capt.) H. G. Clappison (204th Squadron); Sec. Lt. C. A. Crichton (70th Squadron)

Capt. S. L. Dashwood, M.B.E. (2nd Bde.); Lt. C. Davies (23rd Balloon Sec.); Sec. Lt. D. W. Davies (217th Squadron); Sec. Lt. E. C. Davies, D.F.C. (29th Squadron); Maj. C. H. Dixon, M.C., D.F.C. (29th Squadron) (York. L.I.).

Lt. L. L. Falck (36th Balloon Sec.); Sec. Lt. S. E. Foreman (7th Squadron).

Sec. Lt. A. J. Garside, D.F.C. (206th Squadron), Lt. (actg. Capt.) J. S. Giffard (5th Balloon Co.); Lt. (actg. Capt. F. W. Gillett, D.F.C. (74th Squadron); Capt. A. W. F. Glenny, M.C., D.F.C. (R.A.S.C.); Maj. G. W. M. Green, D.S.O., M.C. (70th Squadron), Sec Lt. F. S. Gordon, D.F.C. (74th Squadron); Capt. H. W. Guy (11th Wing)

Capt. D. S. W. Hambley (11th Aircraft Park); Lt. (actg. Capt.) T. S. Harrison, D.F.C. (29th Squadron); Sec Lt. (Hon. Lt.) J. B. Heppel (206th Squadron); Sec. Lt. (actg. Capt.) O. A. P. Heron, D.F.C. (70th Squadron); Lt. J. Hetherington (214th Squadron); Lt. G. S. Hodson, A.F.C. (213th Squadron); Lt. (actg. Capt.) M. L. Horn (2nd Bde.).

Lt. C. H. Jenkinson (9th Balloon Sec.); Lt G. R. Judge (217th Squadron); Lt. E. B. Keele (30th Balloon Sec.).

Lt. (actg. Capt.) A. C. Kiddie, D.F.C. (74th Squadron).

Lt. (actg. Capt.) C. H. R. Tagesse, D.F.C. (29th Squadron).

Lt. (actg. Capt.) W. J. Mackenzie, D.F.C. (213th Squadron); Capt. (actg. Maj.) C. T. MacLaren, O.B.E. (206th Squadron); Sec. Lt. H. McLean, D.F.C (206th Squadron); Lt M. P. MacLeod, D.F.C. (41st Squadron).

Maj. C. G. Martyn (2nd Aircraft Park) (1st Mon. R.); Lt. G. Mawer (204th Squadron); Lt. A. R. Morrison (15th Balloon Sec.); Maj. K. D. P. Murray, M.C. (10th Squadron).

Lt. M. Nichol (214th Squadron); Lt. J. J. W. Nicholson, D.F.C. (202nd Squadron); Lt. F. St. J. North (23rd Squadron) (Balloon Sec.); Maj. E. W. Norton, D.S.C. (204th Squadron).

Sec. Lt. (Hon. Lt.) C. M. W. Park (2nd Res. Lorry Park); Maj. S. J. Payne (5th Aircraft Park); Lt. C. W. Payton (210th Squadron), Lt (actg. Capt.) F. Pratt (38th Squadron).

Lt. (actg. Capt.) C. G. Ross, D.F.C. (29th Squadron); Capt. (actg. Maj.) F. T. Ryan, M.C. (2nd Wing) (R.G.A.); Sec. Lt. M. G. Ryan (10th Squadron).

Lt. W. W. Saunders (7th Squadron); Lt. R. H. Schroeder (late 4th Squadron) (Can. Inf.); Lt. R. A. Skelton (22th Balloon Sec.) (R.G.A., S.R.); Capt (actg. Maj.) J. B. Solomon, M.C. (82nd Squadron); Capt. D. S. Stevenson, M.B., M.B.E. (217th Squadron); Maj. (actg. Lt.-Col.) B. E. Sutton, D.S.O., O.B.E., M.C. (7th Squadron) (West and Cumbld. Yeo.).

Lt. E. G. L. Ward (4th Squadron); Sec. Lt. H. R. Watterson (18th Balloon Sec.); Lt. (actg. Capt.) I. Welby, M.C., D.F.C. (7th Squadron); Lt. G. A. Welsh (210th Squadron); Lt. E. H. Wilford (2nd Balloon Sec.); Capt. E. A. E. Wood (2nd Bde.); Sec. Lt. H. C. Wood, D.F.C. (48th Squadron).

Lt. F. Coolley, D.F.C. (70th Squadron).

214412 Serjt.-Mech. G. Betteridge, D.F.M. (206th Squadron); 52748 Cpl.-Mech. F. H. C. Bishop (38th Bal. Sec.); 13489 A.M./1D. A. Bissett (4th Squadron); 223740 Serjt.-Mech. J. Chapman, D.F.M. (206th Squadron); 23702 A.M./1 W. M. Cutts (7th Bal. Co.); 24059 A.M./1 W. Dick (17th Bal. Co.); 34165 Serjt-Clk. J. Elliott (11th Wing); 4447 Serjt.-Mech. N. Lynn (4th Squadron); 93272 Serjt.-Mech. G. I Packman, D.F.M. (206th Squadron); 6260 Serjt.-Mech. J. E. Walsh (4th Squadron).

Croix de Chevalier de l'Ordre de Leopold II, avec Croix de Guerre.

100083 Serjt.-Mech. N. Hunt (48th Squadron); 175 Serjt.-Maj. C. E. Martin (74th Squadron); 4201 Ch. Mech. B. W. Wilson (5th Squadron).

Decoration Militaire avec Croix de Guerre

8886 Ch. Mtr. Mech. J. F. Biggs (65th Squadron); 8715 1st C. Pte. C. H. Bird (2nd Bde.); 24154 Cpl. H. A. Horne (39th Ball. Sec.); 18875 1st C. Pte. E. Nancekievill (2nd Bde.); 15342 Cpl.-Mech. G. Smith (25th Ball. Sec.); 110761 Serjt.-Mech. R. L. G. White (48th Squadron); 134872 Cpl. H. Wildman (2nd Wing).

(To be continued.)

Air Ministry, July 18th.

R.A.F.—The following temp. appt. is made at the Air Ministry :—Staff Officer, 3rd Class (P.).—Lt. (actg. Capt.) D. F. Fox, Feb. 19th, and to retain the actg. rank of Capt. till April 30.

The following temp. appts. are made :—Group Comdr. (graded as Col. Staff).—Lt.-Col. C. E. H. Rathbone, D.S.O., April 25th, vice Lt.-Col. H. A. Williamson, C.M.G.

Staff Officer, 2nd Class (Air).—Capt. G. S. Trewin, A.F.C., July 6th.

Staff Officer, 3rd Class (P.).—Sec. Lt. (actg. Lt.) J. M. McEntegart, Dec. 20th, and to be actg Capt. till April 30th (substituted for the notification in the "Gazette," Jan. 21st).

The notification in the "Gazette" of June 20th, concerning Lt. G. H. Godfrey, is cancelled.

Flying Branch.—Capt. C. E. H. C. Macpherson ceases to be graded for purposes of pay and allowances of Maj. (A.), May 31st.

Capt. H. C. Irwin to be graded for purposes of pay and allowances as Capt. while empld. as Capt. (A. and S.), May 1st.

Lts. to be granted for pay and allowances as Capts. while empld. as Capts. (K.B.) :—W. C. Knight, C. K. Osborn, May 1st.

J. A. Sykes (Lt., Gordon Highrs.) is granted a temp. commn. as Sec. Lt (A.), June 28th, 1918, and to be Hon. Lt.

A. Jenart (Sec. Lt., York and Lancs. R.) is granted a temp. commn. as Sec. Lt. (O.), Oct. 25th, 1918.

Lt. D. S. Buchanan (Lt., I.A.R.O.) relinquishes his commn. on revision to I.A.R.O., July 18th.

The following relinquish their commns. on ceasing to be empld. :—Lt.-Col. R. Bell-Irving (Maj.) (Temp. Lt.-Col.), Brit. Col. R.), April 9th; Lt. V. O. Lonsdale (Lt., R.H. and R.F.A.), June 30th; Lt. F. V. Heakes (Lt., Cent. Ont. R.), July 3rd; Lt. L. Rimmer (Lt., W. Ont. R.), July 4th; Lt. W. C. Brewer (Lt., W. Ont. R.), July 6th; Capt D. Carruthers (Capt., Can. A.S.C.), Lt. H. G. Clements (Lt., Alberta R.), Lt. K. B. Conn, D.F.C. (Lt., Cent. Ont. R.); Lt. G. M. Guillon (Lt. Quebec R.), Lt. H. L. Holland (Lt., Can. Cyclist Corps), Lt. C. McEwen, M.C., D.F.C. (Lt. (actg. Capt.) Sask. R.), Lt J. C. McKeever (Lt., Cent. Ont. R.), Lt. P. B. O. L. B. Morency (Lt., Quebec R.), Lt. J. L. M. Wuite, D.F.C. (Lt. (actg. Capt.), Can. M.G.C.), Sec. Lt. (Hon. Lt.) J. Whitford (Lt., Manitoba R.), July 7th; Lt. R. L. Coote (Lt., W. Ont. R.), Lt. S. M. Gibson (Lt. Manitoba R.), July 8th; Sec. Lt. (Hon. Capt.) F. G. Godsell (Lt. Gloster R., T.F.), Lt. S. B. Plummer (Lt., E. Ont. R.), Lt. G. L. Shepherd (Lt., W. Ont. R.), July 9th.

Transferred to unempld. list :—Lt. G. P. P. Wash, Jan. 31st; Sec. Lt. E. M. Harris, Sec. Lt. W. A. Scarlett, Feb. 11th; Sec. Lt. Alex Sorley, Feb. 16th; Sec. Lt. J. M. Scott, Feb. 18th; Lt. (Hon. Capt.) R. C. G. Somervell, Feb. 20th; Sec. Lt. E. A. Whitelock, March 1st; Sec. Lt. R. G. Lamotte, March 6th; Lt. H. V. Lewis, Lt. W. S. Walton, March 7th; Sec. Lt. F. Schorn, March 8th; Sec. Lt. G. C. McCullum, March 15th; Sec. Lt. R. Barrett (Lincolnshire R., T.F.), March 19th; Lt. G. Russell (R.F.A., T.F.), April 1st; Lt. G. J. Smith, Capt. (actg. Maj.) S. O. Smith, April 2nd; Sec. Lt. J. Scott, April 4th; Lt. (Hon. Capt.) G. S. St. Noble, April 5th; Lt. (actg. Capt.) R. A. Preston, April 6th; Sec. Lt. J. Simpson, April 8th; Lt. H. M. Schlotel, Sec. Lt. (Hon. Lt.) M. C. Sexton, Lt. E. W. Swann, April 9th; Lt. (actg. Capt.) D. Latimer, M.C., D.F.C., Sec. Lt. L. C. Lewis, Sec. Lt. G. C. Schofield, Lt. E. P. Speakman, April 10th; Sec. Lt. F. H. Lane, Sec. Lt. D. Miller, Lt. E. A. Sullock, Lt. (actg. Capt.) C. Sutherland, D.F.C., April 11th; Lt. K. V. C. Lewis, Lt. L. E. Shaw-Lawrence, M.C., Lt. D. Sear, April 13th; Sec. Lt. A. C. Langtry, Lt. F. K. Laver, Sec. Lt. B. G. Lees, Lt. J. S. Lennox, Lt. B. O. M. Linford, Sec. Lt. J. F. Mason, Lt. W. Steele, D.F.C., Lt. W. W. Symmons, April 15th; Lt. T. W. Sclater, Sec. Lt. G. Senior, Lt. W. Spencer, April 16th; Lt. A. D. M. Lewis, Lt. G. W. Stallard, Sec. Lt. T. Swinburne, April 17th; Sec. Lt. S. Lane, Sec. Lt. E. W. Smith, Sec. Lt. F. J. Smith, Sec. Lt. A. Sutton, April 18th; Sec. Lt. H. D. Chandler, Sec. Lt. G. P. Styles, April 19th; Sec. Lt. F. O. Bovill, Sec. Lt. O. T. Jannasch, Sec. Lt. G. Parsons, Sec. Lt. A. V. Speight, April 20th; Lt. L. P. Sedgwick, Sec. Lt. G. W. N. Simpson, Sec. Lt. A. Swindale, April 21st; Lt. N. D. Lambert, Sec. Lt. C. F. Lamont, Lt. A. V. Quinnell, April 22nd, Lt. (actg. Capt.) H. S. Marten-Smith, Sec. Lt. E. A. Seal, Sec. Lt. E. Sykes, April 24th; Lt. W. G. Stewart, April 25th; Sec. Lt. W. Leake, Sec. Lt. E. V. G. Stock, April 26th; Lt. F. C. Shirtcliffe, April 29th; Sec. Lt. H. A. Scobell, Lt. L. M. Shadwell, Sec. Lt. W. Sharples, Sec. Lt. R. R. Simmons, April 30th; Sec. Lt. Finlay Shaw, May 1st; Sec Lt. H. J. E. Smith, Sec. Lt. H. Smith, Lt. E. C. Stringer, Sec. Lt. A. J. Stubbings, Sec. Lt. F. N. Sutherland, Capt J. H. Tyler, May 2nd; Capt. R. H. Sharp, D.F.C., May 4th; Sec. Lt. A. B. Lamont, May 5th; Lt. T. T. Shipman, Sec. Lt. E. H. S. Tye, May 6th; Lt. J. C. F. Simpson, May 7th; Sec. Lt. W. F. Langford, Lt. P. Leigh, Sec. Lt. C. Sneesby, May 8th; Sec. Lt. V. W. Lindars, Sec. Lt. W. Smith, May 9th; Sec. Lt. J. Lightoller, Sec. Lt. A. W. Martin, May 10th; Sec. Lt. S. H. H. Swanton, May 11th; Sec. Lt. L. W. Seaby, Sec. Lt. (Hon. Lt.) R. P. Simmers, Lt. H. L. W. Stevens, May 12th; Sec. Lt. S. F. B. Lea, Sec. Lt. C. R. Smallwood, May 13th; Capt. A. E. Sole, May 15th; Lt. J. W. Schofield, May 16th; Sec. Lt. F. R. G. Spikins, May 18th; Sec. Lt. G. S. C. Lang, Sec. Lt. G. E. Lewtas, Lt. C. H. Lick, May 20th; Sec. Lt H. Woffenden, May 21st; Sec. Lt. A. A. C. N. Smith, May 22nd; Lt. A. Lewis, May 23rd; Sec. Lt. A. R. Lamb, May 24th; Capt. C. J. Smith, May 25th; Sec. Lt. W. H. B. Lamb, Sec. Lt. C. R. Southey, May 26th; Lt. W. L. Boness, Lt. B. FitzW. Levett, Sec. Lt. T. F. Strange, May 27th; Sec. Lt. F. J. Bodenham, Sec. Lt. F. Lake, Sec. Lt. N. Sillars, Lt J. H. Smith, Lt. E. R. L. Sproule, May 28th; Sec. Lt E. H. Simmons,, Sec. Lt. C. D. Stephenson, Sec. Lt. F. R. Yelland, May 29th; Lt. H. J. Bowen, Lt. H. E. Browne, May 30th; Lt. J. D. Bowman, Lt. H. Brooks, Lt. L. H. Brown, Lt. E. Bryant, Capt. E. G. Landon, A.F.C., Sec. Lt. (Hon. Lt.) G. M. Lawson, M.C., Sec. Lt. L. F. E. Smith, May 31st; Lt. E. W. Shaw, Sec. Lt. L. J. Swann, June 1st; Sec. Lt. G. Brown, Lt. T. H. M. Brown, Capt. G. G. Simpson, June 2nd; Capt. E. A. Bolton, Lt. T. B. Bruce, Sec. Lt. F. Masson, Lt. H. Scandrett, Lt. T. H. E. L. Smale, Lt H. A. Sparks, Lt. L. Speller, Lt. E. Steel, June 3rd; M.C. Sec. Lt. G. A. Brown, Sec. Lt. W. C. Loutitt, Lt. G. J. E. Smith, Sec. Lt. (Hon. Lt.) H. Symons, Sec. Lt. V. Vickers, June 4th; Sec. Lt. H. P. Bowring, Lt H. P. D. Lane, Capt. J. M. McAlery, Lt. A. L. Ouance, Lt. F. Spalding, Lt. C. S. Style, June 5th; Capt. E. S. Moolton-Barrett, Lt. A. S. Selby, Sec. Lt. W. G. Souchon, Lt F. S. Symondson, M.C., June 6th; Lt. G. Lea, Sec. Lt. H. Phillips, D.F.C., Sec. Lt. W. A. Smailes, June 7th; Lt. L. Latham, June 8th; Lt.

K .G. Brabner, Sec. Lt. I. B. MacBean (King Edward's Horse), June 10th; Sec. Lt. (Hon. Capt.) G. E. Lange, Lt. A. D. Light, June 11th; Sec. Lt. F. H. Newton, Capt. C. A. Stephenson, June 12th; Lt. D. Lindsay, Sec. Lt. N. H. Marshall, Sec. Lt. R. C. Stiven, Sec. Lt. G. S. Taylor, Lt. J. G. Vicqueray, June 13th; Lt W. H. Leighton, Sec Lt. H. M. Leith, Sec. Lt. A. H. C. McGivern, Lt. D. H. Prosser, June 14th; Lt. E. Langston, Lt. D. D. O'Flaherty, June 15th; Sec. Lt. N. T. Brookes, Sec. Lt. E. McConnell, Sec. Lt. J. E. Marigold, June 16th; Lt. R. K. Rose, June 17th; Sec. Lt. J. Scholteneyer, June 18th; Lt. W. F. Woods (London R., T.F.), June 19th; Sec. Lt. G. J. Cross, Sec. Lt. M. Thornton, June 20th; Sec. Lt. D. Leech, June 21st; Capt. G. S. Murray, June 22nd; Lt. J. C. Forsyth, M.C. (Black Watch), June 24th; Lt. F. W. Morter, June 25th; Sec. Lt. I. L. R. Large, Lt. G. Tucker, June 26th; Sec. Lt. N. E. Chapman, June 27th; Lt. A. W. Slater (R.A.S.C.), June 28th; Lt F. V. Sheard, Lt. G. A. Wightman, June 29th; Lt. H. J. Lindo, Lt. R. F. Millard, Sec. Lt. G. I. Thompson, D.F.C., June 30th; Capt. C. D. Fellowes, M.C., A.F.C. (Staffs. Yeo.), Sec. Lt. J. F. McNamara, Sec. Lt. W. J. Tansey, July 1st; Lt. C. E. O. Cowell, Lt. W. E. McLean, M.C., Lt. J. C. Matthews, July 2nd; Capt. G. C. Corry-Smith, Lt. C. W. Leggatt, Capt. R. W. Reeve, D.F.C. (Herefordshire R., T.F.), Sec. Lt. R. W. Silk, Lt. V. H. Simmers, Sec. Lt. S. W. Smith, July 3rd; Lt. (Hon. Capt.) F. R. Ashmead, Lt. M. Balston (R.F.A.), Sec. Lt. E. R. Beesley, Lt. G. J. L. Campbell (London R., T.F.), Sec. Lt. (Hon. Lt.) H. S. Gargett, Sec. Lt. W. C. Parry, July 4th; Sec. Lt. R. Hooley, July 5th; Lt. I. E. McIntyre, A.F.C., Sec. Lt. (Hon. Lt.) H. C. G. Newton, Sec. Lt. N. M. Smith, July 6th; Sec. Lt. R. H. Byrom, July 7th; Sec. Lt. W. M. Crofton, Sec. Lt. A. B. Mair, July 8th; Sec. Lt. G. W. L. Anderson, Lt. T. R. Bloomfield, Lt. J. J. St. L. Martin, Sec. Lt. H. B. Singleton, July 9th; Sec. Lt. A. L. R. Aspelling, Sec. Lt. H. P. Ayres, Sec. Lt. J. E. Baker, Lt. H. K. Baron, Sec. Lt. J. Clayton, Lt. A. E. Leggo, Lt. A. L. Porter, July 10th; Lt. J. W. Adams, Sec. Lt E. C. Archer, Sec. Lt W. C. B. Ashfield, Sec. Lt. P. W. Atkins, Lt. V. Beeton, Sec. Lt. W. V. Berry, Sec. Lt. R. H. Berryman, Lt. C. G. Carter, Sec. Lt. F. T. Chouler, Sec. Lt. R. J. Clench, Sec. Lt C. A. Court, Sec. Lt. A. L. Fachnie, Sec. Lt. E. D. Fenn, Sec. Lt. J. D. Gallwey, Maj. R. J. Hudson, M.C. (substituted for notification in "Gazette," March 4th), Sec. Lt. C. P. McCuaig, Sec. Lt. H. E. G. Phillips, Sec. Lt. G. D. Stewart, Lt. A. E. Thornhill, Lt. L. L. F. Towne, July 11th; Sec. Lt P. B. Agur, Sec. Lt. C. H. Ahrens, Sec. Lt. L. L. Allen Sec. Lt. E. J. Atherton, Lt. F. H. Baguley, Sec. Lt. H. S. Baines, Sec. Lt. H. R. Baker, Sec. Lt. R. W. Ball, Sec. Lt. W. Ballentyne, Sec. Lt. J. E. Bancroft, Sec. Lt. W. G. Banting, Sec. Lt. Ralph Barrett, Lt. M. G. Baskerville, Capt A. Bell-Irving, M.C., Sec Lt. D. H. T. Blake, Sec. Lt. W. W. V. Blaricom, Sec. Lt. G. Bolstad, Lt. J. W. Boulter, Sec. Lt. H. Broadberry, Sec. Lt. L. F. Callaway, Lt. W. H. Cameron, Sec. Lt. J. A. Carswell, Sec. Lt. V. L. Child, Sec. Lt. I. W. Clarke, Sec. Lt. K. de W. Cleveland, Sec. Lt. W. McG. Cochrane, Sec. Lt. F. E. Convery, Lt. H. D. Copland, Sec. Lt. I. B. Corey, Sec. Lt. H. P. Crabb, Sec. Lt. H. E. Crane, Lt A. R. Cross, D.F.C., Lt. A. L. Cuffe, Sec. Lt. F. J. Currier, Sec. Lt. A. B. de Wolfe, Sec. Lt. G. R. T. Donaldson, Sec. Lt. D. K. Donelly, Sec. Lt. G. E. Driscoll, Lt. H. E. Dunseith, Sec. Lt. L. D. Farmer, Sec. Lt. W. T. Ferguson, Sec. Lt. W. W. Ferguson, Sec. Lt. G. McM. Findlay, Sec. Lt. J. H. Findlay, Sec. Lt. W. T. R. Flemington, Sec. Lt. C. C. Fox, Sec. Lt. G. Fraser, Sec. Lt. C. R. Fulford, Sec. Lt. T. H. Garlick, Capt. J. L. Gordon, D.F.C., Sec. Lt. G. H. Grieve, Lt. P. F. Gyles, Sec. Lt. H. C. Hagaman, Sec. Lt. M. L. Hall, Sec. Lt. P. Harris, Sec. Lt. J. G. Harvie, Lt. E. N. Hately, Sec. Lt. V. H. Hervey, Sec. Lt. B. J. Hill, Sec. Lt. W. McK. Howell, Lt. E. R. Huston, Capt. W. R. Kenny, Lt. L. Kinet, Sec. Lt. P. A. King, Sec. Lt. R. W. Laidlaw, Lt. C. I. Lancefield, Sec. Lt A. Lawrence, Sec. Lt. G. E. Lillico, Sec. Lt. H. S. Littlejohn, Sec. Lt. F. R. Livingston, Sec Lt. L. K. Lloyd, Lt W. C. Lynch, Sec. Lt. J. G. McCarthy, Lt. D. S. C. Macaskie, Lt. W. F. McCarthy, Lt. A. F. MacDonald, Sec. Lt. U. T. MacDonald, Sec. Lt. T. J. W. McFadden, Sec. Lt. F. D. McGuire, Sec. Lt. J. A. Mackay, Sec. Lt. R. G. McLaren, Sec. Lt. R. St. C. McLaughlin, Sec. Lt. J. E. McLellan, Sec. Lt. C. R. McLeod, Sec. Lt. A. M. McMorran, Sec. Lt. S. R. McNown, Lt. H. Macpherson, Sec. Lt. N. A. W. MacQueen, Sec. Lt. F. S. E. McRae, Sec. Lt. D. F. McTavish, Lt. E. G. R. Maillet, Sec. Lt. R. Maranda, Sec. Lt. W. Marginson, Sec. Lt. C. A. Maxwell, Sec. Lt N. S. May, Sec. Lt. A. Meville, Sec. Lt. J. L. Miller, Sec. Lt. R. C. Mitten, Sec. Lt. R. Morrison, Sec. Lt. G. E. Mullin, Sec. Lt. W. G. G. Murdock, Sec. Lt. G. A. Nicholls, Sec. Lt. E. F. Nicholson, Lt. R. E. Norman, Sec. Lt. A. J. O'Neill, Sec. Lt. J. A. O'Neill, Sec. Lt. V. O'Neill, Sec. Lt. C. B. Parsons, Sec. Lt. L. H. Parsons, Sec. Lt. W. J. Penningroth, Sec. Lt. W. R. Penny, Sec. Lt. C. A. Pienaar, Lt. E. G. Plum, Lt. F. H. Prime, Sec. Lt. L. W. Prime, Sec. Lt. G. C. Rayden, Lt. H. A. Urquhart, Lt. K. B. Watson, D.F.C. (substituted for notification in "Gazette," July 11th), Lt. A. N. Westergaard, July 12th; Lt. C. B. Mellor, Lt. G. J. Wilde, July 13th; Sec. Lt. H. Cheetham, Sec. Lt. H. D. Christie, Lt. R. S. Phelan, Sec. Lt. H. D. Riddell, July 14th; Capt. H. J. Larkin, D.F.C., July 15th; Sec. Lt. G. H. Keat, Lt. A. R. Strang, July 16th; Sec. Lt. G. A. Elliott, Sec. Lt. W. Middleton, Sec. Lt. R. R. Morton, Sec. Lt. R. E. Napier, Sec. Lt. M. H. Otway, July 17th; Sec. Lt. A. B. D. Campbell, Sec. Lt. J. A. Martin, Sec. Lt. J. G. M. Mathewson, July 18th.

Capt. B. S. Wemp, D. F. C., relinquishes his commn. on account of ill-health contracted on active service, and is granted rank of Maj., June 13th.

The following Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank :—S. C. Shepherdson (contracted on active service), June 19th; R. G. Pratt, June 27th (substituted for notification in "Gazette," April 8th); J. W. Baillie, F. R. C. Cobbold (caused by wounds), R. A. Crabtree (contracted on active service, July 4th); F. C. A. Thorpe (caused by wounds), C. G. Wood (contracted on active service), July 7th; Lt. W. G. R. Bailes (caused by wounds), July 11th.

Lt. H. L. Yates resigns his commn., June 18th (substituted for notification in "Gazette," May 13th).

Lt. G. G. L. Blake, D.F.C., D.C.M., to take rank and precedence as if his appointment as Lt bore date, March 17th.

The following Sec. Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank :—C. E. Robinson (caused by wounds), July 4th; G. V. Straker, July 10th (substituted for notification in "Gazette," June 6th)

Sec. Lt. C. Oldfield is removed the Service for absence without leave, Jan. 26th.

The notification in "Gazette," March 28th, concerning Sec. Lt. J. M. Scott is cancelled.

The notification in "Gazette," May 30th, concerning Lt. I. D. Brown is cancelled.

The notification in "Gazette," June 3rd, concerning Lt W. E. Watt is cancelled (the notification in "Gazette," April 4th to stand).

The notification in "Gazette," June 17th, concerning Lt C. C. G. Girvan is cancelled.

The notification in "Gazette," June 24th, concerning Sec. Lts. T. Mundy and E. A. Murray is cancelled.

ADMINISTRATIVE BRANCH.—Lt.-Col. G. Hilton, D.C.M., to be Lt.-Col., from (S.O.), July 6th.

Lt. A. B. Monk to be actg. Capt. while empld. as Capt., from Nov. 30th, 1918, to April 30th (substituted for notification in "Gazette," May 23rd)

Lts. to be graded for purposes of pay and allowances of Capts. while empld. as Capts. :—S. Currington, M.B.E., R. Elphick, (Hon. Capt.) L. V. Popkiss, May 1st.

Lts. (A.) to be Lts. :—J. H. Taylor, May 6th; H. A. Zinn, July 8th.

Lt. G. A. F. Hudson to be Lt., from (S.), July 25th (substituted for notification in "Gazette," July 15th).

Sec. Lts. to be Lts. :—G. D. Ashby, Oct. 20th, 1918; (actg. Capt. G. T. Armitage, Dec. 17th, 1918

The following are granted temp. commns. as Sec. Lts. :—C. Jackson, Nov. 21st, 1918; C. J. Elliott, July 14th.

The following relinquish their commns. on ceasing to be empld. :—Lt. S. P. Briggs (Lt., Northants R.), June 16th; Sec. Lt. (Hon. Capt.) D. M. Berry (Capt., R. Fus.), June 25th.

Transferred to unempld. list :—Lt. (actg. Capt.) G. Southern, Jan. 23rd; Lt. A. A. Bowes, Feb. 17th; Sec. Lt. R. A. Smith, Feb. 28th; Sec. Lt. J. W. Smith, Sec Lt. H. C. Smith, March 12th; Sec. Lt W. W. H. Lee, April 11th; Sec. Lt. J. Lewis, Sec. Lt. G. H. Stanley, April 12th; Sec. Lt. H. Smith, D.F.C., April 13th; Sec. Lt. T. Smith, April 18th; Sec. Lt. H. T. Cock, Sec. Lt. S. H. Meitjes, April 20th; Sec. Lt. R. H. Norris (North'd Fus.), Capt. C. D. Smart, M.C., April 22nd; Capt. (actg. Maj.) W. V. Sherwell, April 30th; Sec. Lt. W. M. Limb, May 3rd; Sec. Lt. C. W. Sutcliffe, Sec Lt. D. Sparrow, May 15th; Lt. C. B. Stead, May 20th; Lt. F. Sumpter, May 22nd; Sec. Lt. V. D. Smith, May 23rd; Lt. J. U. G. Lamond, May 27th; Capt. J. G. Levy, May 29th; Capt. J. W. Sydenham, June 1st; Lt. A. McKenzie, June 2nd; Sec. Lt. L. Skeldon, Sec. Lt. W. D. Tye, June 3rd; Sec. Lt. W. J. Bradshaw, Sec. Lt. H. S. M. Popplewell, June 5th; Capt. E. L. Oliver, M.C., Lt. J. D. D. Renfrew, June 11th; Sec. Lt. A. G. Finlayson, June 13th; Capt. E. G. Simpson, June 14th; Lt. A. T. Laing, June 15th; Lt. J. B. Lawton, June 26th; Sec. Lt A. R. Mc Donald, June 28th; Sec. Lt. S. Sinclair, July 1st; Sec. Lt. S. L. Bennett, Lt. R. Fitton, M.C., July 2nd; Sec. Lt. H. J. Coles, Lt T. J. Legate, July 3rd; Sec. Lt. W. Molineaux, July 9th; Sec. Lt. E. C. McCall, Sec. Lt. L. Marquard, Lt. F. W. Nelson, July 10th; Sec. Lt. A. W. Mackay, Sec. Lt. J. B. Martin, July 12th.

Lt. (actg. Capt.) C. E. Morgan relinquishes his commn. on account of ill-health, and is granted the rank of Capt., May 25th, 1918 (substituted for notification in "Gazette," May 24th, 1918).

Lt. E. Croghan relinquishes his commn. in order to resume his medical studies, July 1st.

Lt. G. C. Levick (K.R.R.C.) relinquishes his commn. on account of ill-health contracted on active service, July 14th.

Sec. Lt. J. C. Child relinquishes his commn. on account of ill-health, and is permitted to retain his rank, Dec. 23rd, 1918 (substituted for notification in "Gazette," Nov. 12th, 1918).

The notifications in "Gazette," May 13th and July 4th, concerning Lt. H. W. Piper are cancelled.

The notification in "Gazette," April 25th, concerning Sec. Lt. D. Miller is cancelled.

The notification in "Gazette," May 6th, concerning Maj. J. M. Boyd, M.B.E., is cancelled.

TECHNICAL BRANCH.—Lt. H. W. Prockter to be graded for purposes of pay and allowances of Capt., whilst empld. as Capt., Grade (A.), May 1st.

Lt. J. R. Coulthard to be graded for purposes of pay and allowances of Capt., whilst empld. as Capt., Grade (B.), May 1st.

Sec. Lt. (actg. Capt.) E. P. Dampier to be Sec. Lt., Grade (G.), from (Ad.), and to retain the actg. rank of Capt., whilst empld. as Capt., Oct. 1st, 1918.

Lts. to be actg. Capts. without pay and allowances of that rank whilst empld. as Capts., Grade (B.) :—W. F. Mytton (substituted for notification in "Gazette," March 21st; J. M. B. E. St. Amory (substituted for notification in "Gazette," March 21st), Dec. 1st, 1918.

Lts. to be Lts., Grade (A.) :—E. R. V. Collett, from (O.), Nov. 1st, 1918; J. S. Stevenson, from (Ad.), Dec. 15th, 1918

C. N. Smith (Lt., R. Welsh Fus.) is granted a temp. commn. as Sec Lt., Grade (B), May 22nd, 1918, and to be Hon. Lt.

Transferred to unempld list :—Sec. Lt. (Hon. Lt.) C. D. B. Stiles, Feb. 21st; Sec. Lt. F. C. Lawrence, Capt. F. C. Starnes, April 9th; Lt. P. R. Smith, Sec. Lt. W. F. Simpson, April 15th; Sec. Lt. G. W. Heugh, April 20th; Capt. N. Littlejohn, April 22nd; Sec. Lt. (actg. Lt.) W. Stanton, April 26th; Capt. M. T. Spence, April 29th; Capt. W. A. Scoble, M.B.E., May 3rd; Capt. G. W. Lester, May 9th; Maj. G. Dixon-Spain, M.C., Lt. L. H. Strudwick, Sec. Lt F. H. Shaw, May 15th; Sec. Lt. E. J. Bristow, Capt. H. J. C. Smith, M.BE., May 30th; Sec. Lt (Hon. Lt.) G. R. Spencer, June 1st; Capt. W. Yonge, June 4th; Sec. Lt. H. E. Stiles, June 6th; Sec. Lt. P. F. Westerman, June 7th; Lt. W. H. R. Skudder, June 9th; Capt. A. G. Trussell, D.S.M., June 11th; Sec. Lt. W. T. Grubb, Sec. Lt. H. Scott, June 12th; Maj. A. R. Layard, June 13th; Lt. L. Mantell, June 17th; Lt. L. F. Roslyn, June 24th; Lt B. F. Sandy, June 25th; Capt. E. B. De Merrall, June 27th; Lt. F. Alexander, June 29th; Sec. Lt. N. C. Clements, June 30th, Lt. F. H. Bartlett, Capt. J. S. Street, July 1st; Sec. Lt. P. G. Beesley, Lt. C. F. Maryon, July 2nd; Sec. Lt. J. H. Hunter, July 6th; Lt. P. S. Woodroffe, July 10th; Capt. D. A. Haig, Sec. Lt. V. S. Lord, Sec. Lt. W. S. Pavey, Sec. Lt. K. B. Sylvester, July 12th.

Sec. Lt. J. Penrose relinquishes his commn. on account of ill-health contracted on active service, and is permitted to retain his rank, June 24th.

The initials of Lt. N. V. Harle are as now described, and not "H. V." as stated in "Gazette," May 2nd.

The date of appointment of Sec. Lt. T. Mundy and Sec. Lt. F. A. Murray is March 8th, and not May 8th as stated in "Gazette," May 23rd.

The notification in "Gazette," May 16th concerning Lt. E. R. V. Collett is cancelled.

The notification in "Gazette," Dec. 3rd, 1918, concerning C. Jackson is cancelled.

MEDICAL BRANCH.—Maj. F. H. Stephens (Staff Surgeon, R.N.) relinquishes his commn. on reverting to R.N. Medical Services, Feb. 11th (substituted for notification in "Gazette," March 21st).

Transferred to unempld. list :—Lt. E. S. Sharpe, May 7th; Capt. N. F. Stallard, May 13th; Lt. R. W. Stephenson, May 27th; Lt. N. C. Cooper, June 23rd.

The notification in "Gazette," Feb. 14th, concerning Capt. A. E. McCulloch is cancelled

CHAPLAINS BRANCH.—Rev. R. Hall is granted the relative rank of Col. while empld. as Principal Chaplain (Wesleyan), May 1st (substituted for notification in "Gazette," May 20th, granting the relative rank of Lt.-Col.).

MEMORANDA.—The following Overseas Cadets are granted temp. commns. as Sec. Lts. with effect from Feb. 15th, and relinquish such commns. with permission to retain the rank, from the day following termination of the standardised voyage in the case of those claiming immediate repatriation, and from the day following demobilisation in England in all other cases :—529503 A. C. Anderson, 92937 W. S. Andrews, 534226 B. R. Armitage, 911070 R. R. Atkins, 510396 C. P. Atkinson, 71348 J. H. Atkinson, 40087 H. M. Bignell, 65096 F. W. Botsford, 487387 J. W. Bainbridge, 654006 W. R. Barkley, 446117 J. Bateman, 1045605 A. H. Battersby, 528531 J. C. Beaton, 451784 H. Beecham, 841090 H. Bell, 603157 J. G. Bell, 175094 N. G. Binkley, 528741 W. A. Blackwell, 528534 E. G. Blair, 865646 M. L. Brothers, 106109 W. J. Brown, 234194 L. W. Burton, 535544 C. J. Bussell, 841154 A. E. Baife, 431087 L. S. Barnes, 838010 H. Barrett, 2252 L. R. J. Bauset, 326879 H. L. Bell, 461180 L. R. Bishop,

460246 H. A. Black, 916141 H. B. Branscombe, 829708 M. H. Butt, 512282 H. J. Cable, 317039 H. D. Cameron, 63231 J. R. Christie, 18683 J. Clarke, 424117 A. Collen, 129679 H. E. B. Cook, 1261415 G. W. Craig, 471156 F. F. Crooks, 100856 W. C. Carruthers, 2025154 C. Carver, 457367 W. Cash, 534068 L. A. Chamberlain, 512470 H. J. Churchill, 886828 B. L. Clarke, 81175 E. W. Cooke, 231279 C. Cormick, 2115344 H. H. Cornish, 853337 E. Creswick, 530526 J. C. M. Cross, 400097 H. J. Cumming, 534209 G. R. Currie, 418829 C. M. De Courcy, 907153 C. A. Darke, 528692 E. J Davis, 410284 C. H. Dove, 213793 A. S. Dunnett, 645005 H J. Dyer, 2329882 H. Edwards, 787634 L. Edwards, 527560 J. B. Effrick, 422668 A. Fris, 84005 W. Fairbrother, 406884 J. Falconer, 111172 H. B. Ferris, 907410 W. E. Findlay, 461125 D. Finestone, 525163 W. E. Fleming, 618185 C. K. Flewelling, 341862 R. L. Fluhrer, 2125005 A. Forbes, 311950 H. S. Ford, 928232 W. Fricker, 75273 D. Graham, 311909 F. Game, 542292 H. G. Garman, 709377 A. V. Geldart, 769377 A. B. Gibson, 2006480 J. Gifford, 21840 H. R. Gilbert, 21839 R. Gilbert, 104262 C. E. Gillis, 339155 D. G. Goddard, 864 G. S. Gollan, 552278 F. O. Graham, 9910 N. I. Green, 1261686 T. V. Green, 135713 W. J. Greves, 133204 B. Guinea, 2162310 A. F. Hagell, 253029 E. Haggiss, 534683 R. de C. Harding, 151727 B. G Harris, 510803 F. A. Harris, 656414 P. W. Harrison, 157082 G. F. Hatch, 234705 J. L. Haw 104312 W. A. Hazelton, 724719 L. A. Hepburn, 86005 B. Herman, 525013 J. R. Higginbotham, 9086 H. R. Honeycombe, 135730 W. H. Hulme, 475896 R. T. Irwin, 187608 J. B. Isles, 2203985 J. Jack, 910010 G. H. Jackson, 534667 A. G. Jacks, 534659 V. A James, 2193307 E. H Jamieson, 869 C. Jenkins, 1967 J. A. Jennings, 755084 E. B. Johnson, 174309 A. E. Jones, 437747 A. G. E. Kaufmann, 89276 S. J. Kchoe, 2008905 R. E Kennedy, 1057387 H. Kerland, 745678 N. C. Kilpatrick, 145818 H. W. Kirk, 718372 W. Kristjanson, 502847 L. E. Kyle, 469946 H. H. Lamrock, 403115 A. J. Laneuville, 414164 J. L. Laphen, 82002 J. C. Leadox, 113356 J. F. Lester, 2025272 W. E. Lever, 213424 J. H. Logan, 911813 A. J. D. Love, 535758 H. J. Love, 2115134 R. S. Love, 55086 J. Law, 1036 J R. Manlove, 414120 R. V Martin, 733062 T. W. Maynard, 91005 M. Minhinnick, 507574 J. H. Moase, 3395 A. W. Money, 529612 C. Montgomery, 532250 R. G. Moore, 443052 F. Morel, 541880 P. C. A. Morin, 674900 F. L. Morton, 921035 C. McA. Munro, 511533 A. Murphy, 742855 J. H Murray, 509857 W. A. McClenaghan, 265753 R. G. McCullough, 1258005 J. H. McDonald, 531739 T. A. McDonald, 1630063 W. F. McDonald, 636006 H. J. MacDonell, 874420 H. McDougall, 445181 C. W. McRae, 623871 H. C. Miller, 53255 H. Mooney, 345943 C. McFarlane, 542020 M. B. McFarlane, 454668 J. McGee, 6243 M. C. McGowan, 348816 H. H. McIntyre, 688661 R. S. McKay, 2125326 C. McKyes, 639203 H. M. McLean, 524249 R. L. McQuarrie, 124665 C. W. McRitchie, 1003026 C. T. Nelder, 883211 A. D. Newton, 324938 C. C. Orth, 675339 E. C. Osborne, 445835 W. F Osborne, 542137 R. A. Paget, 117462 J. Park, 892598 C. E. Parker, 9708 G. H. Parliament, 522697 W. Pearson, 426823 A. Peek, 2003538 A. D. Peister, 531772 H. B. Perrin, 760471 C. J Phelps, 1003063 C. S. Philip, 530653 W. H. Picken, 55062 H. B. Pickering, 166145 G. C. Pinfold, 1024053 T. W. Pinnell, 487325 E. J. Pinnington, 53151 F. Pollard, 270653 N S. Polson, 639138 W. C. Pridham, 530586 C. E. Proctor, 189766 F. G. Purdon, 113651 M. E. Purcell, 706811 F. H. Parker, 527637 N. R. Raine, 6377 G A. Rawlins, 598 E. A Reid, 469231 H. D. Reid, 204583 T. H. Reid, 1073288 F. H. Richardson, 460150 W. Ridout, 74025 R. M. Robertson, 420226 W S. Robertson, 300915 W. K. Rutherford, 918664 R. G. Rutledge, 542439 D. R. Randolph, 2527337 J. R. Rennie, 435097 W. Sunderson, 302932 R. A. Scott, 190085 R. A. Scarles, 2341495 F. E. Secord, 639379 C. A. S. Smith, 733870 C. F. Smith, 908000 J. F. Smith, 2265672 P. Snarr, 186710 R. Spears, 86202 K. Stanford, 769625 J. J Stewart, 92764 W. C. Stewart, 252327 R. Stock, 339545 A. Swenson, 2133 A. L. Swinden, 19916 H. Simpson, 21425 T. Spoors, 406628 D. Stotners 475471 M. G. Saunders, 1261670 J H Schofield, 346321 R. S. Scott, 540056 W. W. Snyder, 642249 T. H. Stewart, 285245 F. Tollervey, 529375 C. A. Taylor, 187729 G. W. Tee, 534680 B. H. Thomas, 234990 H C. Thompson, 540404 W. F. Tickle, 633563 G. M. Tinkess, 640131 W T Todd, 514625 E. C. Trevor, 769022 H. E. Tuck, 174009 R. J. Vanstone, 757224 T. F Wardell, 2025253 H. A Wark, 730359 K. E. Warren, 12662 J. W. Washburn. 681150 H. B. Watkins, 6868 F T Webster, 526765 A. E. Wells, 527670 W. Wheeler, 66042 W. A White, 1003080 A G. White, 2265320 E. A. Wilkins, 524715 D. P. Williams, 874062 W. V. Willoughby, 707603 A. J. Wilson, 401643 J. E Wilson, 475240 J. T. Wilson, 502940 W. Witthum, 706381 W. Woodman, 541025 S. Wilson, 318923 E F. Winskill, 660842 H. A. Wilson, 422609 A. Wheeler, 415340 A. Youlden, 171402 C. R. Yates, 910144 M. H. Young.

The following Cadets are granted Hon. Commns. as Sec Lts. :—171058 E. J. Scammell, Jan. 11th; 225244 A. W. Hulbert, Feb. 20th; 351 E. A. Bacon, Feb. 26th; 239276 H. Clare, March 26th; 506156 H. P. McDonald, April 2nd; 320576 R. Milburn, April 11th; 270540 E. S. Careless, April 13th; 15536 H. E. E. Pheasant, April 28th; 43534 O. K. Utting, April 29th; DM2/178756 C. H. Clarke, May 1st; 310290 T. J. Shilvock, May 2nd; 156302 A. F. Merchant, May 4th; 60421 J. W. A. Dennis, May 5th; J. W. Arnold, May 6th; 8656 A. E. Martin, June 14th.

Col. (actg. Brig.-Gen.) K. Wigram, C.B., D.S.O. (Bt. Col (T./Brig. Gen.), Indian Army), relinquishes his commn. on ceasing to be empld., April 10th.

The following temp. Hon. Lts. relinquish their commns. on ceasing to be empld. :—W. Naylor, T. T. Sawday, June 16th; H. E. Peirce, July 17th.

AIR MINISTRY, July 22nd.

R.A.F.—The following temp. appointmt. is made at the Air Ministry : Deputy Director (Ormr. Servs.).—Col. F. C. Halahan, C.M.G., D.S.O., M.V.O., July 1st, vice Lt.-Col. (actg. Col.) A. Fletcher, C.M.G., C.B.E., M.C.

The following temp. appointments are made :—Comdr.—Maj.-Gen. J. F. A. Higgins, C.B., D.S.O., A.F.C., July 22nd, and to be graded for purposes of pay and allowances as Maj.-Gen. whilst so empld.

Brig.-Gen. (Staff).—Lt.-Col. A. L. Godman, C.M.G., D.S.O., to be graded for purposes of pay and allowances as Brig.-Gen., Staff, May 1st, whilst empld. as Chief Staff Officer of an Area.

Group Comdrs. (Graded as Cols., Staff).—Lt-Col. (actg. Col.) R. H. Clark-Hall, D.S.O., July 16th; Lt.-Col. T. C. R. Higgins, C.M.G., July 1st.

Staff Officer, 1st Class (P.).—Maj. H. A. Michell, O.B.E., May 23rd.

Staff Officer, 2nd Class (T.).—Maj N. F. D. Buckeridge, May 31st, vice Lt. F. Jewell.

Staff Officer, 3rd Class (P.).—Capt. L. E. Middleton, July 20th; Sec. Lt. G. D. Ashby, April 23rd; and to be actg. Capt. till April 30th (T.)—Lt. J. W. Sawyer, May 23rd; Sec. Lt. W. Bye, Feb. 2nd, and to be actg. Capt. till April 30th; Sec. Lt. H. Norrington, March 10th, and to be actg. Capt. till April 30th.

Air Attaché (Madrid).—Maj. (actg. Lt.-Col.) W. D. S. Sanday, D.S.O., M.C., May 2nd, and to retain the actg. rank of Lt.-Col. whilst so empld.

FLYING BRANCH.—Maj. R. S. Robinson to be actg. Lt.-Col. whilst empld. as Lt.-Col. (A. and S.), from April 1st, 1918, to April 30th (substituted for the notification in "Gazette," Aug 6th, 1918).

Capt. H. G. White to be actg. Maj. whilst empld. as Maj. (A), May 1st.

Capt. S. T. L. Greer, A.F.C., to be graded for purposes of pay and allowances as Maj. while empld. as Maj. (A.), May 11th.

Capt. H. G. Travers, D.S.C., to be graded for purposes of pay and allowances as Maj. while empld. as Maj. (A. and S.), May 1st.

Capt. W. G. Pigott relinquishes the grading for purposes of pay and allowances as Maj. (K.B.), May 5th

Lts. to be actg. Capts. while empld. as Capts. (A) :—J. Boyd, D.F.C., from Oct. 14th, 1918, to Nov. 21st, 1918; M. J. Langley, May 31st.

Lt. C. N. H. Bilney to be actg. Capt. while empld. as Capt. (A. and S.), May 31st.

Lt. O. R. Gayford, D.F.C., to be actg. Capt. while empld. as Capt. (O.), May 31st.

Capts. to be graded for purposes of pay and allowances of Capts. while empld. as Capts. (A'ship) :—R E. V. Jelliffe, July 2nd, 1918, to Jan. 31st; A. J. H. MacColl, May 22nd, 1918, to Jan. 31st.

Lts. to be graded for purposes of pay and allowances as Capts. while empld. as Capts. (A.) :—N. C. Buckton, F. H. Davies, C. J. S. Dearlove, G. E. Gibbs, M.C., W. J. F. Harvey, D.F.C., G. L. Hobbs, M.C., C. L. King, M.C., D.F.C., H. F. Nicholls, D.F.C., A. D. K. Perkins, May 1st.

Lts. to be graded for purposes of pay and allowances as Capts while empld. as Capts. (A. and S.) :—G. H. Boyce, E. J. L. Hope, May 1st.

Sec. Lt. H. C. T. Gompertz to be Lt., Dec. 23rd, 1918.

Sec Lts. to be actg. Lts. while empld. as Lts. :—W. W. Langdon (A.), J. H. McCaghey (S.), G. W. McDougall (A.), H. G. Pratt (O.), D. E. Spalton (O.), May 31st.

T. C. Beeken (Sec. Lt., W. Riding R.) is granted a temp. commn. as Sec. Lt. (S.), Oct. 19th, 1918.

P.F.O. A. K Smithells (late R.N.A.S.) is granted a temp. commn. as Sec. Lt. (A.), July 2nd, 1918.

The following relinquish their commns. on ceasing to be empld. :—Sec. Lt. (Hon. Capt.) A. W. B. Becher (Capt., K.O.Y.L.I.), March 20th; Lt. H. Holroyd (Lt., Sask. R.), May 20th; Capt. (Hon. Maj.) E. G. Joy (Maj., Cent. Ont. R.), May 31st; Lt. (Hon. Capt.) H. S. Quigley, M.C., D.C.M. (Capt., Can. Engrs.), July 3rd; Lt. A. F. G. Clarke (Sec. Lt., R.A.S.C.), July 4th; Lt. M. L. Doyle, D.F.C. (Capt., Quebec R.), Lt. E. J. Mills (Lt., Quebec R.), July 6th; Lt. A. E. de M. Jarvis, D.F.C. (Lt., E. Ont. R.); Sec. Lt (Hon. Lt.) J. E. Palmer, D.C.M. (Lt., Can. M.G.C.); Lt. W. L. Rutledge, M.M. (Lt., Sask. R.), July 7th; Capt. R. Duncan, M.C. (Capt., Sask. R.), July 8th; Lt E. O. Houghton (Lt., C. Ont. R.), July 10th; Maj. R. W. Bruce (Capt. (temp. Maj.), Sask. R.), July 14th; Lt. E. Mills (Sec. Lt., R.H. and R.F.A.), July 23rd.

Transferred to unempld. list :—Sec. Lt. B. E. Wolstencroft, Jan. 23rd; Lt. J. C. Ruse, Jan. 29th; Lt J. L. Hill, Jan. 31st; Lt. E. V. D. Mathews, Feb. 1st; Lt. A. G. N. Jones, Feb. 9th; Capt. (Hon. Maj.) C. O. F. Modin, D.S.C., Feb. 11th; Sec. Lt. J. S. Harrison, Feb. 12th; Lt. W. E. Jackson, Feb. 24th; Lt. V. K. Hilton, Feb. 25th; Sec. Lt. J. G. Rodwell, Feb. 26th; Sec. Lt. J. Woods, Feb. 27th; Sec. Lt. C H. Roy, March 5th; Sec. Lt. F. W. Ross, March 8th; Sec. Lt. A. Watson, March 9th; Lt. J. B. Hine, March 13th; Lt. (Hon. Maj.) (actg. Capt.) L. G. S. Reynolds, March 27th; Lt. H. E. Read, March 29th; Lt. (actg. Capt.) M. H. Rattray, March 30th; Sec. Lt. A. Lowe, Lt. T. J. R. Wilson, March 31st; Lt. W. E. Coventry, April 1st; Sec. Lt P. F. Hilborn, April 2nd; Sec. Lt. (Hon. Lt.) W. O'B. Rigden, April 3rd; Lt. H. J. W. Roberts, April 4th; Lt. H. V. Jellicoe, April 5th; Sec. Lt. A. S. G. Rodway, Sec. Lt. J. L. Spencer, April 9th; Sec. Lt. C. E. Woodger, April 10th; Sec Lt. R. M. Mulrihill, Sec. Lt. R. V. Richardson, Lt. (actg. Capt.) W. G. Stevenson, D.F.C., Sec. Lt. H. C. Wood, Lt. L. E. Wood, April 13th; Sec. Lt. J. Ker, Lt. R. M. Roberts, April 15th; Lt R. M. Hughes, Sec. Lt. G. H. L. Robertson, Lt. J. H. G. Womersley, M.C., April 16th; Lt. G. Rodgers, Lt. J. D. Scott, April 17th; Sec. Lt. B. F. J. Johnson, Lt. (actg. Capt.) F. C. Ransley, Lt. C. P. Wingfield (R.I. Fus.), April 18th; Sec. Lt. H. T. Jackman, Sec. Lt. P. Keeley, Sec. Lt. J. Kerr, Sec. Lt. D. A. McIntyre, Sec. Lt A. Raymond, Sec. Lt. A. Roberts, Sec. Lt. J. Robinson, Sec. Lt. A. B. Roche, Sec. Lt. A. R. Ross, April 19th; Sec. Lt. P. J. Mayton, April 20th; Capt. C. N. Russell, April 21st; Lt. C. T. Robinson, Lt. E. F. Rogers. Sec. Lt. W. St. C. Slater, Sec. Lt. E S. W. Smith, April 24th; Sec. Lt. P. S. Hartley, April 28th; Sec. Lt. G. Russell, April 29th; Sec. Lt. J. J. Rowe, April 30th; Capt. W. O. Raikes, O.B.E., May 1st; Sec. Lt. F. Reay, Lt. H. M. D. Walker, May 2nd; Sec. Lt. J. C. Raine, Sec. Lt. W. Wilkinson, May 5th; Sec. Lt. E. Roberts, May 6th; Sec. Lt. B. C. Longmire, Lt. A. C. Reed, May 8th; Lt. L. H. Reeve, May 10th; Lt. D. M. Johns, May 11th; Lt. J. L. Roberts, Lt. A. T. Rose, May 12th; Lt. F. M. Carter, D.F.C., Sec. Lt. L. Hart, May 13th; Capt. A. E. H. Roberts, May 16th; Sec. Lt. J. A. C. Randall, Sec Lt. W. S. Roberts, Sec. Lt. H. A. Rolls, May 18th; Sec. Lt. A. T. Reid, Sec. Lt. C. V. Ronchi, May 19th; Sec. Lt. P. H. Devenish, May 20th (substituted for notification in "Gazette," May 23rd); Sec. Lt. R. O. Standing, May 21st (substituted for notification in "Gazette," May 20th); Maj. R. T. Leather, Sec. Lt. C. A. Winch (Rif. Bde.), May 23rd; Sec. Lt. J. E. Raistrick, May 24th; Sec. Lt. E. A. Roberts, Capt. W. Roche-Kelly, May 27th; Lt. A. H. C. Randall Lt. A. P. Rapson, Capt. E. B. A. Rayner, Lt. H. P Roberts, Lt. H. A. Rodger, Sec. Lt. J. J. Rutter, May 29th; Lt. A. W. Rush, May 30th; Sec Lt. L. H. Ransom, May 31st; Lt. F. H. Moore, Sec. Lt. W. Rowley-Redwood, Sec. Lt. H. C. Richards, Lt. E. J. Riley, June 1st; Sec. Lt. F. W. Mundy (Bucks. Yeo.), June 2nd; Sec. Lt. G. Paul, Sec. Lt. L. O. B. Russell, June 3rd; Lt. V. O. Hillyard, Lt. E. Reddaway, Lt. H. A. Rigby, June 4th; Sec. Lt. G. C. Jenkins, Sec. Lt. B. T. Rampling, June 5th; Lt. J. S. Hodges, Lt. J. N. K. Shepherd (Northants R.), June 7th; Sec. Lt. A. C. Raushaw, Lt. H. B. Richardson, June 10th; Sec. Lt. S. C. S. Manning, Lt. H. S. Preston, June 11th; Sec. Lt. H. I. Marsh, Sec. Lt. (Hon. Lt.) A. B Radford, June 12th; Lt. B. N. Wright, June 13th; Sec. Lt. C. P. Miller, Sec. Lt. F. J. J. Paquet, Sec. Lt. N. Phillips, Sec. Lt. H. W. Phillipson, Sec. Lt. H. J. Pike, June 14th; Sec. Lt. E. Hulley, Sec. Lt. W. Leslie, Lt. K. M. Pennington, A.F.C., June 16th; Sec. Lt. E. J. A. Prosser, June 18th; Lt. F S. Russell, D.S.C., Sec. Lt. F. W. R. Thomas, June 19th; Sec. Lt. H. D. Rainier, Lt. J. McK. Reilly, Lt. A. E. L. Skinner, M.C., June 20th; Sec. Lt. G. C. Robbins, June 21st; Maj. the Hon. G. de St. C. Rollo, Sec. Lt. F. D. Wemyss (R.G.A.), June 22nd; Capt. R. G. St. John, June 24th; Sec. Lt. T. M. Robertson, June 26th; Lt. V. Rendle, June 27th; Lt. A. C. McArthur, Sec. Lt. L. McIver, Maj. C. S. Ross, June 28th; Sec. Lt. L. W. Robins, June 29th; Lt. C. M. McClean, June 30th; Sec. Lt. B. Lucy, Lt. G. P. McIntyre, Sec. Lt. W. A. Russell, July 1st; Sec. Lt. (Hon. Lt.) J. L. Hamilton, Lt. J. L. Henry, Capt. H. D. Hyde, July 2nd; Lt. H. E. C. Collins (Coldstream Gds.), Sec. Lt. T. W. Minihane, July 3rd; Lt. H. W. Owen, July 4th; Sec. Lt. H. Firstbrook, Lt. C. Gilham, Lt. (Hon. Capt.) B. B. C. E. Jameson, Lt. C. S. T. Lavers, D.F.C., Sec Lt. H. N. Nicholls, Lt. V. Rodgers, Sec. Lt. S. H. West, July 5th; Sec Lt. P. Crummer, Lt. G. W. Owen (R. War. R.), Sec. Lt. E. R. Walker, July 6th; Sec. Lt. R. E. Higginson, Lt. G. B Robeson, Capt. F. C. F. Walwyn, July 7th; Lt. L. W. Baker. D.F.C., Lt. A. A. Cullen, Sec. Lt. H. D. Dade, Lt. G. Davis, Sec. Lt. A. Kendall, Sec. Lt. F. Naylor, July 8th; Lt. R. I. Drake, Sec. Lt. H. G. Harper, Sec. Lt. H. McClunan, Lt. F. S. Passmore, Lt. R. S. Twigg, July 9th; Lt. W. G. Carmichael, Maj. J. L. Chalmers, M.C., Sec. Lt. E. I. English, Sec. Lt. W. G. Fleming, Sec. Lt. W. Harmston, Lt. H. J. C. Hartley, Capt. W. H. Hubbard, Sec. Lt. J. C. Mahaney, Lt. R. D. Molesworth, Sec. Lt. W. G. Moore, Lt. C. Murray, Sec. Lt. W. Pollock, July 10th; Sec. Lt. G. Gould, Lt. A. Koch, Sec. Lt. W. H. McCann, Sec. Lt. G. S. Reid, July 11th; Sec. Lt. W. F. Allen, Lt. G. W. Armstrong, Lt. L. A. Arnold, Lt. F. A. Black, Sec. Lt. R. H. Boyden, Sec. Lt. D. C. Burke, Lt. J. Davidson, Lt. J. D. Davis, Sec. Lt. R. F. J. Dixon, Lt. G. D. Eckardt, Sec. Lt. D. H. Edmiston, Sec. Lt. I. E. Erb, Sec. Lt. R. Fawcett, Sec. Lt. E. S. Ferguson, Sec. Lt. D. A. Fraser, Sec. Lt. F. Garnett, Sec. Lt. J. I. Gillmann, Lt. D. W. Gordon, Sec. Lt. (Hon. Lt.) G. D. Harle, Lt. R. H. Holman, Sec. Lt. F. J. Howarth, Sec. Lt. A. E. Jones, Lt. J. F. M. Kerr, Capt. A. R. Knight, Lt. H. A. Kullberg, D.F.C., Sec. Lt. W. S. Lockhart, Sec. Lt. J. P. McClelland, Sec. Lt. E. McGeer, Lt. J. J. Magill, Sec. Lt. R C McHenry, Sec. Lt. K. V. McKitterick, Lt. F.

M. McLennan, D.F.C., Sec Lt. J. A. V. McRobert, Lt. J. Maitland, Sec. Lt. S. Markussen, Sec. Lt. C C. Marshall, Sec. Lt J. L. Marshall, Sec. Lt. R. C. Murray, D.C.M., M.M., Sec. Lt. K. G. Nairn, Lt. E. S. Noble, Sec. Lt. A. A. Oldham, Sec. Lt. R B. Palmer, Sec. Lt. R. H. Palmer, Sec. Lt. H. H. Parker, Sec. Lt. W. T. Parker, Lt. J. D. Patterson, Sec. Lt. T. A. Patterson, Sec. Lt. R. A. Pearce, Sec. Lt. H. E. Peer, Sec. Lt. F. C. Pepino, Lt. W. H. St. J. Perram, Sec. Lt. F. W. Presant, Lt. W. J. Prier, Sec. Lt. J. H. Pringle, Lt. J. J. Quinn, M.C., Sec. Lt. G. L. Stroud, Sec. Lt. E. T. Sutherland, Lt H. J. Watts, Sec. Lt. H. L. Wilcox, Lt. W. E. T. Williams, Sec. Lt. F. W. Wright, July 12th; Sec. Lt. E. W Harris, July 13th; Sec. Lt. R. L. Frace, Sec. Lt. D C. Girardot, Sec. Lt. F. L. McGuire, Lt. H. M. O'Loughlin, Sec. Lt. J. B. B. Paterson, July 14th; Lt. W. T. Fraser, July 15th; Lt. F. Latham, July 16th; Lt. E. S. Harricks, Lt. G. S. McKee, July 17th; Capt. J. B. Home-Hay, M.C., D.F.C., Sec. Lt. J. F. Jones, Sec. Lt. P. Lewis, Sec. Lt. W. W. McGill, Sec. Lt. S. McLeod, Lt. R. G. Martin, Lt. C. A. Mitchell, July 18th; Sec. Lt. R. E. W. Gwyther, July 19th; Capt. C. A. Beck, Lt. R. H. Topliss, July 21st; Sec. Lt. P. A. Herbert, July 22nd.

Maj. G. R. Elliott (Capt., 3rd Dn. Gds.) resigns his commn. and is permitted to retain his rank, July 22nd.

Capt. A. W. Williams, D.F.C., relinquishes his commn. on account of ill-health contracted on active service, and is permitted to retain his rank, July 9th.

Capt. G. Chadwick (Manch. R.) relinquishes his commn. on account of ill-health contracted on active service, July 14th.

The following Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank:—E. I. Sutcliffe (caused by wounds), May 20th; J. H. F. Baker, July 11th; C. F. Eckel, July 20th (substituted for notification in "Gazette," March 4th).

Lt. L. C. Galloway relinquishes his commn., being physically unsuited for the duties of pilot and observer, and is permitted to retain his rank, June 6th (substituted for the notification in "Gazette," Nov. 12th, 1918).

Lt. C. P. Tiptaff (Conn. Rang., T.F.) relinquishes his commn. on account of ill-health, July 20th.

Sec. Lt. W. C. Saville relinquishes his commn. on account of ill-health contracted on active service, and is permitted to retain his rank, June 5th (substituted for notification in "Gazette," Jan. 17th).

Sec. Lt. W. Coutts to take rank and precedence as if his appointment as Sec. Lt. bore date Dec. 2nd, 1918.

Sec. Lt. H. J. Bateman to take rank and precedence as if his appointment as Sec. Lt. bore date Jan. 1st.

The notification in "Gazette," Feb. 14th, concerning Flt. Cdt. T. C. Becken is cancelled.

The notification in "Gazette," Feb. 21st, concerning Capt. J. P. Ingleficld is cancelled.

The notification in "Gazette," March 21st, concerning Lt. J. Valentine is cancelled.

The notification in "Gazette," April 1st, concerning Capt. C. O. F. Modin, D.S.C., is cancelled.

The notification in "Gazette," June 27th, concerning Capt. W. R. Read, M.C., A.F.C., is cancelled. The notification in "Gazette," May 27th, to stand.

The notification in "Gazette," June 27th, concerning Sec. Lt. T. C. Becken is cancelled.

The notification in "Gazette" July 4th, concerning Sec. Lt. (Hon. Lt.) P. H. West is cancelled.

ADMINISTRATIVE BRANCH.—Maj. L. A. Burrowes to be actg Lt.-Col. whilst empld. as Lt.-Col., May 1st.

Capt. H. A. Fordham to be Capt., from (S.O.), March 11th

Sec. Lts. to be actg. Capts. whilst empld. as Capts.:—H. Gambier, May 1st; (Hon. Lt.) W. H. Hoile, from (T.), May 31st.

Lts to be graded for purposes of pay and allowances of Capts. whilst empld. as Capts.:—E. R. W. Close, May 1st; W. E. Berwick, July 5th.

Lts. to be Lts.:—A. L. Kidd, from (O.), May 3rd; W. M. Long from unempld. list, July 1st; L. A. Eggar, from (S.O.), July 5th.

Sec. Lts. to be graded for purposes of pay and allowances of Capts. whilst empld. as Capts.:—(Hon. Capt.) A. K. O. Cochrane, (Hon. Lt.) E Meynell, D.C.M., May 1st.

Sec. Lts. to be graded for purposes of pay and allowances of Lts. whilst empld. as Lts.:—(Hon. Lt.) A. Colling, A. Lindsay, R. Parker, R. H. Sturgeon, May 1st.

Sec. Lts. (O.) to be Sec. Lts.:—R E Shears, April 17th; I. B. Boyce, June 11th.

The following Sec. Lts. (late Gen. List, R.F.C. on prob.) are confirmed in rank as Sec. Lts.:—H. C. Bird (substituted for notification in "Gazette," May 2nd), H. V. Hall, April 1st, 1918.

The following relinquish their commns. on ceasing to be empld.:—Sec. Lt. P. C. Cooper (Sec. Lt., Northants R.), April 20th; Lt. (Hon. Capt.) T. E. Gentles (Capt., Lab. Corps), June 21st; Capt. L. J. Torrie (Capt., Ind. Army), June 25th; Capt L. G G Groves (Lt., R.N.), July 8th.

Transferred to unempld. list:—Lt. A. L. Rhys-Evans, March 1st; Lt. (actg. Capt.) A. J. Rickie, March 5th; Lt. E. M. Prichard, March 26th; Lt. F. B. Rees, March 27th, Lt. R. C. Jones, Capt. (actg. Maj.) A. G. Wright, April 9th; Lt. L. T. Lewis, Sec. Lt. E B. Roughley, April 11th; Sec. Lt. S. D. E. Johnson, April 12th; Sec. Lt. P. F. Jefford, April 13th; Sec. Lt. A. N. Jones, April 15th; Lt. A. J. Johnston, April 16th; Lt. (actg. Capt.) F. J. Wood, April 18th; Lt. C. Wiseley, April 19th; Sec. Lt. E. H. Hamilton, Sec. Lt. A. C. Jessop, April 20th; Lt. W. J. Rawson, Sec. Lt. G. I. Simpson, April 22nd; Sec. Lt. E. A. Scanes, April 30th (substituted for notification in "Gazette," May 13th); Sec. Lt. G. P. Prescott, May 15th; Lt. C. B. Charlewood, May 20th (substituted for notification in "Gazette," May 27th); Lt. H. F. Storey, May 27th; Lt. W. M. Long, Lt. H. N. E. Row, May 28th; Sec. Lt. C. F. Rathbone, May 29th; Sec. Lt. T. C. Reddin, June 7th; Capt. H. C. Rippon, June 10th; Sec. Lt. R. C. Rosser, June 11th; Lt. N. S. Wolfendale, June 12th; Lt. I. Paisley, June 13th; Sec. Lt. G. P. Robinson, June 20th; Sec. Lt. F. S. Read, June 30th; Lt. O. Lawrence, Lt E. C. Richards, July 2nd; Lt. S. Roche, July 3rd; Sec. Lt. W. H. Newman, July 5th; Lt. E. L. Botham, July 6th; Capt. J. W. Mullen, July 8th; Lt. (Hon. Capt.) G. W. S. Dundas, Lt. J. E. Dixon, M.C., Capt. H. B. de Montmorency, Lt. W. L. Stead, July 10th; Sec. Lt. W. L. Clucas, Sec. Lt. H. C. Dille, Lt. C. J. Gillan, Sec. Lt. P. H. Montgomery, Sec. Lt. J. C. MacDonald, Sec. Lt. G. J. Murphy, Sec. Lt. H. Mackay, Sec. Lt. S. W. C. Palmer, Sec. Lt. R. B. Smith, July 12th; Sec. Lt. R. K McLean, M.B.E., Sec. Lt. F. D. Pratt, Sec. Lt. J. W. Potts, July 18th.

The following Sec. Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank:—W. R. Nichols, Jan 15th (substituted for notification in "Gazette," Oct. 11th, 1918); W. I. Parke, contracted on active service, July 4th.

Sec. Lt. C. W. Probets resigns his commn. and is permitted to retain his rank, July 23rd.

The surname of Capt. H. Vyvyan-Robinson is as now described, and not H. V. Robinson as stated in "Gazette," May 30th.

The notification in "Gazette," June 24th, concerning Sec. Lt. (actg. Lt.) S. S. Vanderhook is cancelled.

The notification in "Gazette," Jan. 24th, concerning Sec Lt. J. R. Coulthard is cancelled.

The notification in "Gazette," March 7th, concerning Sec Lt. J. P. Wardle is cancelled.

The notification in "Gazette," April 25th, concerning Lt. E. D. Warburton is cancelled.

The notification in "Gazette," May 9th, concerning Lt. G. M. Smith is cancelled.

The notification in "Gazette," June 3rd, concerning Lt. H. C. R. Milward is cancelled.

The notification in "Gazette," July 15th, concerning Capt. R. S. Lindsell, O.B.E., is cancelled.

The notification in "Gazette," Oct. 18th, 1918, concerning J. W. S. Appleton is cancelled.

TECHNICAL BRANCH.—Lt.-Col. (actg. Col.) A. Fletcher, C.M.G., C.B.E., M.C., to be Lt.-Col., Grade (B), from Dep.-Dir., and to relinquish the actg. rank of Col., July 1st.

Sec. Lt. (Hon. Lt.) O. C. Lees to be actg. Lt.-Col., Grade (A), whilst specially empld., May 30th.

Capt. F. Holloway, O.B.E., to be graded for purposes of pay and allowances of Maj. whilst empld. as Maj., Grade (A), May 22nd

Lt. J. A. Atkinson to be actg. Capt whilst empld. as Capt., Grade (A), from June 1st, 1918, to April 30th.

To be graded for purposes of pay and allowances of Capts. whilst empld. as Capts., Grade (A):—Lt. J. Y. de la C. Elliott, Lt. H. F. Groves, Lt. W. A. Hancock, May 1st; Sec. Lt. E. T. W. Nockold (to May 30th).

Sec. Lt. J. R. Coulthard to be actg. Capt. whilst empld. as Capt. Grade (B), from Dec. 21st, 1918, to April 30th.

To be graded for purposes of pay and allowances of Capts. whilst empld. as Capts., Grade (B):—Lt. J. I. Thompson, Lt. J. A. V. Welsh, Sec. Lt. W. C. Titheradge, May 1st.

Lt. (Hon. Capt.) R. Godfrey to be Lt., from (Ad.), April 22nd, 1918 (substituted for notification in "Gazette," Dec. 17th, 1918).

Sec. Lts. to be actg. Lts. while empld. as Lts., Grade (A):—L. Freeborn, G. H. Winckworth, May 31st.

Sec. Lt. (Hon. Lt.) J. L. Miles to be graded for purposes of pay and allowances as Lt. while empld. as Lt., Grade (A), May 1st

Sec. Lt. C. E. Kitchenside to be graded for purposes of pay and allowances as Lt. while empld. as Lt., Grade (B), May 1st.

Sec. Lt. (Hon. Capt.) G. C Clark to be Sec. Lt. (Hon. Capt.), Grade (A), from Grade (B), Feb. 6th (substituted for notification in "Gazette" April 1st.).

Sec. Lt. J. K. Thomson to be Sec. Lt., Grade (A), from Grade (B), March 14th.

Sec. Lt. M. P. Stoneham to be Sec. Lt., Grade (A), from (Ad.), from Dec. 9th, 1918, to Feb. 1st.

Sec. Lts. to be Sec. Lts., Grade (B):—F. G. A. Terrill, from (Ad.), Jan. 20th; A. Jukes, from (S.O.), May 1st.

J. W. S. Appleton is granted a temp. commn. as Sec. Lt., Grade (A), Oct. 16th, 1918.

Maj. W. R. Wills relinquishes his commn. on reversion to I.A.R.O., July 16th.

The following relinquish their commns. on ceasing to be empld.:—Lt. G. W. E. Baker (Lt., R. Berks. R.), June 22nd; Sec. Lt. (Hon. Lt.) C. C. Newton-Wade (Capt., K.O.Y.L.I.), July 8th; Lt. C. H. Shelton (Lt., R.H. and R.F.A.), July 21st.

Transferred to unempld. list:—Lt. (actg. Capt.) F. A. Roberts, Jan. 2nd; Lt. F. J. Kydd, Feb. 2nd (substituted for notification in "Gazette," March 28th); Capt. T. A. B. Rolfe, Feb. 28th; Lt. J. P. Rowell, March 7th; Lt. W. A. Robson, March 30th; Lt (actg. Capt.) G. E. Phillips, April 1st; Sec. Lt (Hon. Lt.) I. H. H. Robinson, April 7th; Sec. Lt. R. J. D. Killick, Lt. G C. Rawlins, April 8th; Lt. C. W. Habrow, April 12th; Sec. Lt. W. K. Rainbow, April 15th; Lt. S Williamson, April 18th; Sec. Lt. W. E. Langton, April 19th; Sec. Lt. A. B. McCarthy, April 20th; Capt. L. H. Pritchard, April 22nd; Lt. J. H. Jennings, Sec. Lt (Hon. Lt.) P. Rosie, April 25th; Capt. W. P. Wood, April 28th; Lt.-Col. S. Janson, Sec. Lt. (actg. Lt.) S. E. White, April 30th; Sec. Lt. (Hon. Lt.) V. C. Legge, Capt. A. E. Reed, May 3rd; Sec. Lt. A. F. Rae, May 17th; Sec. Lt. H. Haworth, May 21st; Lt. A. O. Roberts, May 22nd; Lt. L. I. T. Hewer, May 23rd; Lt. C. H. Panker, May 26th; Lt. (Hon. Capt.) J. H. Rutherford, May 27th; Sec. Lt. H. M. Russell, June 4th; Lt. (Hon. Capt.) F J. Welch, June 7th; Lt. P. R. Hutchinson, June 10th; Capt. F. Reynolds, June 13th; Sec. Lt. E. C. Ponking, June 14th; Lt. R. W. B. Roughan, Capt. A. J. Roberts, Sec. Lt. (Hon. Lt.) P. H. West (E. Surr. R., T.F.), June 17th; Sec. Lt. S. King-Smith, June 18th; Sec. Lt. F. S. Rishworth, June 23rd; Sec. Lt. C. L. Booth, June 25th; Lt. G. L. Sly, Sec Lt. (Hon. Maj.) G. F. Whitmore, June 26th; Lt. F. Hickman, June 30th; Maj. C H. A. Hirtzel, Lt. G. W. Holtom, Maj. S. J. Radford, Capt. B. V. Roche, July 1st; Sec. Lt. R. O. Griffith; Lt.-Col. H. Lee, Maj P. B. J. Murrell, July 8th; Lt E. G. McIntyre, July 9th; Sec. Lt. G. A. Edwards, Sec. Lt. (Hon. Lt.) A. M. Mulliner, July 12th.

Lt. T. A. Burns relinquishes his commn. on account of ill-health contracted on active service, and is permitted to retain his rank, July 21st.

Sec. Lt. (Hon. Capt.) U. Brown (Welsh R., T.F.) relinquishes his commn. on account of ill-health contracted on active service, July 20th.

Sec. Lt. H. P. Bolt is antedated in his appointment as Sec. Lt., Grade (A), Feb. 21st.

The surname of Capt. G. E. Lygo is as now described, and not "Liggs," as stated in "Gazette," April 1st.

The notification in "Gazette," March 25th, concerning Lt.-Col. (actg. Col.) S. E. Smith is cancelled.

The notification in "Gazette," March 11th, concerning Sec Lt. J. R. Coulthard is cancelled.

The notification in "Gazette," May 16th, concerning Lt. J. A. Atkinson is cancelled.

The notification in "Gazette," May 16th, concerning Capt. L. R. Prichard is cancelled.

The notification in "Gazette," May 30th, concerning Lt. J. A. Atkinson is cancelled.

The notification in "Gazette," June 24th, concerning Lt. G. Glen is cancelled.

MEDICAL BRANCH.—E. W Craig, M.C. (T./Capt., actg. Maj., R.A.M.C.), is granted a temp. commn. as Capt., Oct. 1st, 1918, and to be actg. Maj., with senty. from May 10th, 1918 (substituted for notification in "Gazette," Jan. 1st).

Transferred to unempld. list:—Capt. A. L. H. Rackham, April 3rd; Capt. F. Roberson, May 3rd; Capt. A. E. P. Parker, July 15th; Capt. J. Lawson, July 16th.

The notification in "Gazette," April 4th, concerning Capt. T. E. Mulvany is cancelled.

DENTAL BRANCH.—G. F. Charles is granted a commn. as Capt., July 1st (substituted for notification in "Gazette," July 4th).

The following temp. appointment, Women's Royal Air Force, is made at the Air Ministry:—

To be Asst. Comdt., 2nd Class.—Admstr. M. A. Thompson, M.M., March 21st.

The undermentioned temp appointments, Women's Royal Air Force, are made:—

To be Deputy Asst. Comdts., with rank of Admstrs., while so empld., if not already holding that rank.—Dep. Admstr. (actg. Admstr.) D. M. Penn, Dep. Admstr. (actg. Admstr.) D. C. Muir, Jan. 22nd; Admstr. Mrs. H. Simeon, March 1st; Dep. Admstr. Mrs. G. Dickinson, April 16th;

Dep Admstr. (actg Admstr.) E. O'Sullivan, April 29th; Dep. Admstr. Mrs. M. Cookson, June 17th; Admstr. Mrs C. T. Bayley, June 28th; Admtsr. M. S. Frood, June 30th; Asst. Admstr (actg Admstr.) Mrs. F. F. Pelly relinquishes the actg rank of Admstr. and the appointment of Dep. Asst. Comdt. on ceasing to be specially empld., June 20th.

Administrative Branch.—The following Dep. Controller to be Admstr., with seny. from April 1st, 1918:—Miss M. S. Frood (Q.M.A.A.C.), June 30th.

The following to be Asst. Admstrs.—Miss E. B. Stewart, May 26th; Mrs. M. W. Buller, Miss I. Huleatt, June 17th.

Asst. Admstr. E. E. Sharp is antedated in her appointment as Asst. Admstr., Aug. 8th, 1918.

The following to be Dep. Admstrs. while so empld.:—Asst. Admstrs. B. G. Anson, M. A. J. Howard, April 1st; D. M. Copland, M. E. Hamilton, April 17th; E. C. Edwards, Mrs. E. B. Mullen, April 29th; G. E. Butler, May 1st; Mrs. E. C. B. Herbert Hall, M. A. Houghton, Mrs. A. F. Parsons, May 5th; F. P. Buckley, May 9th; A. L. Cooper, May 16th; M. H. Silcock, May 31st; G. A. Vernon, June 5th; M. W. Hamilton, June 13th; V. Carr-Owen, June 14th; M. C. Cadman, I. M. K. Clarke, June 16th; C. H. Peake, June 17th; A. M. Williams, June 18th; M. S. Fawcett, M. E. Higginbottom, June 19th; Mrs. F. F. Pelly, June 20th; M. V. Jones, June 23rd; J. I. G. Aitken, June 24th; Mrs. J. Christmas, June 25th.

The following to be Admstrs. whilst so empld.:—Dep. Admstrs. K. Daubeney, April 21st; F. H. Spinney, May 29th; Mrs. M. Gerard, June 12th; F. A. Laskie, June 30th.

The date of appointment of E. L. Smith as Dep. Admstr whilst so empld. is Feb. 4th, and not as stated in "Gazette," May 20th.

The following Off. resign their appointments on account of ill-health: Administrators.—Mrs. V. C. Goodison, May 3rd; N. C. Pasmore, May 18th.

Dep. Administrator.—A. S. Cowie, June 15th.

Asst. Administrators.—A. K. Jones, May 16th; J. E. Williams, May 21st; H. L. Parker, June 10th.

The following Off. relinquish their appointments at their own request: Administrators.—A. M. Stewart, May 27th; E. M. Glidewell, June 16th.

Dep. Admstrs.—R. O. Dixon, April 19th; Mrs. D. Holmes-Scott, May 2nd; Mrs. B. M. Meadows, May 5th; E. M. Smith, May 16th; M. S. Huckett, May 22nd; A. J. Brodie, May 27th; Mrs. J. M. Cornwell, Mrs H. G. Race, May 31st; Mrs. E. M. Hollis, June 5th; J. O. Ramsbottom, June 17th; M. A. J. Howard, June 28th.

Asst. Admstrs.—H. L. McClory, April 1st; J. Phillips, April 24th; G. M. Grahame, April 30th; Mrs. W. M. Forgan, M. K. Headlam, D. Eardley-Wilmot, May 2nd; S. K. Anderson, D. L. Field, E. F. Matthews, May 20th; R. L. Blott, May 21st; D. N. Gerrie, M. K. Goodman, May 31st; T. G. Piper, June 2nd; G. M. Ennis, June 10th; R. Lawton, June 16th; Mrs. M. M. Allan, June 18th; P. F. E. Moody, June 23rd; Mrs. H. Tom, June 25th; Mrs. E. L. Fooks, June 27th.

The date of relinquishment of appointment of H. M. Seton-Karr as Asst. Admstr. is Jan. 26th, and not as stated in "Gazette," Feb. 28th.

The date of relinquishment of appointment of E. L. Knowles as Asst. Admstr. is April 15th, and not as stated in "Gazette," May 20th.

The date of relinquishment of appointment of E. R. Powell as Asst. Admstr. is May 2nd, and not as stated in "Gazette," May 20th.

Memoranda.—Lt. F. T. Court to be Hon. Capt., Dec. 29th, 1918. The following Overseas Cadets are granted temp. comms. as Sec. Lts., with effect from Feb. 15th, and relinquish such commns., with permission to retain the rank, from the day following termination of the standardised voyage in the case of those claiming immediate repatriation, and from the day following demobilisation in England in all other cases:—13/1002 O. A. Anderson, 171169 J. H. J. Butler, 7418 F. V. Buchan, 184405 V. P. M. Berry, 61213 R. T. Beynon, 172 D. H. Baldwin, 741 W. J. Beedle, 78457 A. O. Bilson, 3612 H. J. Butler, 662 G. F. Bensimon, 182765 C. Barton, 349166 W. H. E. Boswell, 186508 H. P. Baker, 179137 D. Barnes, 137898 W. B. Crawford, 137211 A. W. Crisp, 182580 M. W. Curtis, 107524 J. B. Duke, 182207 E. F. Earl, 170146 D. T. Goodson, 2753 A. E. Glover, 7/1668 B. F. Havman, 183894 G. A. Vernon-Harcourt, 171140 O. M. M. Kay, 0684 B. W. Kirkby, 179489 J. T. Knight, 43786 H. D. Lylian, 137040 I. D. Matcham, 176561 C. H. Mowat, 414553 C. R. Morrison, 202141 P. E. Norris, 77936 C. G. Oliver, 176593 P. R. R. Pope, 106104 F. V. Preller, 176804 L. Pryce, 461551 F. W. M. Rowe, 11/1405 F. W. Southgate, 151842 R. A. Sewell, 179174 W. L. Shield, 063336 G. C. Smith, 7/2224 A. W. Tresseden, 751331 J. A. Trotter, 170176 C. J. Tanner, 183567 J. F. Van Rensberg, 5770 N. W. Wade, 176307 H. P. S. Willis.

The following Cadets are granted hon. comms. as Sec. Lts.:—316536 J. R. Wood, Feb. 5th; 11429 E. A. H. Chegwidden, Feb. 9th; 184287 J. H. White, Feb. 11th; 70532 J. F. M. Carruthers, Feb. 22nd; 77310 D. G. Allen, April 17th; 178099 V. S. de Lan, May 15th.

Capt. (actg. Maj.) R. S. Lindsell, O.B.E., relinquishes his commn. on ceasing to be empld., June 1st.

The following temp. Hon. Lts. relinquish their commns. on ceasing to be empld.:—J. S. Low, March 16th; T. H. Thresh, June 16th; F. H. Wheeler, July 16th.

Transferred to unempld. list:—Lt.-Col. (actg. Col.) S. E. Smith (Glouc. R., T.F.), from (S.O.), March 18th; Lt. R. B. Longridge, from (S.O.), April 12th; Lt. C. J. Reynolds, from (S.O.), June 20th.

Sec. Lt. H. G. Keene to take rank and prec. as if his appointment as Sec. Lt. bore date Jan. 1st.

The notifications in "Gazette," May 27th, concerning D. Morrison and C. D. Law are cancelled.

Air Ministry, July 25th.

R.A.F.—The following temp. appointment is made:—Staff Officer, 3rd Class.—Sec. Lt. G. T. Armitage, May 23rd, and relinquishes actg. rank of Capt.

The surname of Lt.-Col. C. E. H. Rathborne is as now described, and not "Rathbone," as stated in "Gazette," July 18th.

Flying Branch.—Capt. D. G. Donald to be actg. Maj. whilst empld. as Maj. (A.), May 1st.

Lt. J. A. Rutherford to be Lt. (A.), from (T.), Nov. 27th, 1918.

The following relinquish their commns. on ceasing to be empld.:—Lt. (Hon. Capt.) W. L. Haight (Capt., W. Ont. R.), April 24th; Sec. Lt. (Hon. Lt.) F. J. Mawdsley (Lt., C. Ont. R.), May 13th; Capt. (Hon. Maj.) J. A. Dennistoun (Maj., Manitoba R.), June 9th (substituted for notification in "Gazette," June 24th); Sec. Lt. (Hon. Lt.) A. T. le F. Johnson (Lt., Lord Strathcona's Horse), July 17th.

Transferred to unempld. list:—Lt. H. R. Tyler, Jan. 26th (substituted for notification in "Gazette," March 25th); Lt. R. E. White, Feb. 25th; Sec. Lt. (Hon. Lt.) T. W. A. Ratcliffe, March 18th; Sec. Lt. (Hon. Lt.) G. F. A. Lewin, M.C., April 15th; Sec. Lt. E. R. Ludlow, April 18th; Lt. E. E. Biccard, Sec. Lt. C. Borcherds, Sec. Lt. R. Russell, April 20th; Lt. G. R. Ranier, April 21st; Sec. Lt. W. J. N. Chalklin, April 24th; Sec. Lt. H. W. T. Lewis, April 25th; Sec. Lt. T. K. Ludgate, April 27th; Capt. G. E. Wright, May 2nd; Lt. T. H. Lewis, May 9th; Sec. Lt. L. J. Llewellyn, May 15th; Lt. H. F. Letten, May 17th; Lt. W. Ledlie, Sec. Lt. F. F. Leet (substituted for notification in "Gazette," May 23rd), May 19th; Lt. W. F. Leach, Sec. Lt. R. E. Leary, Sec. Lt. D. St. C. Leitch, Sec. Lt. N. Scott, Sec. Lt. S. B. Wright, May 20th; Capt. G. H. Jackson, Sec. Lt. R. G. Lebau, May 23rd; Lt. C. B. Van-Leenhoff, May 25th; Sec. Lt. A. Wren, May 28th; Sec. Lt. A. J. Wilson, May 31st; Sec. Lt. E. G. Oliver, June 2nd; Lt. E. G. T. O'Kill (London R.), June 4th; Lt. F. H. Woolliames, June 5th; Sec. Lt. A. B. Lumb, Sec. Lt. J. C. Preston, June 7th; Capt. H. T. O. Windsor, M.C., June 11th; Sec. Lt. R. Morton, Lt. E. Shapard, D.F.C., June 13th; Sec. Lt. J. A. le Grange, June 16th; Lt. T. A. Lloyd, June 20th; Sec. Lt. A. B. Smith, June 28th; Lt. J. C. F. Williams, June 29th; Sec. Lt. N. C. R. Roberts, Lt. C. A. Sperry, June 30th; Lt. R. D. de L. Miller, July 2nd; Sec. Lt. J. Anderson, July 6th; Sec. Lt. W. Williams, July 7th; Sec. Lt. A. S. Woodthorpe, July 8th; Capt. A. B. Watkins, July 9th; Sec. Lt. J. Berry, Sec. Lt. P. G. Deedes, Lt. L. Randles, Sec. Lt. J. G. F. Van-Rooyer, July 10th; Sec. Lt. W. E. Ross, July 11th; Sec. Lt. A. McG. Anderson, Sec. Lt. W. R. Baskervilie, Sec. Lt. J. A. Bell, Sec. Lt. W. C. Birt, Sec. Lt. H. Board, Lt. H. J. L. Botterell, Lt. B. M. Bowyer-Smith, Sec. Lt. W. E. Campbell, Lt. A. H. Chisholm, Sec. Lt. F. D. Clarke, Sec. Lt. L. W. Deserres, Sec. Lt. G. E. Douglas, Sec. Lt. T. A. Duval, Sec. Lt. F. G. Ellis, Sec. Lt. F. W. Ervine, Sec. Lt. S. P. Fall, Lt. T. D. Fitzgerald, Sec. Lt. E. G. Fullerton, Sec. Lt. V. Graham, Sec. Lt. A. G. Gribble, Sec. Lt. J. Laxdal, Sec. Lt. J. G. G. Layton, Lt. H. W. Le Blond, Sec. Lt. L. W. Lloyd, Sec. Lt. A. D. Lockhart, Sec. Lt. C. W. Loucks, Lt. S. H. Love, Sec. Lt. R. D. Lovesey, Sec. Lt. O. B. S. Maria, Sec. Lt. H. E. Nash, Lt. R. Ritchie, Lt. J. A. Ruggles, Lt. E. C. Shurley, Sec. Lt. L. B. Sifton, Sec. Lt. J. L. Stevenson, Sec. Lt. E. L. Vetter, Sec. Lt. W. A. Waite, Sec. Lt. R. M. Walkey, Lt. R. S. E. Walshe, Sec. Lt. W. P. Wemple, Sec. Lt. D. O. Wigle, Sec. Lt. J. W. Wilson, Capt. H. A. Wood, Sec. Lt. S. E. Wood, Sec. Lt. W. R. Young, July 12th; Sec. Lt. G. S. Deane, Lt. C. H. Drew, A.F.C., Sec. Lt. A. Nisbett, Capt. B. H. Turner, Sec. Lt. G. F. Ward, July 13th; Sec. Lt. R. O. Cutler, July 14th; Sec. Lt. J. M. Letson, July 15th; Sec. Lt. H. C. Grout, Sec. Lt. H. C. Lloyd, July 16th; Sec. Lt. H. C. Curtis, July 17th; Lt. A. E. Lundie, July 18th; Lt. (Hon. Capt.) H. S. Openshaw, July 24th; Sec. Lt. J. B. McMeekan, July 25th.

Lt. J. E. Hunt relinquishes his commn. on account of ill-health, and is permitted to retain his rank, July 20th.

Lt. H. S. Round to take rank and precedence as if his appointment as Lt. bore date April 1st.

Sec. Lt. (Hon. Lt.) J. C. Ambler (Lancs. Fus., T.F.) relinquishes his commn. on account of ill-health, July 10th.

The rank of Lt. W. Wilkinson is as now described, and not "Sec. Lt." as stated in "Gazette," July 22nd.

The surname of Lt. E. C. Cockburn is as now described and not "Cockwin," as stated in "Gazette," March 25th.

The notification in "Gazette," March 21st, concerning Sec. Lt. C. A. Newham is cancelled. The notification in "Gazette," April 29th, to stand.

The notification in "Gazette," April 1st, concerning Sec. Lt. A. J. Newnham is cancelled.

The notification in "Gazette," April 4th, concerning Lt. J. Milton is cancelled. The notification in "Gazette," June 3rd, concerning Lt. L. M. McAab is cancelled. The notification in "Gazette," July 8th, to stand.

The notification in "Gazette," July 15th, concerning Lt. H. S. Symonds, is cancelled.

Administrative Branch.—Lt. G. D. Daly to be Lt., from (A.), June 30th (substituted for notification in "Gazette, July 1st).

The following are granted temp. comms. as Sec. Lts.:—C. H. Gauntlett, C. H. Haward, P. G. Whittle, July 21st.

The following relinquish their commns. on ceasing to be empld.:—Sec. Lt. (actg. Lt.) A. V. Hastings (Lt., R. Dublin Fus.), Feb. 10th); Lt. H. Hemingway (Lt., Middx R.), Feb. 17th; Lt. (Hon. Capt.) J. E. A. O'Dwyer (Capt., Notts and Derby R.), July 25th.

Transferred to unempld. list:—Sec. Lt. A. J. Newnham, Feb. 5th; Lt. J. Milton, March 21st; Sec. Lt. T. F. P. Llewellyn, April 17th; Sec. Lt. (actg. Maj.) F. Waldron, April 30th (substituted for notification in "Gazette," July 8th); Sec. Lt. C. Wormleighton, May 2nd; Sec. Lt. C. J. Woods, May 8th; Lt. W. E. Wright, May 26th; Lt. D. G. Lewis, May 29th; Lt. G. Walker, June 1st; Lt. (Hon. Capt.) E. Newman, June 13th; Capt. C. F. Newington, June 14th; Sec. Lt. A. G. Bazley, Capt. C. P. Cowper, July 5th; Sec. Lt. D. H. Woodhouse, July 8th; Sec. Lt. F. C. Logan, Lt. C. E. Walton, July 10th; Sec. Lt. D. H. Green, July 12th; Sec. Lt. P. J. Mackintosh, July 16th; Capt. H. Wild, July 24th.

The rank of Lt. T. S. Millar is as now described, and not as stated in "Gazette," April 1st.

The notification in "Gazette," May 13th, concerning Sec. Lt. G. H. Lilley, is cancelled.

Technical Branch.—Sec. Lt. (Hon. Lt.) T. Thomson to be actg. Capt. whilst empld. as Capt., Grade (B.), from Dec. 2nd, 1918, to April 30th.

Sec. Lt. (Hon. Lt.) T. Thomson to be graded for purposes of pay and allowances of Capt. whilst empld. as Capt., Grade (B.), from May 1st, to June 30th.

The following relinquish their commns. on ceasing to be empld.:—Maj. C. A. Shove, O.B.E. (R.N.), July 1st; Lt. Col. A. D. Carden, D.S.O. (Maj., R.E.), July 11th.

Transferred to unempld. list:—Sec. Lt. J. C. Adams, April 1st; Sec. Lt. A. J. Maguire, April 16th; Lt. R. E. Wakelin, May 3rd; Sec. Lt. Wm. Wood, May 30th; Sec. Lt. (Hon. Lt.) F. C. Winby, June 3rd; Capt. J. M. Furnival, Sec. Lt. (Hon. Lt.) E. M. Wood, June 30th; Lt. W. G. Andrews, Sec. Lt. K. G. Courage, July 4th; Sec. Lt. E. C. Bolton, Lt. W. D. Buchanan, July 5th; Sec. Lt. N. B. Capes, July 12th; Capt. A. P. Mackilligan, July 23rd.

Medical Branch.—Capt. R. L. Roe to be actg. Maj. whilst empld. as Maj., July 4th.

T. C. Backhouse (Capt., A.A.M.C.) is granted a temp. commn. as Capt., July 1st.

Transferred to unempld. list:—Maj. H. Pritchard, June 1st; Lt. P. E. Williams, June 13th; Capt. I. L. Waddell, July 9th.

Memoranda.—The follg. Cadets are granted Hon. Comms. as Sec. Lts.: 183877 F. R. Bungay, 184751 J. Cavill, 182586 N. W. Curtis, 184005 T. N. Clarke, 182107 R. S. Elworthy, 182588 O. L. Edic, 184516 R. Harrison, 183859 F. H. Harford, 183886 T. W. Mills, 180499 C. L. Melbye, 182236 N. H. Miller, Feb. 12th; 177683 W. H. Bushe, Feb. 13th; 178515 J. K. Aspinall, S/4/250009 R. Blackstock, 76544 A. Barrow, 128117 J. Brown, 178038 S. V. Cawse, 18652 G. E. Downing, 184419 G. Geddes, 181989 J. G. Gradidge, 181927 H. Hewitt, 178786 F. Jenkinson, 181930 H. Kelly, 33374 A. H. Lawrence, 137796 C. C. Sugden, 291972 T. S. Stephenson, 177837 A. Stephen, 180312 A. Widdowson, Feb. 17th; 203101 R. H. Barbreeke, 110374 M. H. Jones, Feb. 19th; 178661 E. D. Adamson, 180552 S. C. Grey, 178604 J. S. Kennedy, 177577 J. L. Lawson, 27274 W. C. Mason, 178033 C. F. Wild, E. W. Wale, Feb. 20th; 163791 J. S. Graham, Feb. 22nd; 234210 W. Atkinson, 128908 E. W. Burbidge, 37683 A. P. Beechey, 383376 F. G. Christmas, 3024 A. W. Jeffs, 178824 F. C. Kappey, 300306 A. S. Powell, W. H. Treadwell, 178974 W. F. Wright, Feb. 24th; 177040 W. T. Adkins, 178662 C. F. Allman, 177392 A. Amy, 28704 T. H. Babington, 97311 V. B. Lee, 187072 H. Clark, 305652 L. Dear, 149120 J. M. Fowden, 178073 A. J. Futlet, 176661 M. McL. Forbes, 216091 S. W. Gray, 137392 A. Haig, 115201 R. B. Ivey, 128039 J. H. McKinnon, 52520 J. H. Mantell, 117728 R. E. Mee, 69127 A. M. Nias, 178326 H. Palmer, 6458 F. W. Roberts, 412309 A. J. Strawhorn, 178630 J. R. Stuart, Feb. 25th; 322818 L. W. H. Annal, 121458 C. W. Cuddeford, 59717 A. Littlefield, 110731 A. D. McLeish, 128796 J. J. Whitehead, 5/97196 T. W. Maughan, 177090 R. R. Mills, 137664 H. P. Payne, 28027 G. H. Wood, Feb. 26th; 178663 L. W. Brownlow, 140430 R. L. Bacon, 87667 W. H. McMenigall, 176269 H. A. Phillips, Feb. 27th; 33125 T. I. Alcock, 128808 F. A. Barnes, 32289 C. Baseien, 328761 H. H.

Braund, J. F. Clifton, 54206 A. Day, 137168 D A. Goulsen, 241728 C. T. Medley, 050042 R. J. Pettifer, R. G. Millar, 214058 A. W. Walters, 64405 E. L. Wyate, Feb. 28th; F. J. Sullivan, A. F. Whittle, March 2nd; 177148 W. McK. Auld, 179533 G. C. Blowfield, 540627 A. Hore, 183121 E. Kilroe, R. King, H. Triance, March 3rd; W. M. Box, 100586 A. McC. Bell, 512456 H. H. Bullivant, 97130 H. Blackburn, 177709 F. Carter, 178240 C. G. Cross, 128825 F. Cochrane, H. R. Clarkson, 175275 K. Grice-Lloyd, 241246 A. McGhie, 176982 L. Hargreaves, 179045 H. Hawkins, 211186 W. Kirby, 106103 E. H. Norvall, 178463 H. Rees, 206026 R. G. A. Rae, 406728 L. C. Simmonds, March 4th; 175490 W. J. Black, 240552 T. A. Clarke, 59663 J. Cowing, 355838 H. Johnstone, March 5th; 137141 S. F. Blanch, 4616 W. H. Cheverton, G. W. Dunn, 183095 D. G Fraser, 182838 H. S. Johnson, 76619 G. Moore-Bowman, G. W. Ness, 183380 J. W. Rota, 15226 E. Raby, 154946 H. A. Ruffman, 2706 A. W. Skeggs, 313360 C. H. Turland, 127516 B. Warnes, March 6th; 189558 J. Grant, March 7th; 178769 H. Baldry, 244122 L. F. Davies, 137538 H. J. Lathe, 9697 C. McConnachie, W. J. Randle, 1/28281 C. H. Robb, 177227 R. Smith, March 10th; 135952 H. E. Blades, 30296 C. H. Gardner, 137107 G. H. Miller, 511566 H. T. Shrubbs, March 11th; P/3074 E. D. Ayre, 55785 E. H. Brown, 17033 A Barnett, 178712 J. Dolben, H. Hill, 45028 C. A. A. Jones, 178052 H. W. Littleales, 179213 E. T. Prior, 127761 R. Wright, March 12th; 95336 J. Begie, 2111 R. R. Brown, M/S4571 L. Brown, 137328 E. Demsey, 25597 J. C. E. Drewitt, 110098 J. Elfick, 137383 S. Hayward, 178449 I. Javal, E. R. Mouncher, 321997 H. Wray, March 31st; 264511 T. L. Bonen, 94061 A. E. Curtois, P.F.O. W. E. W. Holder, H. Lord, 154650 C. W. Smith, 42096 G. Watkins, 76294 G. Whitaker, March 14th; 182126 P. J. H Atkinson, 181239 T. P. Caister, 182152 M. P. Croxford, A. Humphreys, 182294 C. D. Merriman, March 15th; 179711 G. J. Burkill, E. J. Pullen, March 17th; W. E. Dyer, March 18th; 128652 S. Kingston, 177173 R. L. Levers, 13823 W. H. McGarry, 137423 W. J. Mills, 182217 H. H. Oldfield, M. Rubeck, 11778 C. M. L'Epine Smith, March 19th; 128396 R. G. Littlewood, March 20th; 534778 T. R. Bennett, 4149 G. H. Edney, 11044 S. G Henderson, 190110 F. W. W. Harrold, 107407 T. Hedgson, 37498 W. A. Malpass, 16455 H. N. Miller, 137430 R. V. McArdle, 175826 L. V. Pearson, 2/051918 J. McB. Steele, 249647 C. H. Scutter, 17758 H. Taylor, 32025 E. S. Walmsley, 175015 C. F. Wasliand, 105188 E. W. Wright, 128548 E. P. B. Wilson, March 21st; 526511 C. A. O'Dennell, March 22nd; 52061 J. Regis, March 23rd; 180406 R. C. Arnold, 177765 J. B. P. Burrows, 117916 R. W. Chiles, 177401 S. H. Clark, 46599 E. Charleon, 178099 C. R. Cosser, 2264 C. E. Connor, 175505 J. Corstorphine, 179481 R. M. Easton, 178683 W. L. Fletcher, 3981 F. Fogles, 178254 R. L. Guest, 8201 E. L. Hadler, 178530 A. C Harris, 13036 G. W. Harding, 237672 E. H Henton, 110947 L. G. Jeffrey, 180494 H. C. Kirby, 156400 H. E. J. Kingston, C. Lowe, 117311 N. Lees, 50359 R. Mariott, 156561 C. L. Millar, 176383 W. D Sutton, 110410 R. J. Veryard, March 24th; 178682 D. S. Edgar, 178657 D. C. Pollock, T4/238637 W. T Stantiall, 128733 J. S. Veal, 115076 W. J. Wright, March 25th; 60649 E. B. Gudgeon, 278733 I. McD. Miller, 248656 R. W. Townson, 20/5854 E. J. Whitbourne, 13/58386 S. A. Woodrow, March 26th; 10/156406 F. W. Unstead, March 27th; 137148 A. L. Brice, 5824 E. B Bayley, 218928 L. W. Barber, 114595 E. J. Hutson, 137388 H G. W. Hill, 406228 A. R. Pearce, 137466 H. L. Trafford, March 28th; 232543 S. B. C. Crick, P/305564 F. W. Hewlett, 182093 F. S. Purchase, 184794 O D. B. L. Perrin, March 29th; A. G. Arthur, 128811 D. D. Bolliver, 137194 F. S. Edwards, 213492 A. E. Ingledew, 137448 W. W. Inskin, March 31st; 223201 W. N. Burton, 36614 J. P. Clarke, April 1st; P. V. Bastin, 178251 H. H. Freeth, 504965 H. W. Hailstone, W. E. Lawton, 176724 S. B. Muller, April 2nd; 117488 R. W. Waterhouse, April 3rd; 171620 P. B. Burgwin, 24423 H. Dearden, April 7th; M2/051787 J. Bruce, 479908 H. R. Buddery, 180812 W. E. Clark, 52920 J. H. Chadwick, 69323 L. F Clarke, 511569 E. W. H. Challice, 106635 H. A. Davey, 11408 J. Everett, 128370 H. O. Faircloth, 185587 F. McBain, 79005 H. G. Marriott, 240122 A. Smith, S4/086007 J. G. Smart, 3/3529 J. E. Teare, 117339 W. V. Woodward, April 8th; 176440 C. J. Stevens, April 9th; 132522 S. W. Shaw, April 15th; 158104 H. Harris, 180729 A. Oxley, 936 R. Stimpson, W. W. Tolman, April 17th; 9339 C. A. Hillary, 181059 A. S. Pursell, 181866 W. J. Plaistowe, 181769 E. L. Rose, 183225 A. V. Fickering, April 23rd; 100601 T. H. Houghton, April 24th; 162151 E. G. A. Cory, April 26th; 25982 A. G. Kelty, April 28th; 181325 A. M. Thompson, May 1st; 182127 H. W. Atkinson, 183852 G. C Botts, 181856 G. W. Breakspeare, 182148 T. T Bielski, 184497 J. Boulle, 106809 W. Metson, May 6th; 316339 F. R. McCrea, 513993 F. C. Simpson, May 10th; 339166 W. H. Boswell, 540470 E. Boucher, 5647 J. N. Cartier, 339447 G. B. Finlay, 1999 W. G. Greaves, 430190 W. W. Pettigrew, May 19th; 175763 W. S. Mills, May 24th.

Temp. Hon. Capt. J. C. Pape relinquishes his commn. on ceasing to be empld., May 1st.

Transferred to unempld list:—Lt.-Col. (actg. Brig.-Gen.) J. A. Houison-Craufurd, C.M.G., C.B.E., June 1st; and is granted the hon rank of Brig.-Gen.; Lt. E. S. Pearse, July 24th.

The notification in "Gazette," July 11th, concerning Lt Col. J. A. Houison-Craufurd, C.M.G., C.B.E., is cancelled.

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The Air Ministry are sending a mission to Germany to see that the provisions of the Air Clauses are duly executed. The mission will be under the command of Brig.-Gen. E A. D. Masterman. Colonel Smyth-Piggott, R.A.F., is the second in command, and among the other officers are Major Babington, R.A.F., Major Fleming, R.A.F., and Major Teed, R.A.F. The mission is said to number nearly a hundred officers.

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The Air Ministry announced on July 28th that the Secretary of State for Air has approved a reorganisation of the Department of the Secretary to the Air Ministry, one of the principal objects of which is to provide more fully for the co-ordination of the work of the Department.

Under this reorganisation Mr. C. R. Brigstock and Mr. J. A. Webster, D.S.O., who had been transferred from the Board of Trade, have been appointed Assistant Secretaries.

* * *

Major-General Sir Frederick H. Sykes, Controller-General of Civil Aviation, was presented by General Duval, on behalf of President Poincaré, with the Cross of the Legion of Honour while attending a meeting of the International Aeronautical Commission in Paris recently.

* * *

A Handley Page Service machine, with a crew of two British officers and two mechanics landed at the Californie Aerodrome, near Nice, on July 23rd, when en route for Egypt. The machine had come from Istres, midway between Arles and Marseilles.

* * *

The Portuguese Government steamer "Sines" landed three British Aviators at La Coulette, the port of Tunis, on July 24th. Their machine had come down at sea some sixty miles from Malta owing to engine failure.

* * *

The Caproni aeroplane F.304 proceeding from London via Marseilles to Egypt fell into the sea off the coast of Italy, near Cape Mesco, owing to engine trouble, on the evening of July 26th.

The crew consisted of two English officers and two serjeants. The pilot, Lieut. Collinge, was fastened in the machine, and though he was eventually released by the efforts of his companions, who swam ashore, he expired soon after reaching the land.

* * *

General Corvisart, the French Military Attaché, Commandant Sablé, the French Attaché, and his Aide-de-camp and Lieut. Alfred F Sinisoff, of the Esthonian Army, a member of the Military Mission, visited No. 1 Aircraft Constructional Wing on July 26th. They were accompanied by Major-Gen. Philip Game, Director of Training and Organisation in the R.A.F.; Colonel T. Gerrard; Major Moore, C.O. No. 1 Constructional Wing; and Sir Willoughby Dickinson.

The headquarters of No. 1 Constructional Wing are in the Camden Road, Camden Town, N.W., and mention has already been made of this training wing, which is affiliated to the 19th Bn. (T.F.) County of London Regt.

The guests were conducted over the building in order that they might see how instruction is given.

Sir Willoughby Dickinson said that quite apart from the military needs in connection with aviation, which would always be heavy, there would be a great necessity for men to qualify in the art of flying for commercial and other purposes. Although the aircraft school which had just been established was only in the nature of an experiment, they were certainly justified in believing that it would be attended with big results. There must be thousands of boys longing to get up into the clouds, but before they could achieve that ambition they must learn aeroplane construction and master the science of aircraft.

Major-Gen. Game said he could see a friendly rivalry between the School and the Air Ministry in obtaining boys. The Air Ministry wanted as many boys as they could get between 15 and 16, and were willing to train them for three years. It would, therefore, be an enormous help if the School could assist the Air Ministry in this direction by instructing boys in aircraft.

Major Moore said they were also going to take up the teaching of wireless telegraphy at the School.

* * *

The South-Western area of the Royal Air Force held a successful sports meeting at the Victoria Park, Salisbury, on July 23rd, attracting large crowds of spectators. Some excellent racing was witnessed, giving promise of satisfactory displays in the forthcoming championships meeting which is to be held at Stamford Bridge.

Lieut. Paul (Gosport) and Sec. Lieut. Marsh (Blandford) tied in the high jump at 5 ft. 2½ ins.; and an excellent race for the mile resulted in a win for Acting-Corporal Nicks in 4 min. 50 secs.

Lieut. Price won the 100 yards in 10 1-5 sec., and the 100 yards open was secured by Serjt.-Major Bolt (1st Balloon Training School) in 10 3-5 sec. Lieut. Shaw (Gosport) proved an easy winner in the half-mile race in 2 mins. 10 secs. The one mile open was a splendid race, and was won by Lieut. Barr with comparative ease in 4 mins. 57 1-5 sec.

The long jump was secured by Capt. Scott (Boscombe Down) with 19 ft. 6 ins. Serjt.-Major Bolt won another good race in the 220 yards, which he won in 25 secs. Acting-Corporal Rider (Southern Aircraft Repair Depot, Farnborough) ran strongly in the three mile race, and won easily in 16 mins. 34 3-5 secs.

Lieut. Fraser won the hurdles, and Serjeant-Major Bennett (Lee-on-Solent) secured the 440 yards, after keen contest, in 55 2-5 secs.

The Southern Aircraft Repair Depot team from Farnborough, who recently competed at Olympia, and were defeated in the semi-final of the tug-of-war by Gordon Highlanders, exhibited good form, and, pulling strongly, beat Gosport in the final by two pulls to nil. A superb display of jumping was given by Mr. Singer, of Corsley.

The Warminster silver challenge cup, presented by friends in Salisbury to the Station winning most points, was secured by the Southern Aircraft Repair Depot, Farnborough; and the handsome cup presented by Brigadier-General Longcroft to the best individual competitor was awarded to Serjt.-Major Bolt.

The Earl of Athlone started the Windsor Marathon Race on July 26th in connection with the Royal Air Force sports at Ascot. The Marathon was won by Aircraftsman Ford, who crossed the tape at Ascot 41 min. after the start. Princess Alice, Countess of Athlone, distributed the prizes.

FRANCE.

The following is from a Paris correspondent:—

Rear-Admiral Violette has gone to Saint Raphael to study the question of formation of aviation uunits, and in particular that of the escadre (an escadre is about 200 machines). According to the result of his investigation, this unit of formation may be retained or suppressed.

On the 19th inst. Captain Marchal left St. Raphael to fly to

Bizerta, in Tunis, where he landed at 10.40 a.m. He flew a Nieuport Tellier machine with a 350 h.p. "Sunbeam," and carried Victor Giordan, his mechanic, as passenger. He intended to return the next day, but at the moment of writing no further news is to hand.

It is now understood that the French authorities have recognised the Adjudant Casser as an ace. Adjudant Casser has brought down a minimum of ten enemy machines. The authorities have only just discovered the graves of two aviators brought down by Casser in the spring of 1918. No definite information could be obtained before.

In a rather inglorious manner Lieut. Lemaitre has arrived at Dakar on board a tug, "La Calombe," having with him his passenger, Agt. Guignard, and his machine.

It will be remembered that Lieut. Lemaitre was forced to descend near Port Etienne, and crashed. Spares reached him here, but the necessary machines and tools to effect the repairs were not available, hence the reason for the sea journey to Dakar, where it is hoped the necessary mechanical equipment will be found.

GERMANY.

The following has been received from the Danish correspondent of The Aeroplane :—

The Bavarian officer-pilot, Lieut. Diemer, has carried out a number of altitude flights on a D.F.W. biplane scout, reaching first, with full load and a Benz motor, 23,250 ft. by a speed of 160 km., improving later this performance various times, having the power plant replaced by a B.M.W. motor, attaining the last time on June 17th a height of 9,620 metres (29,000 ft.) in 2 hours 4 mins.

On July 25th, 1918, this same officer flew, as technical officer of the Bavarian Flying School V., with a light two-seater biplane of the Halberstadt LCII model, equipped with a Bavaria IIIa 185 h.p. motor, and loaded with 80 kilos., from Augsburg to Doeberitz by Berlin in 4 hours 2 mins., on a petrol consumption of 84 litres. This is claimed to compare favourably with motor vehicles for service economy, as it is claimed that a 14/30 h.p. touring car (14 b.h.p., 30 i.h.p.) would need 12 to 14 hours and at least 120 litres for the same distance.

SCANDINAVIA.

The following has been received from the Danish correspondent of The Aeroplane :—

The Swedish Army has obtained a credit of 90,000 kronen for increasing the Swedish Air Services by buying foreign machines.

Both a Danish Army and Naval party have gone to Germany to inspect the cheap offers for aircraft with a view to acquiring aeroplanes for each service to the amount of £5,500 in German mark value, granted the Traffic Office by Parliament for air service trials. While the Army officers have so far acquired nothing, the Naval commission bought, beside a number of Benz engines, four Friedrichshafen biplanes, with which regular daily flights have been carried out during the last month both with and without mail, on the route between Copenhagen and Stege, to be extended to Nakskov, with only one mishap so far, one seaplane overturning while being brought after landing in a storm.

At the suggestion of the naval air station Captain-Lieut. v. Reppert has paid a flying visit to demonstrate the Brandenburg scout monoplane.

U.S.A.

During June a comparison of the casualties of the U.S. Air Service was issued at Washington, and the following table gives rates during the various periods mentioned :—

	Number	Hours Flown per Fatality
Training Fatalities—		
April 3rd to June 12th, 1919	8	2380
Other Fatalities—		
April 3rd to June 12th, 1919	14	462
All Fatalities—		
June 1st to November 11th, 1918	156	3149
November 11th to January 2nd, 1919	42	1877
January 2nd to April 3rd, 1919	21	1327
April 3rd to June 13th, 1919	22	1160

The U.S. War Department issued an announcement on June 30th regarding the number of aeroplanes in the U.S. Army Air Service. The following table from an American source shows the exact number of machines available for all purposes :—

Type	Designed for	Number in commission	In storage with motors taken out
D.H.4	Observation day bombing	1191	842
Spad	Pursuit	27	—
Le Pere.....	Service	18	—
Handley Page...	Bomber	4	20
S.E.5.....	Advanced training	46	57
J.N.6-H.....	Advanced training	653	156
S.4-C.....	Advanced training	400	—
	Total	2339	1075

RUSSIA.

Official Communiques (Bolshevik).

July 23rd.—In the direction of the Northern Dvina an enemy aeroplane dropped 20 bombs on our positions.

July 25th.—In the region of the Northern Dvina an enemy aeroplane dropped 17 bombs without causing any damage.

Undated (Western Front).—In the Gulf of Finland two of our aeroplanes successfully bombarded an enemy flotilla.

PERSONAL NOTICES.

NAVAL.

Deaths.

WARNEFORD.—Captain W. K. Warneford, A.F.C., R.A.F., who was lost on July 15th, in H.M.A. N.S.11, was born in July, 1895, and was the only child of Mr. W. H. Warneford, of Huyton, Liverpool, manager of the London and North-Western Railway Works at Earlestown, and formerly at Crewe. He joined the Kite Balloon Section, R.N.A.S., in October, 1914, and, after service in France, was transferred to the Airship Service, R.N.

His service has been highly commended, and recently a letter was received from the Air Ministry congratulating the crew on their high state of efficiency and attention to duty. Captain Warneford was a cousin of the late Lieut. Warneford, V.C., R.N.A.S.

WRIGHT.—Lieut. James Turstin Wright, R.N., of Belsize Grove, London, commanding Barrow airship station, was killed when motor-cycling on Olney Island, on July 17th. He ran into a number of sheep which had strayed on to the roadway, and was thrown to the ground. Lieut. Wright was twenty-one years of age, and was to have left the service on the following Wednesday.

Lieut. James Turstin Wright, R.N., was the son of the late James Wright, of Derby, and Mrs. James Wright, of 2, Grove Court, London.

MILITARY.

Marriage.

ASHMORE—PARSONS.—The marriage took place on July 17th, at Holy Trinity Church, Prince Consort Road, S.W., of Major-General Edward B. Ashmore, C.B., C.M.G., M.V.O., R.A., Commanding the London Air Defence Area, and Miss Betty Parsons, daughter of the Rev. F. W. Parsons, vicar of Tandridge, Oxted, Surrey, who performed the ceremony, assisted by the Rev. H. B. Coward (vicar of Holy Trinity) and Prebendary Joyce.

Mr. Alan Parsons gave away his sister, whose wedding gown was of gold tissue, with a train of gold brocade lined with tissue. In her hair was a pair of golden wings, mounted on a fillet of gold, which held the veil in place. This was the gift of Mrs. Alan Parsons. The bridal bouquet was of white lilies. The two little boy train-bearers were Master Ian David Parsons and Master Julian Cory-Wright, in flame-coloured chiffon shirts and loose breeches of gold tissue. They were followed by six bridesmaids, Miss Kathleen Govett, Miss Bet Joyce, Miss Aline Parsons, Miss Hope Robertson, Miss H. M. Smith, and Miss R. Gordon, whose dresses were in the Venetian style, of golden blue-shot tissue, worn with gold Dutch caps ornamented with clusters of tiny oranges and blue net veils. Their presents from the bridegroom were necklaces of lapis lazuli, and they carried delphiniums. A tiny child belonging to Mrs. Alan Parsons, in a classical costume with a gay little green toga, strewed rose-petals in the path as the couple left the church. The best man was Colonel Cyril Hankey, C.B.E., M.V.O.

Among the guests were :—The Spanish Ambassador and Mme. Merry del Val, the Countess of Limerick, Lady Randolph Churchill, Mr. and Mrs. Alan Parsons, the Hon. Gwladys Bailey, Sir Hugh Trenchard, Sir W. S. Brancker, Sir B. and Lady de Lisle, Sir A. and Lady Montgomery, Lady Tree, Lady Diana Duff-Cooper, Lord Bellew, Mr. Ivor Novello, Sir R. and Lady Longman, Mr. Gerald du Maurier, Miss Violet Loraine, Mr. and Mrs. Ernest Thesiger, Mr. and Mrs. Cory-Wright, Mrs. Charles Ashmore, Mrs. and Miss Ashmore, Mr. Eddie Marsh, General and Mrs. Romer, Mr. and Mrs. Govett, Sir William Treloar, General Geoffrey White, General Thomas Cubitt, Lady Bridge, Lady Butler, General and Mrs. Warner, Sir Cecil and Lady Harcourt-Smith, Miss Olga Lynn, Mrs. Delise Salmond, Mr. and Mrs. William Murdoch, Mr. and Mrs. Murray Davey, Mr. Boris Lensky, Mme. Suggia, Mr. Victor Beizel, Mr. Ley Smith, and the Staff and many officers of the London Air Defences.

There was a reception afterwards at 47, Prince's Gardens, the residence of Mr. F. Leonard Govett, the bride's uncle.

JACKSON—SLADE.—On July 23rd, in Dover Castle Chapel, Major James Lee Jackson, M.C., The Connaught Rangers and R.A.F., elder son of the Rev. Canon Jackson and Mrs. Jackson, The Rectory, Belmullet, co. Mayo, was married by special licence to Rosamond Tudor, second daughter of Edward Slade, Esq., and Mrs. Slade, The Tudor, Boston, U.S.A., and The Lake House, Quebec, by the father of the bridegroom, assisted by the Rev. A. S. Cuthbert Harrison, Chaplain, R.A.F.

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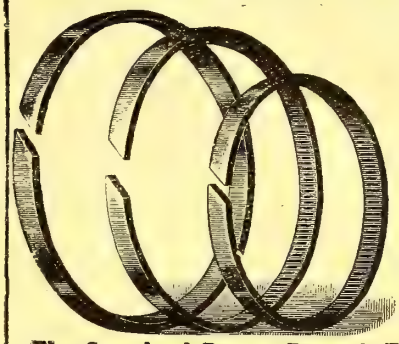

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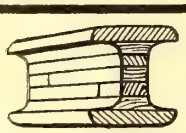
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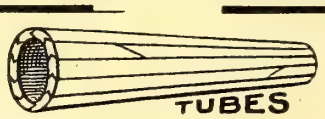
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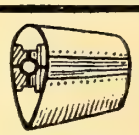
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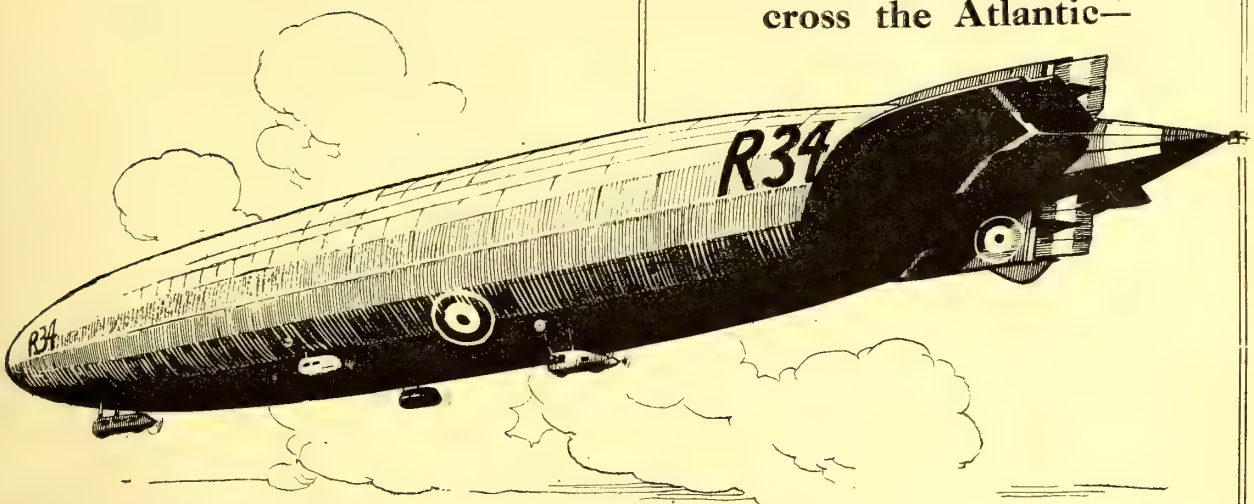

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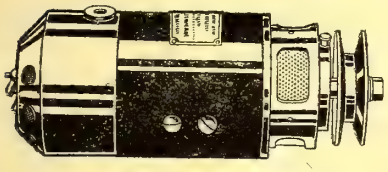

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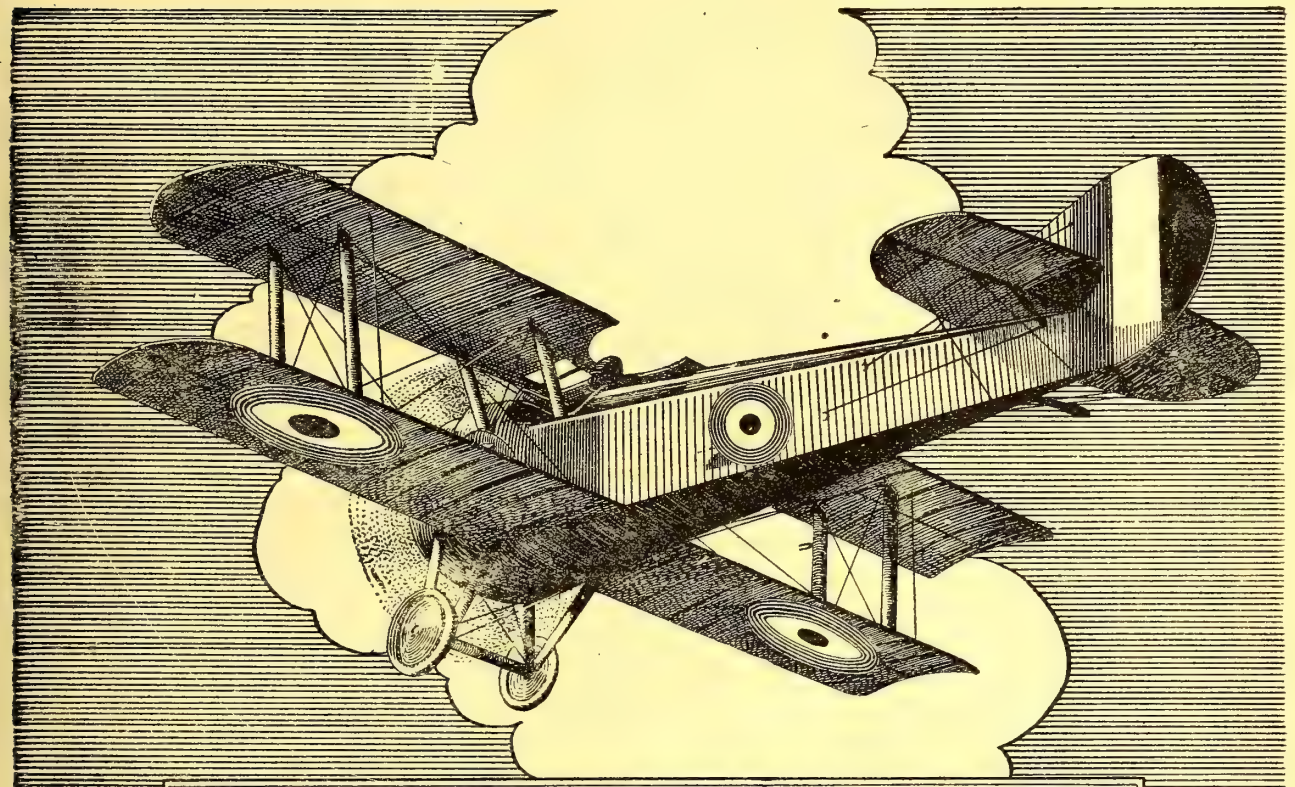

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THE PERMANENT AND TEMPORARY COMMISSIONS IN THE R.A.F. AND SERVICE IN THE R.A.F. RESERVE.

The Air Ministry makes the following announcement :—

It has been decided that officer personnel of the Royal Air Force will be provided for the present :—

1. By awarding a limited number of permanent commissions.
2. By granting 2,500 temporary commissions

PERMANENT COMMISSIONS.

A list of officers who have been awarded permanent commissions appears in the "London Gazette" to-day (August 1st), but there remain to be awarded a further number to officers selected from those now serving in Russia, those attached to the department of Controller-General of Civil Aviation and to the department of Director-General of Supply and Research, and in some special cases which are still under consideration. The question of the award of permanent commissions to officers serving with airships will be dealt with later.

A certain number of permanent commissions will also be awarded in about six months' time to selected applicants from among the officers who are then serving on the temporary commission list.

No officer on the permanent commission list has been awarded a commission in a rank higher than the substantive rank he held except second lieutenants who have been commissioned as lieutenants. The necessary adjustments will be made in promotion "Gazettes" at an early date.

Officers employed as stores officers will in future belong to the Quartermasters Branch of the R.A.F. unless they take up a flying qualification, and permanent commissions are only offered to these officers on this understanding. They will come under the rate of pay of the Quartermaster Branch, but will meantime be permitted to draw the higher rates laid down in the new scheme of officers on the general list until the position of each individual officer has been settled.

The new rates of pay and allowances in the case of officers given permanent commissions will run from August 1st, these officers for the present being paid through the same agents as now.

Officers who have hitherto held temporary commissions only are informed that the war gratuity issuable in their case will be on the scale for permanent officers as their war service will now reckon as pensionable.

Any officer accepting a permanent commission to which he has been gazetted must notify this fact to the Air Ministry (D. of P.) through his O.C. at the earliest possible date, and in any case not later than :—

(a) August 15th, in the case of officers at Home Stations.
(b) August 31st, in the case of officers with the Fleet in Home Waters or with the Forces of Occupation in France and Germany.
(c) Sept. 30th, in all other cases.

TEMPORARY COMMISSIONS.

The scheme of entry for temporary commissions is open :—

(a) To officers still serving who have not been awarded permanent commissions, and
(b) To demobilised officers.

It is not applicable to officers attached or lent from the other regular forces. Their terms of service in the R.A.F. will be dealt with separately.

As a general rule, candidates must not be more than 25 years of age on application, and must have qualified as flying officers. A limited number of officers of other classifications may, however, be selected. In the case of these officers the age limitation will not be enforced.

Employment will be for a period of three years On the completion of two years of this service officers may be permitted, if desirous, to extend their services to four years in all. After the period of three or four years' service on the active list, officers will pass into the reserve for a further period of four years' service. During the period of service on the active list an officer may be called upon to serve in any part of the world.

Any officer who at any time is found to be physically unfitted for the duties of the R.A.F. may be gazetted to the reserve or out of the service.

Officers not desirous of completing their full period of service on the active list may, at the discretion of the Air Ministry, be permitted to transfer to the reserve at any time.

All candidates will be required to pass a medical examination as to their physical fitness before acceptance.

Any temporary commission granted under these conditions may be terminated at any time under the rules laid down in the Royal Warrant for pay and promotion of the Army.

Whilst on the active list officers entered under the above provisions will, for the purpose of rank and command, be on exactly the same basis as permanent officers of the R.A.F.

Officers will be eligible for promotion during their period of service if qualified in all respects under such conditions as may be laid down for permanent officers

Applications by officers already demobilised should be made on Form 168, which can be obtained on written application to Secretary, Air Ministry (P.O.S.), London, W.C.2.

Applications will be received at any time prior to the termination of the Army of Occupation period, but all applicants will be informed without delay whether their application is accepted.

Officers on joining will be brought on to the rate of pay of their approved rank.

The rates of pay and allowances and conditions of issue will be those normally in force from time to time for permanent officers of the R.A.F.

Service under this scheme will not affect the amount or date of issue of any gratuity which may otherwise be issuable in respect of past service.

As from August 4th, 1919, in the case of officers continuing to serve without a break from the war period, and as from the date of entry in other cases, officers will be eligible for a gratuity of £75 for each year's service and proportionately for broken periods. This gratuity will be payable to them on the completion of their period of services on the the active list—i.e., on passing into the reserve.

An officer placed in the reserve before the full period of his service on the active list is completed, either at his own request or for physical unfitness due to causes beyond his control, may be paid such gratuity as the Air Council may think fit, not exceeding the above scale.

Officers injured whilst on duty will be eligible for non-effective benefits under the same conditions as permanent officers. In any case in which a pension is awarded, however, the officer will not receive in addition the gratuity to which temporary service would have entitled him.

The widows and children or other dependents of officers killed whilst on duty will be eligible for the same pensions and allowances as would be applicable to the widows and children or dependents of permanent officers of the R.A.F.

Officers will be required to provide themselves with the uniform of their rank. No outfit allowance will be payable to officers entered under this scheme unless they are subsequently directed

THE R.A.F. REVIEW.—Another View of the Machines awaiting inspection. This photograph was taken from the roof of a shed.

to adopt a different pattern of uniform from that at present in force.

GENERAL.

Officers of the flying, technical, and administrative branches (including Staff officers) who :—

(a) Are not on the selected list for permanent commissions;
(b) Are not serving in Russia or with the Controller-General of Civil Aviation, and the Director-General of Supply and Research; and
(c) Have not applied for temporary commissions or for re-seconding in the case of officers belonging to the other regular services,

will be regarded as eligible for demobilisation as soon as their services can be spared.

Officers desirous of consideration under (c) should send in their names through G.O.C. of Area, or direct to the Secretary, Air Ministry, if unattached. Applications will be considered as they are received.

Officers of the regular forces may be re-seconded without prejudice to their subsequent return to their parent service.

While a small proportion of officers in the permanent commission list are not flying officers, and while some temporary commissions may also be awarded to officers who are not flying officers, the Air Ministry desires to point out that all officers given commissions who are not flying officers will, with the exception of certain technical officers, be required to qualify as pilots within 12 months from August 1st, 1919, the policy and intention being that in future all commissioned service, except Quartermasters service, within the Air Force will be undertaken by flying officers only. This is the reason why "flying risk" pay has been abolished.

Special regulations will be issued shortly governing the pension rights of officers holding temporary commissions in the R.A.F. who had served as commissioned warrant officers, warrant officers and ratings on regular engagements in the Royal Navy, or as warrant officers, N.C.Os., and men on regular engagements in the Army, including those who had been given commissions in the Army.

R.A.F. RESERVE.

An R.A.F. Reserve will be constituted, consisting of three classes :—

(a) For flying officers.
(b) For certain technical officers.
(c) For general service duties.

The following conditions of service in the reserve are applicable only to officers entered under the special regulations for temporary commissioned service. Full Reserve Regulations will be published shortly.

Those in Classes (a) and (b) require to keep up to date in the latest development, and periodical re-qualifying courses are therefore necessary.

Flying officers entered under the foregoing conditions for temporary commissioned service will, on completing their period of service on the active list, be placed in Class A of the reserve for a period of four years. They may be permitted subsequently to re-enrol in this class up to the age of 30 if of the rank of captain or below, 35 if of the rank of major, and 40 if of the rank of lieutenant-colonel.

Officers will hold the substantive rank which they held at the end of their active service period. They will be required to present themselves at the nearest R.A.F. training station not less than two days in each quarter, and to carry out not less than 12 hours' flying per annum on up-to-date war-type machines. They will receive the full pay and allowances of their rank for each day upon which training is carried out, subject to the limitation that no officer will be allowed pay more than six days in any one quarter or 24 days in a whole year. In cases of accidents or injuries during such training, they will be eligible for non-effective benefits under the same conditions as permanent officers.

A retaining fee of £30 will be paid on the completion of each year's service in Class A of the reserve, provided that certificates are produced showing that the necessary flying and attendance has been carried out. This retaining fee will be held to cover all contingent expenses for upkeep, wear, and tear of uniform, etc. The customary travelling expenses will be allowed in addition for each occasion of training.

Any officer who for special reasons is unable to carry out his training in any quarter is to report the reasons in full for the approval of the Air Ministry. Except under exceptional circumstances no officers will be allowed to omit two consecutive quarters' training.

Officers unable for any cause to complete their full period of flying service in reserve Class A may be permitted to transfer to Class B or Class C of the reserve if considered suitable.

The object of Class B of the reserve is to provide technical officers on mobilisation for the following branches :—

(a) Engine and rigging.
(b) W/T and signals.
(c) Photography.
(d) Armament.

The officers of Class B of the reserve will, in the immediate future, be drawn from the following sources :—

(a) By the voluntary enrolment of a limited number of those who have served in one of the above technical branches during the war.
(b) By officers who transfer from Class A of the reserve either on completion of their service in that class or when they have been permitted to retire before completion of such service.
(c) From officers of the permanent list permitted to retire.

Officers who have completed four years' service in Class A of the reserve may, if below the rank of captain, be advanced to that rank on joining Class B. Enrolment in Class B will be for periods of four years, which may be extended up to the age of 40.

Officers in Class B will be required to undergo a technical course lasting for 14 days in each year at the R.A.F. technical school for their particular branch, and will be expected to pass a medium standard re-qualifying examination at the conclusion of the course.

Subject to satisfactory compliance with the provisions outlined in the preceding paragraph officers will receive the full pay and allowances of their rank for the period of annual training, together with an annual retaining fee of £20. This retaining fee is held to cover the incidental expense of upkeep of uniform, etc. They will also be allowed the customary travelling expenses for each occasion of travelling.

In cases of accidents or injuries during training, officers will be eligible for non-effective benefits under the same conditions as permanent officers.

Any officer who for special reasons is unable to carry out his period of annual training is required to report the reasons, for the decision of the Air Ministry.

Class C of the reserve is intended to provide officers on mobilisation for various duties not requiring up-to-date technical knowledge or skill.

Service in Class C of the reserve will be entirely voluntary. There will be no annual qualifying courses and no retaining fee. The age limit will be 50.

THE ROYAL AERO CLUB.

A meeting of the Flying Services Fund Committee was held on Monday, July 28th, 1919, when there were present :—Lieut.-Col T. O'B. Hubbard, M.C., R.A.F. (in the Chair), Mr. Chester Fox, and Mr. Harold E. Perrin (Secretary).

GRANTS AND ALLOWANCES.—The following Grants and Allowances were made :—

(110) A Grant of £10 to an Ex-2nd Class Air Mechanic in the Royal Flying Corps who had been incapacitated on active service.

(127) An allowance of £4 a month for six months to the mother of a Petty Officer in the Royal Naval Air Service who had been killed on active service.

(224) An allowance of £2 a month for six months to the mother of a 2nd Lieutenant in the Royal Air Force who had been killed on active service.

(225) A Grant of £8 and an allowance of £2 a month for six months to the widow of a Sergeant-Major in the Royal Air Force who had died on active service.

(234) An allowance of £1 a month for twelve months to the widow of a Sergeant in the Royal Air Force who had died on active service.

(235) An allowance of £2 a month for six months to the widow of a Leading Aircraftsman in the Royal Air Force who had died on active service.

(236) An allowance of £4 a month for six months to the widow of a 1st Class Air Mechanic in the Royal Air Force who had died on active service.

(237) An allowance of £2 a month for six months to the widow of a Flight-Sergeant in the Royal Air Force who had died on active service.

(238) An allowance of £1 a month for six months to the mother of a Private in the Royal Air Force who had died on active service.

(239) An allowance of £2 a month for six months to the widow of a Corporal in the Royal Air Force who had died on active service

COLONEL R. H. MORE, C.M.G.—A letter was read from Col. R. H. More, C.M.G., dated July 25th, 1919, resigning from the Committee. His resignation was received with much regret and the Secretary was instructed to write and thank him for his services on the Committee.

ROYAL GARDEN PARTY.

The members of the Flying Services Fund Committee were honoured with invitations to Their Majesties' Afternoon Party at Buckingham Palace on Friday, July 25th, 1919

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H.R.H. Prince Albert, K.G. *(Chairman).*
Mr. Chester Fox.
Lieut.-Col. T. O'B Hubbard, M.C., R.A.F
Lieut.-Col. C. E. Maude, R.A.F

SECRETARY :
H. E. Perrin.

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Total, July 29th, 1919 ...	£15,077	19	1

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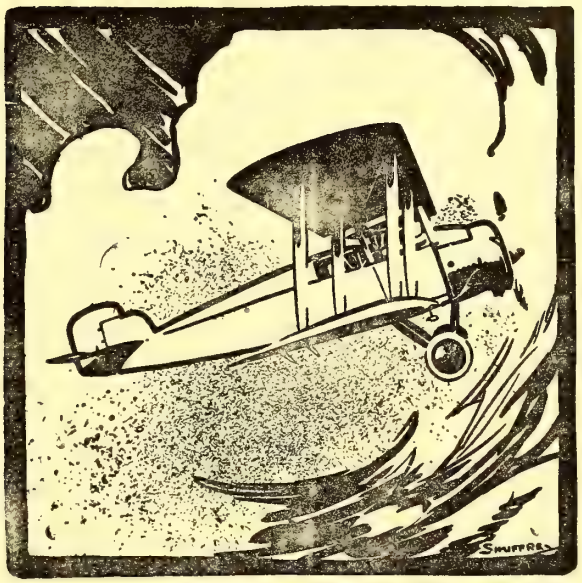

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The WORLD of AERONAUTICS

NEWS OF THE WEEK FROM ALL QUARTERS

The Royal Aero Club.

Mr. F. Hedges Butler, the founder of the Royal Aero Club of the United Kingdom, has received the following letter from the Hon. Sir Sidney Greville, Comptroller to His Royal Highness the Prince of Wales :—

" York House,
" St. James's Palace, S.W.,
" July 29th, 1919.

" Dear Mr. Hedges Butler,—With further reference to my letter of the 6th ultimo, with reference to the request that the Prince of Wales would become the Vice-Patron of the Royal Aero Club, I have taken an opportunity of submitting this to His Royal Highness, who desires me to inform you that he will have much pleasure in complying with the request.

" Believe me, yours very truly,
" SIDNEY GREVILLE, Comptroller."

F. Hedges Butler, Esq.

The Royal Aero Club of the United Kingdom was founded on Sept. 24th, 1901, by Mr. F. Hedges Butler and his daughter, Miss Vera Butler (now Mrs. Iltid Nicholl), and the late Hon. C. S. Rolls. During a balloon voyage at 5,000 ft. above the Crystal Palace, Mr. F. Hedges Butler suggested the formation of a club for the encouragement of aeronautics; the idea was immediately adopted by the rest of the party, and when a descent was made steps were taken to register the name. These pioneers scarcely dreamt that in so short a time progress in aviation would be so great.

H.M. King Edward VII gave permission to use the prefix "Royal" in 1910, and H.M. King George V is Patron.

A Wireless Telephone Demonstration.

Major-General the Right Hon. J. E. B. Seely, C.B., C.M.G., D.S.O., M.P., Under Secretary for Air, is arranging an exhibition of wireless telephones for Members of Parliament this week.

A wireless telephone receiving and transmitting set will be fixed in one of the Parliamentary Committee rooms, and an airship and one or more aeroplanes similarly fitted will fly over London. Another set will be fixed at the Air Ministry in the Strand. Members will then be invited to " ring up " the airship, aeroplane, or Ministry, as they choose, and converse.

One thinks that M.Ps. have too many chances of wasting time as it is. If some of the members who ask puerile questions in Parliament could be induced to " ring off," civil aviation might make more rapid progress.

Undraped.

A number of the "picture papers," which, as a cynic remarked, appear to be produced for people who cannot read, reproduced last week a photograph of a comedienne who, dressed only in a bathing costume, flew from Swansea beach in an Avro machine. Modest young pilots, who were not trained in the R.A.F., are now dreading that some other actress, jealous of the publicity that has been obtained, will disrobe more thoroughly and insist upon flying in a modern dancing frock.

Lapsus Carlinque.

The " Birmingham Gazette and Express " has published a review of " A Glossary of Aeronautical Terms " recently issued by the Royal Aeronautical Society. According to this newssheet :—

" The airman of to-day, if he takes the new language to heart, will describe a bad landing like this : ' After observing the isohels I struck an anabetic, and in a yawing moment stalled and nearly smashed my carlingue.'

" Which is another way of saying : ' After noting the lines of equal duration of sunshine I struck a breeze coming up the valley, and as the aeroplane moved angularly on its axis it came down with such a bump that I nearly fell through the bottom of the nacelle.' "

One suspects that by airman the newspaper means flying officer, and that " anabetic " is the printer's effort to render into type the word "anabatic." The attempt at sprightly humour makes one think of a tank trying to perform the shimmy shake.

More Imbecility.

At an "aerial circus" held on July 18th at Southsea Field, Americus, U.S.A., it is reported that Lieut. Alfred W. Vance, Officer in Charge of flying, at an altitude of 1600 feet gave an exhibition of climbing all over the wings of an aeroplane in flight, standing on the top wing, hanging from the landing gear, and sitting on the landing gear when the aeroplane landed.

Landing at the Amsterdam Exhibition.

The aerodrome at the Amsterdam Exhibition is very bad. In appearance it is good and flat, but, in reality, it is a bog. Before the first Handley Page machine, an exhibit, could land, it was necessary to walk all over the ground to find the least soft parts. A fair patch having been found, the machine was landed upon it. The machine ran a little too far. The right-hand wheels sank in up to their axles and had to be levered out and baulks of timber were placed under them. Meanwhile, the tail-skid had sunk in until the bottom of the fuselage was flat on the ground. This had to be levered out and baulked up. Then it was necessary to put down a timber road on which the machine was wheeled across the aerodrome to its stand in the exhibition.

British Sportsmanship.

A dinner was given by the American Flying Club at the Commodore Club, New York, on July 2nd, in honour of Lieut.-Commander A. C. Read, A.F.C., and the crew of the N.C.4, and also Commander J. H. Towers and Lieut.-Commander P. N. L. Bellinger and the crews of the flying boats that attempted but failed to complete the trans-Atlantic flight.

In the course of his speech Lieut.-Commander Read said :—

" One of the most important impressions of England was the sportsmanship of the British people. We had just captured the prize they had been hoping for. Perhaps here it might not be out of the way to say that Harry Hawker met me at the train, took the best care of me, and although the papers have more or less gone after him on account of some remark that he made, this remark was very well explained to me, and I believe the explanation to the effect that he was endeavouring to defend the British Admiralty for not sending boats out. Some paper had criticised them quite severely. They said that the American Navy sent out boats all over the ocean, the British Admiralty did nothing. He was a guest at luncheon and he wished to defend the British Admiralty without thinking of the backfire which his words apparently created."

Commander J. H. Towers, after speaking of the general organisation of the flights, said :—

" A great many people have asked me about the selections of the route. I am afraid I must assume responsibility for the selection of the route. The principal question was : ' Why go to England? When you fly to Lisbon, you cross the Atlantic, why not quit? ' Well, I don't know really why I laid down the route that way. It just sort of seemed the natural thing to do, to end up the flight in England. And I should like to say to General Charlton this evening that had we known what we were going to get when we got to England, in the way of a reception, we never would have gone there, because he shortened our lives about ten years, he and his compatriots."

Major Connolly said :—" Mr. Chairman, through you, some of the membership desire to express this resolution, which in a way very crudely, extemporaneously, and imperfectly drafted, I think, typifies the breadth and the generosity of American sportsmanship, and American appreciation of great and worthy deeds.

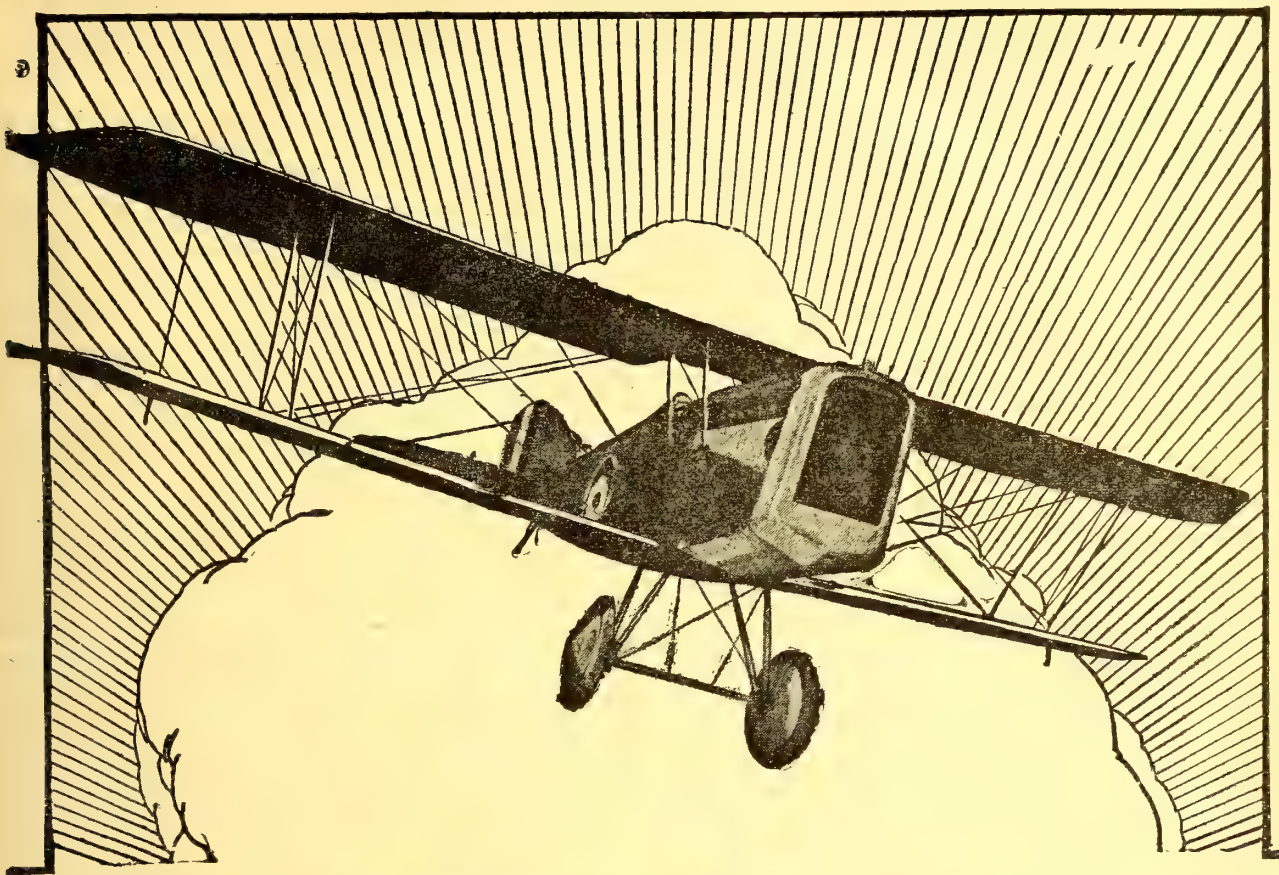
" Resolved, that the American Flying Club at the dinner given by the club to commemorate the successful accomplishment of Lieutenant-Commander Read and the crew of the N.C.4, of the first trans-Atlantic voyage by air, in conjunction therewith extend to the Royal Air Force and the British Air Service organisations generally our congratulations and felicitations on the extraordinary accomplishment of Captain Alcock and Lieutenant Brown, respectively, in their successful and epochal trans-oceanic flight, and also the courageous and sportsmanlike effort of Harry Hawker and Lieutenant-Commander Grieve. We await with hopeful and hospitable anticipation the arrival of the R.34 and its gallant crew."

Flying and Frailties.

A writer in the "Nottingham Guardian" rhapsodies thus :—

"To those who have not experienced the joy of flight, the sensation becomes difficult of description. The vast panorama of earth stretching away on all sides, the huge mountains of clouds moving slowly and with dignity through the vast spaces of the firmament, the exhilarating rush of air, the strangely joyous feeling of buoyancy and yet security, all combine to make of one a transformed creature, so that frailties are left behind."

The attention of Pussyfoot specialists in morality should be drawn to this.



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The WORLD of AERONAUTICS (continued)

R.A.F. v. Royal Aero Club Golf Match.

Teams of the R.A.F. Club and the Royal Aero Club played a match at Worplesdon on July 29th. The Royal Aero Club won the singles in the morning by six matches to one, and in the foursomes in the afternoon each side won two matches, so that the Royal Aero Club won on the day's play by eight matches to three.

The Royal Aero Club was very strongly represented, but the Royal Air Force turned up one short, and were very fortunate in finding a substitute in one of the best known players in the country. The match between this player and Major W. Graham Chambers proved the event of the morning play. Major Chambers is plus 5 at the Hamilton Club, Auckland, New Zealand, and is practically the best player over there. It was generally expected that he would lose to Captain "A. N. Other," but to everyone's surprise he actually beat him by 1 up. The results were :—

SINGLES.

R.A.F. Club.		Royal Aero Club.	
Lt.-Col. Basil Foster	0	Lt.-Col. Moore-Brabazon, M.P. (1 up)	1
Capt. P. E. Jeffcock	0	Capt. W. G. Aston (1 up)..	1
Capt. H. Wallace	0	Mr. Stanley May (4 and 3)	1
Capt. "A. N. Other"	0	Major W. Graham Chambers (1 up)	1
Capt. S. Baxenden	0	Mr. Victor Maude (3 and 1)	1
Capt. J. M. Pearson	0	Mr. Frank Mead (9 and 8)	1
Capt. W. Mitton	0	Lt.-Comdr. P. Barry	0
Lt.-Col. W. C. Bersey (6 and 4)	1	Lt.-Col. W. Jarrott	0
Total points	1	Total points	6

FOURSOMES.

R.A.F. Club.		Royal Aero Club.	
Lt.-Col. Basil Foster and Capt. Jeffcock	0	Col. Moore-Brabazon and Capt. Aston (3 and 1)...	1
Lt.-Col. Bersey and Capt. Baxenden (3 and 2)	1	Lt.-Col. Jarrott and Mr. Maude	0
Capt. Wallace and Capt. Milton	0	Mr. May and Lt.-Comdr. Barry (2 up)	1
Capt. Pearson and Capt. "A. N. Other" (5 and 4)...	1	Major Chambers and Mr. Mead	0
Total	2	Total	2

Disarmed by a Smile.

U.S.A. Army pilots at France Field, Cristobal, Canal Zone, Panama, are required to do much of their flying over water and along the coast. A flight to the Gulf of San Blas, taking 3½ hours, was made recently by two R.9 hydro-aeroplanes.

It appears from the reports of the expedition that the mainland and numerous islands in and around the Gulf of San Blas, which is about 100 miles south-west of France Field, are inhabited by Indians who are suspicious and unfriendly and decline to trade with strangers. In view of this the machines would not have stopped there had it not been for the fact that one of the engines became overheated.

None of these people had ever seen or probably ever heard of a flying machine, and great consternation was manifested when they taxied up to the village. It is doubtful which side was the more afraid, for when the begoggled pilots stepped from their machines the entire population of the island was lined up on the beach armed to the teeth.

One of the pilots, who was a new arrival in Panama, however, and unfamiliar with the current yarns about the unfriendliness of the Indians, stepped on the beach, rushed up, and greeted the chief effusively. Fortunately his friendly smile was properly interpreted and the pilots were permitted to go through the village.

If the "begoggled pilot" was dressed in a Sidcot suit and helmet, one is surprised that even his "friendly smile" saved him from being clubbed. One has seen pilots in their full war paint who would have caused any Indian to sharpen his tomahawk.

A Fine Performance.

A magnificent non-stop flight from London to Madrid was made on July 31st. It was accomplished by an Alliance aeroplane fitted with a 450 h.p. Napier "Lion" engine. A start was made from the aerodrome near Acton at 7.15 a.m., and Madrid was reached at 3 p.m. on the same day. This performance—viz., 900 miles in 7¾ hours—must be regarded as extremely creditable.

The machine carried a letter from Princess Beatrice to her daughter, the Queen of Spain, and a gold cup which the company hope the Queen will accept as a memento of the first non-stop flight from her native land to her selected home. Copies of the "Daily Express" were also carried.

The pilot was Capt. Curtice, and the observer Mr. Peters, the designer of the machine, which was built for commercial and not for Service use. It was fitted with a similar type of Napier engine to that which won the Aerial Derby in June.

It is claimed that this is the first non-stop flight from London to Madrid, and anyone who has made that wearisome journey by train, even in pre-war days when the service was at its best, will appreciate all that the performance means. Long-distance flights such as this make the general public realise the enormous advantages of the modern machine. All concerned are to be congratulated.

The Alliance Aeroplane Co., which built the machine, is one of the group of aircraft firms of which Sir Samuel Waring, Bart., is the head.

Recruiting Methods.

It is interesting to note the methods adopted in the United States of America for obtaining recruits. These are described in the following official announcement :—

"In order to create enthusiasm and personal interest in the Air Service from all its enlisted men, Lieut. Floyd Wilson, formerly personal Adjutant and Publicity Officer here, now at Langley Field, Va., issued a mimeograph form asking that each enlisted man answer the following questions :—

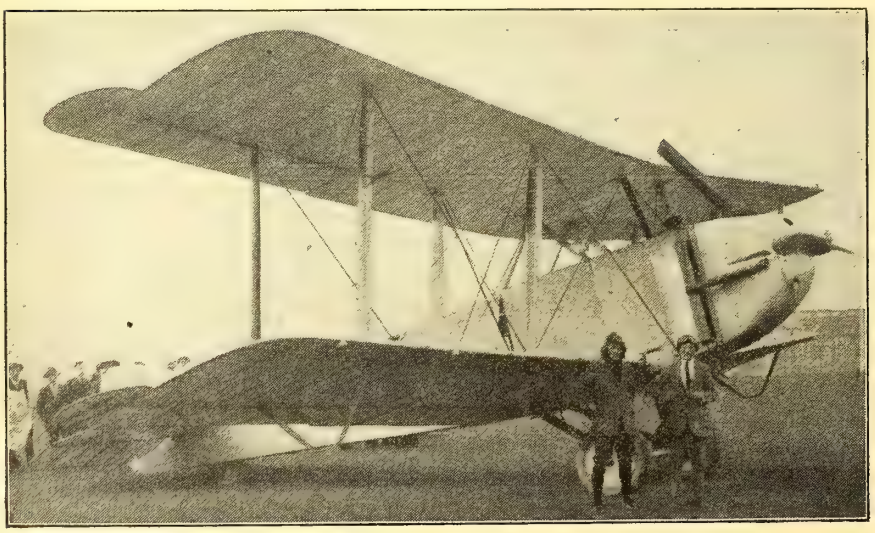
"Name in full, home address (street and town), the name of the daily or weekly newspaper printed at his home town or read by his people, whether or not he has had a flight, and, if not, did he desire one?

"When all these questionnaires had been received, Lieut. Wilson would follow the activity of each enlisted man at the field, and as they had a flight, or attended a rigging class or any other interesting bit of news, this news was mailed to the town paper of the enlisted man, where it was eagerly printed by the newspaper, giving his name and address.

"If a cross-country flight was to be made to a town, instead of selecting anyone to act as a passenger, Lieut. Wilson would refer to his roster and select a man that lived in the town to which the ship was going and appointed this man as passenger.

"The information was then telegraphed to the local newspaper in the home town that he was leaving in an aeroplane for home, this information the paper would gladly publish, with the result that many of the boy's friends in his town were anxious to be on the field when the ship landed and honour their hero who had only been in the Air Service 10 days perhaps, and was already flying around the country in a ship.

"This created a feeling of much satisfaction and pride in the enlisted man himself, and also a great amount of interest amongst his friends at home, with the result that Souther Field increased its recruits 32 per cent. in one week."



The Alliance Biplane (450 h.p. Napier "Lion") on which Captain Curtice and Mr. Peters flew from London to Madrid in 7¾ hours on July 31st.

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VICKERS—VIMY—ROLLS

Telegram:

To ROLLS-ROYCE, DERBY.

Congratulations on performance of the two "Eagle" Rolls-Royce engines, which propelled the Vickers "Vimy" safely across the Atlantic.

ALCOCK & BROWN.

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WARNING—CHANGES TO ROLLS-ROYCE CARS.

Rolls-Royce Ltd. have recently learned that attempts are being made by certain persons to "bring up to date" pre-war Rolls-Royce chassis by substituting for Rolls-Royce springs of old type, cantilever springs which are not of Rolls-Royce manufacture; also by substituting other radiators and bonnets which are not of Rolls-Royce manufacture. Some of these changes have been brought to the attention of the Company, who have found them to be not only unsatisfactory, but possibly dangerous to the users. Owners who are asked to have such changes made to their Rolls-Royce cars, or potential purchasers of Rolls-Royce cars on which such changes have been made or may be suspected, should communicate with Rolls-Royce, Limited, 15, Conduit Street, London, W., and the Company will, for a small fee, inspect the chassis in question and inform the applicant what parts, if any, are not supplied by Rolls-Royce, and what the effect of such parts in their opinion is likely to be.

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The WORLD of AERONAUTICS (continued)

An Unusual Landing.

A serious accident was avoided cleverly by Capt. F. McCall, M.C., D.F.C., at the Calgary Exhibition, U.S.A., recently, He was flying with two boys as passengers over the fair ground when his engine failed and a crash among the crowd seemed inevitable. Describing the incident in the "Calgary Herald," he said:—

"Right ahead of me was the race track, around which the racing motors were going then at full speed. To land there was impossible without a terrible accident. On the other hand, farther ahead was a bunch of wires over the motordrome. I saw that in the short space I had to go it would be impossible to put on the power sufficiently to cause the machine to rise and clear those wires. It was either land or hit them. At the same time I saw no place to land except in the crowd in the midway or on top of a merry-go-round. It was that or nothing, so I cut off the power completely and just let her drop. It all happened in a second.

"We were without headway then, just dropping down, and we landed exactly on top of the merry-go-round. The merry-go-round has a conical top consisting of canvas stretched over iron rods radiating out from the centre. When the machine dropped on top of these, it was held there by the rods. We got down by climbing down through the rods on top of the merry-go-round engine and then to the ground."

A Yarn.

Captain W. G. Aston related the following story in the "Tatler":—

"Once upon a time, and, as they say in the more cultured circles, not so long ago neither, a Bristol Fighter was sent aloft on business connected with the testing of a self-sealing petrol tank. And a very necessary object, too. It was expected to land at an aerodrome not ten thousand miles from the north-west of London, and by and by a gentleman, whom we will call Captain Foxy, of a certain department, began to warm up the telephone wires with tender inquiries as to whether the Rafbird had effected a landing.

"Now it so happened that said pilot had stopped his engine a shade too soon, and could not start it up again, with the result that he alighted at the very farthest end of the ground, remote from his ultimate destination. So ultimately the inquiree announced that he *had* come down but that he had 'lost his prop.' 'Merciful heavens!' cries Captain Foxy, 'is the poor fellow killed?' 'Killed, no!' says the laconic aerodrome official, 'I only said he'd lost his prop.' After a considerable pause for thought Foxy takes immediate action. 'Will you,' he commands, 'go immediately to Handley Page's or Airco and see if you can get another propeller to replace the one he has lost? We had feared some great disaster had occurred.' After which the man at the other end replaced the receiver with difficulty and gave vent to the series of gurgling eructations which he imagines to be laughter. . . .

"The one and only Henery Knox told this yarn at the Royal Aero Club (where, if there is a fault to find, it is that the folk are terribly technically minded), and got the reception it deserved. When up spoke one who, ere now, had been known to be quoted as an authority on matters aerial. 'I don't know,' says he, 'but what, after all, there is a bit of sense in it. When this chap's *prop fell off* it's more than probable it would get a bit damaged and it might be risky to use it again!'"

Our Grammarians.

The "Practical Engineer" says:—"Th four cross-Atlantic flights and the gallant failure has taught valuable lessons."

They has.

Coming Events.

August.

Amsterdam Aircraft Exhibition.

Saturday, August 16th.—R.N.A.S. Officers' (Hendon) Dinner at the Café Royal.

Thursday, August 21st.—R.A.F. Annual Athletic Meeting at Stamford Bridge.

Sunday, August 24th to Sunday, August 31st.—The "Avenir's" Tour de France Aérien is due to start.

Saturday, August 30th.—Hendon-Brighton-Hendon Air Race at Hendon Aerodrome.

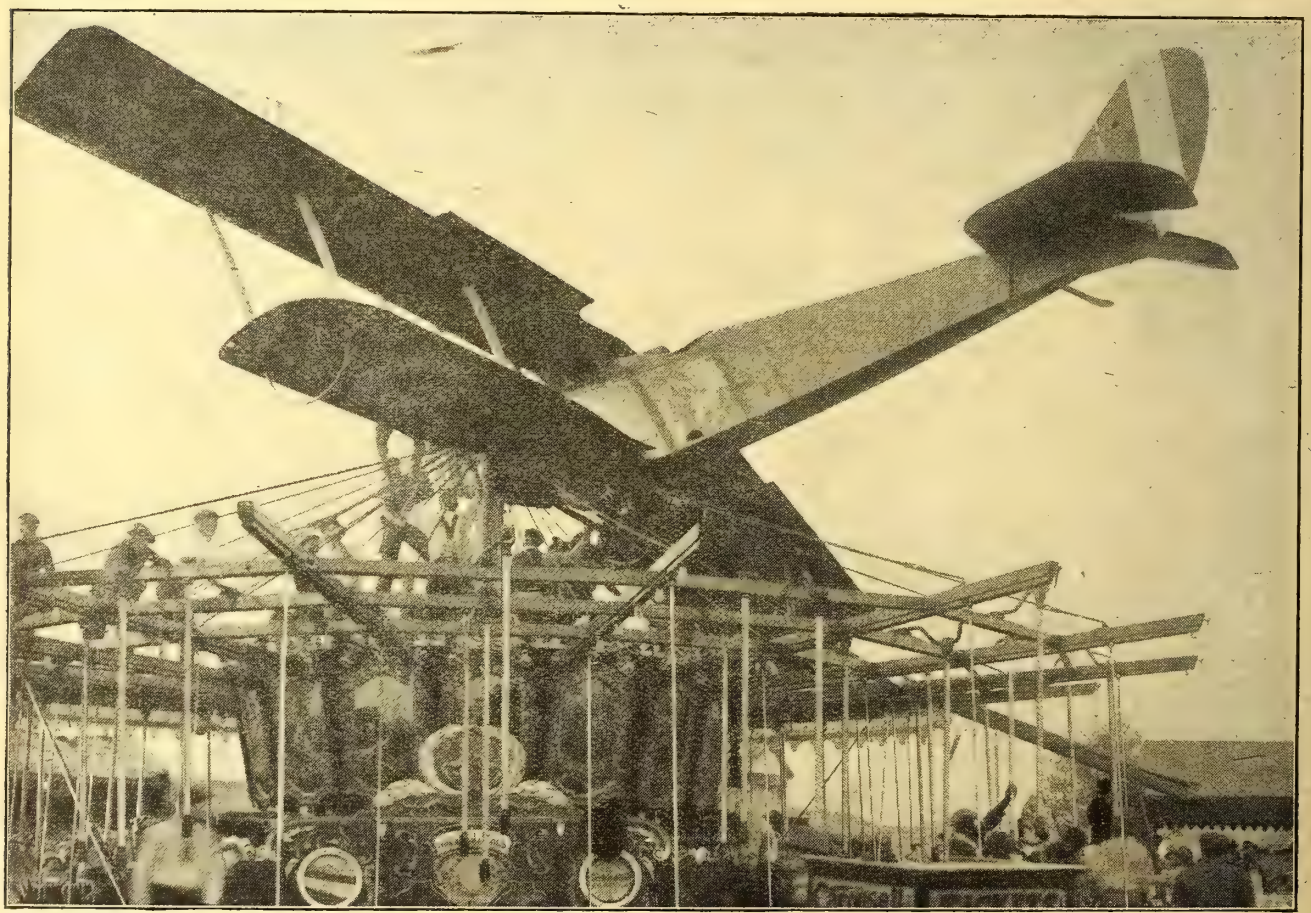
September.

Wednesday, September 10th.—Schneider Cup Competition, Bournemouth.

Saturday, Sept. 20th.—Hendon-Manchester-Hendon Air Race at Hendon Aerodrome.

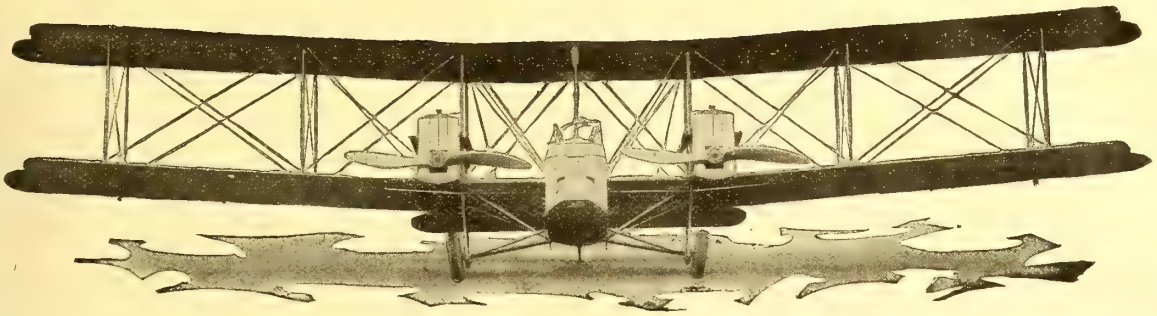
Date to be Announced Later.

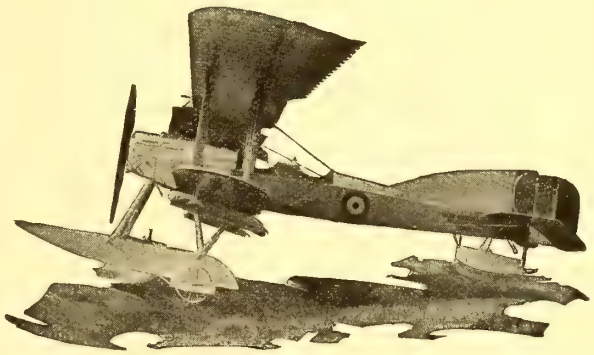
Hendon-Paris-Hendon Air Race.



How Capt. F. McCall, M.C., D.F.C., landed on a roundabout at the Calgary Exhibition, U.S.A. This was done intentionally to avoid a crash among the crowd of people.

A UNIQUE EXPERIENCE





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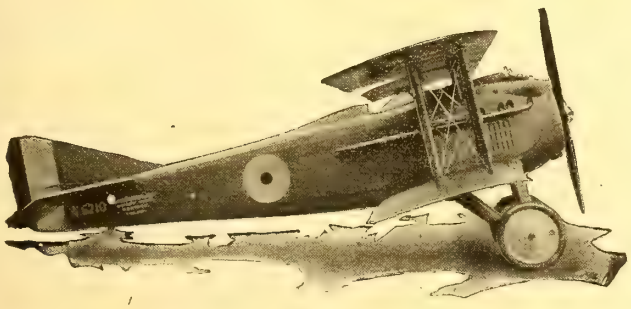

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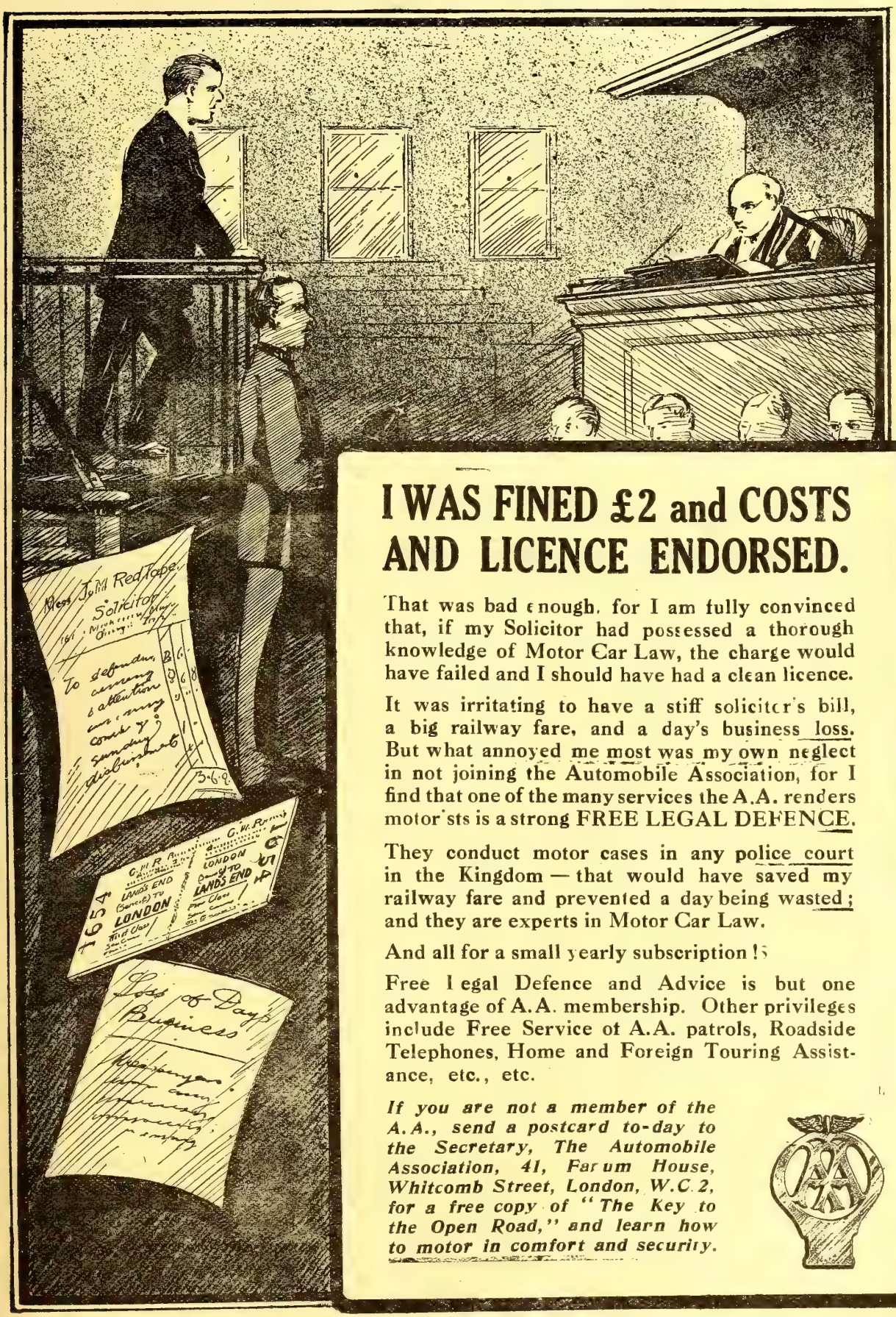
COMPARATIVE RANKS IN THE RECENTLY BELLIGERENT ARMIES.

[So much confusion arises from mistranslations of the ranks in the various recently belligerent Armies that it seems well to set forth clearly in parallel columns the precise names of the ranks which correspond to one another. It is hoped that this information may be of use to readers.—Ed.]

Great Britain.	France.	Italy.	Russia (Imperial).	Germany.	Austria-Hungary.	Turkey.	Bulgaria.
Field Marshal	Marechal de France	——	General Feldmarshal	General Feldmarshall General Oberst	Feld-Marschall	Mushir	——
General	——	Generale	Polni-General	General der Infanterie General der Kavallerie General der Artillerie	General der Kavallerie General der Infanterie General der Artillerie	Birinji Ferik	General
Lieut.-General	General de division	Tenente Generale	General-Leitnant	General-Leutnant	Feldmarschal-leutnant	Ferik	General-leitnant
Major-General Brigadier-General (temp. rank only)	General de brigade	MaggioreGenerale	General-Maior	General-Major	General-major	Liva	General-major
Colonel	Colonel	Colonello	Polkovnik	Oberst	Oberst	Miralai	Polkovnik
Lieut.-Colonel	Lieut.-Colonel	Tenente Colonello	Pod-polkovnik (Regular troops) Voiskovoi Starshina (Cossacks)	Oberst-Leutnant	Oberst Leutnant	Kaimakan	Pod-polkovnik
Major	Commandant	Maggiore	Kapitan Rotmistr (Regular Cavalry) Yesaul (Cossacks)	Major	Major	Bimbashi	Major
Captain	Capitaine	Capitano	Shtabs-Kapitan Shtabs-Rotmistr (Cavalry) Pod Yesaul (Cossacks)	Hauptman Rittmeister (Cavalry and Train)	Hauptman Rittmeister (Cavalry and Train)	Yuzbashi	Kapitan Rotmistr (Cavalry)
Lieutenant	Lieutenant	Tenente	Poruchik Sotnik (Cossacks)	Oberleutnant	Oberleutnant	Mulazim-i-evvel	Poruchik
Second Lieutenant	Sous-Lieutenant	Sub Tenente	Pod-poruchik Kornet (Regular Cavalry) Khorunji (Cossacks) Praporshchik (Ensign of Reserve)	Leutnant	Leutnant	Mulazim-i-sani	Pod-poruchik

It is opportune to publish this table in the present issue of "The Aeroplane," as the new rank titles selected for use in the Royal Air Force are shown on page 559. No other nation has distinct rank titles for the aerial arms in the national forces.

The military ranks in the United States Army are similar to those in use in the British Army.



I WAS FINED £2 and COSTS AND LICENCE ENDORSED.

That was bad enough, for I am fully convinced that, if my Solicitor had possessed a thorough knowledge of Motor Car Law, the charge would have failed and I should have had a clean licence.

It was irritating to have a stiff solicitor's bill, a big railway fare, and a day's business loss. But what annoyed me most was my own neglect in not joining the Automobile Association, for I find that one of the many services the A.A. renders motorists is a strong FREE LEGAL DEFENCE.

They conduct motor cases in any police court in the Kingdom — that would have saved my railway fare and prevented a day being wasted; and they are experts in Motor Car Law.

And all for a small yearly subscription!

Free Legal Defence and Advice is but one advantage of A.A. membership. Other privileges include Free Service of A.A. patrols, Roadside Telephones, Home and Foreign Touring Assistance, etc., etc.

If you are not a member of the A.A., send a postcard to-day to the Secretary, The Automobile Association, 41, Fanum House, Whitcomb Street, London, W.C.2, for a free copy of "The Key to the Open Road," and learn how to motor in comfort and security.

THE R.A.F. IN THE BALKANS.

By "Struma."

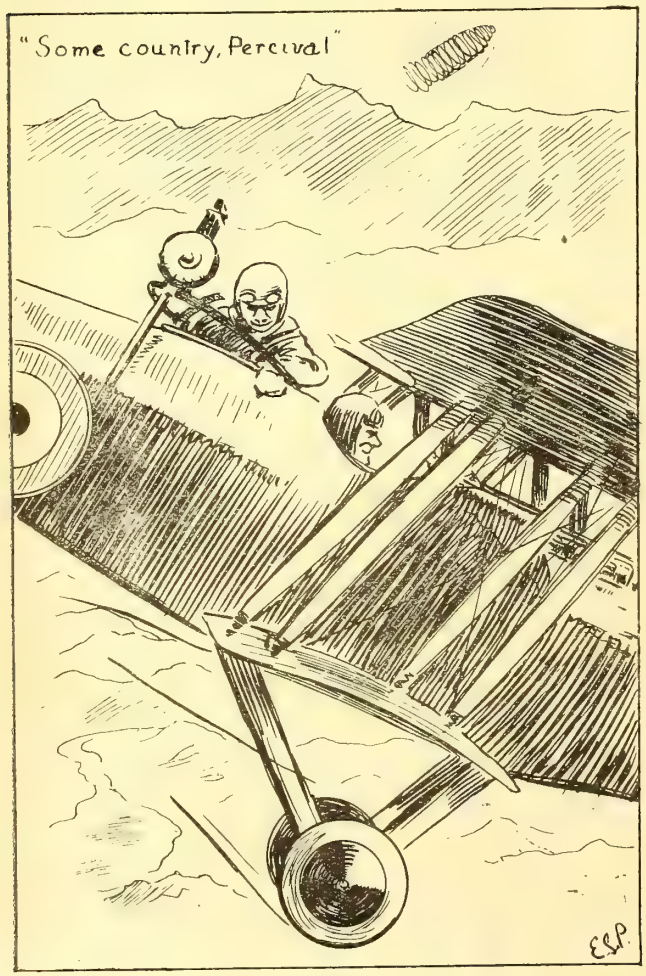
When one returns home to find that there are Britons who are uncertain as to whether the Greeks were Allies of ours or not, and who are slightly foggy as to whether Johnny Bulgar was friend or foe, it is evidently time someone wrote a history of the war in the Balkans in particular, and of the European tribal squabble in general. Such, however, is not my intention. Some time hence, perhaps, when things have got into perspective, and more knowledge available, the historian will arise. "There are a thousand journalists," said Voltaire, "hardly have we two or three modern historians." At present, the public prefers its history in penny numbers at breakfast, and written, if possible, by Field Marshals or novelists.

Topographical Horrors.

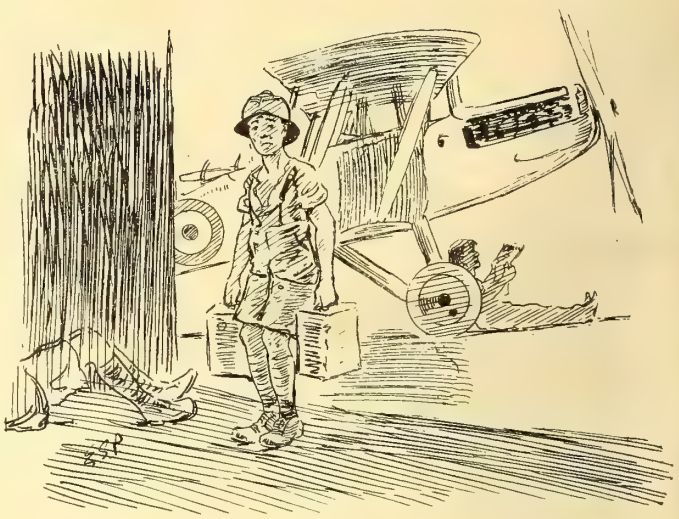
All Macedonia may be divided into three parts: Bad, worse, and unspeakable. In the unspeakable portion, the British Army, officially described as the British Salonica Force, found itself exiled for some three and a half years, forgotten by the B.P., the journalists and the politicians. Here, with mountains to right of 'em, mountains to left of 'em, in front and behind 'em, alternately baked and frozen, drowned and parched, racked with malaria and dysentery, eaten up with bugs which fly and bugs which crawl, of astonishing variety of shapes and sizes, four and a half divisions of physically enfeebled Britons held up the wily Bulgar, backed and reinforced by the still more wily Hun. N.B.—By bugs that fly it is not intended to depict the R.A.F. nor its Hun equivalent.

Forgotten by the World.

And some of them are still there to this day. This forgetfulness on the part of the aforementioned three Estates formed the basis of the standard joke of the B.S.F. It ran somewhat thus: A High Personage, some years after the signing of Peace, was reviewing the great deeds of the Army. "To turn, my Lords and Gentlemen, to the Salonica Army——" "Good God!" cried LL.—— G——, jumping up. "I forgot all about 'em. They're still out there!"



"Hardly do we guess aright at the things that are upon the earth"



106 in the Shade

The R.A.F. had not only the difficulties that the rest of the Army laboured under—the intense heat of summer, ranging up to 106 degs. in the shade, moist paralysing heat, disastrous to man, beast, and machine, the plague of flies, the mosquitos and consequent malaria—but also the joy of carrying on in a country in which flying conditions were, as an Italian aviator put it, absolutely incredible.

To the North, after one has passed the plains and hills that adjoin Salonica, one comes to a country that is a chaotic mass of mountains, rearing their rocky peaks to a height of over 6,000 ft., intermingled with smaller hills, countless gorges and ravines, stony beds of water-courses, dry in summer, but raging torrents in a few minutes after heavy rain; rivers, marshes, and lakes. Two important valleys cross this chaos towards the sea, those of the Vardar and Struma, the former justly celebrated for its infernal wind.

Aerial Fighting.

For three years the belligerent lines, with a strange air of permanence, were to be seen crawling over hills and valleys from the Adriatic to the Ægean, *via* Monastir, Doiran, the Struma, and Lake Takinos.

Conditions being so different to those in France, air fighting was not so much in evidence, though probably, considering the total number of machines on the Front on both sides, it was proportionately as heavy. I do not know what the total number of enemy machines brought down would amount to; perhaps somewhere near a hundred. The figures from September, 1916, to August, 1917, show that 36 were accounted for, and slightly more for the next 12 months, amongst them being some big twin-engined machines.

I remember one of these big fellows used to come over our lines regularly when the conditions were good, and proceed calmly up and down for quite a considerable time, the while the sky was prodigally spangled with shrapnel. Although at somewhere near 20,000 ft., his movements were perfectly visible in the clear Macedonian air, the sun flashing on his 'planes as he turned. When our machines, laboriously climbing, had reached a couple of thousand feet or so below him, he would quietly make off home, having seen all he wanted.

The Habits of the German.

The Boche aviator, it must be conceded, showed a considerable amount of enterprise, though he must have looked upon the operations as a sort of stalemate, and was occasionally inclined to take things easily. But there is no doubt that with a larger force he could have made things decidedly uncomfortable. His machines were, for one thing, as a rule, more up-to-date than either ours, the French, or the Italian, though the latter had some good specimens.

On several occasions he left a decided mark on us, as in the two raids when the camps round Salonica were heavily bombed by 15 Albatroses each time, Summerhill being severely strafed, and the enemy getting well away on each occasion. He constantly appeared over the town on reconnaissance bent, and on three consecutive nights, just before the offensive last September, bombed the docks and shipping, though without doing much damage. The anti-aircraft gunnery, of both the Fleet and the

TRANSITIONS IN TRANSIT

No. 1. **The Tea Clippers of the 'Sixties.'**

A toast, gentlemen, to the glorious memory of the old East Indiamen — "Cutty Sark," "Black Adder," "Sir Lancelot" and the rest—may their grand old timbers rest in peace. And here's to the splendid sea dogs who manned them, raced them halt round the world to be first into the Port O' London with the new season's tea. The men who were not content with t'gallants and royals, but set skysails and moonrakers in the teeth of the hurricane.

From Foo Choo to the Port O' London in 100 days,—record time! And nowadays the same journey can be done in 100 hours—by aircraft! The time is not far distant when the produce of the East will be brought home by aeroplane.

The machine illustrated above is the **Nieuport Mark VI.** Seaplane.

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Army, either by day or night, was of a kind to make one weep, though they certainly had a Zeppelin to their credit.

Allied Bombing Methods.

As a bomber, however, the Boche was distinctly inferior to the Allied aviators, the raids carried out by the British, French and Italian squadrons, and the Serbian and Greek detachments, being very numerous and effective. To take as an example, a short period of 12 days in April, 1917. In that time heavy bombing was effected at Pravista, Porna, the great aerodrome at Drama, dumps and stores at Bogdanci, the big dumps and aerodrome at Hudova, camps and batteries at Cestovo and Gradeshnitza, convoys in the Rupel Pass and in the neighbourhood of Doiran, and four enemy machines brought down in combat. On some of these occasions our machines descended to 400 ft., and very great damage was inflicted. And that, be it noted, is not picked out as a period full of "fixtures," but taken quite at random.

The R.N.A.S. Detachment.

The machines of the R.N.A.S. were quite as active, strafing considerably the enemy lines and establishments in the vicinity of Kavalla and Lake Tahinos.

Photography.

Next in importance to bombing—or even before it—was the work done in photography. Ten thousand photographs were taken which, thanks to the clearness of the atmosphere, were of super excellent quality.

Well do I know them. They were to me one of the minor horrors of the war. They formed a complete photographic map of the enemy lines, continually brought up to date, and were also used in lieu of the ordinary methods of survey for a good deal of the work in maps produced by the R.E., Macedonia being an almost unknown country as far as modern large-scale maps are concerned. Every dump, railway, aerodrome, auto-park, camp and bridge, far in rear of the lines, being recorded. They were passed on in the form of "mosaics," mounted on huge sheets of brown paper, to the General Staff "Intelligence," those Organisers of Victory, to perform their conjuring tricks with. (Attached please find one sketch of an Organiser of Victory, complete as fitted.) So vast did this collection become that it was confidently expected that the unfortunate wight in charge would be found one fine morning extinct under a pile of them. Fortunately for him there came the Armistice.

General Staff "Intelligence"

Besides this number of photographs taken by the Photographic Section of the 16th Wing, there were those of the French Service d'Aviation, and a considerable number taken by the Greeks, who, like the Serbs, had a creditable aviation service. A lot of work, too, was done by the R.N.A.S

The French Machines.

The French, like ourselves, did not seem to be blessed with ultra-modernity in their machines, their chief aeroplane seeming to be the A.R. or A.L.D. (type Corps d'Armée), with Renault or Lorraine-Diétrich engines, a fairly large machine distinguished by the backward stagger of the 'planes; not, however, excessively up-to-date. The Italian flying corps was, as usual, very efficient, but, if they had had the opportunities, it is doubtful whether they could have produced in Macedonia a squadron of virtuosi like unto "La Serenissima" of Vienna fame. The S.V.A., by the way, is undoubtedly a fine machine.

Kite Balloons.

Kite balloons are always a source of amusement to the ordinary soldier, and painful as it is to record, the sight of one of his own "sausages" in difficulties was always an awful joy to Tommy.

He failed to see the use of them, and by bitter experience got to regard them as objects expressly designed to draw artillery fire. We had three all to ourselves, that is to say, divided between four and a half divisions, which is perhaps not excessive, but quite lavish as compared with the usual distribution of material to the B.S.F.

Our own particular "Rupert" on the Doiran Front was frequently the target for "Balkan Lizzie." This long range gun, of a calibre of 8.5 or thereabouts, was one of the chief attractions of those parts, and under skilful aeroplane direction would play havoc with the dumps, knock up the railways, take long shots at the aerodromes, which, however, were just beyond her range, and generally put the wind up the units behind the lines. Often was she "located," and often "put out of action" by judicious bombing, only to reappear merry and bright a day or two afterwards. It is doubtful whether she was ever really located, at any rate, until the offensive when I saw fire diagrams, I believe, of this very gun amongst captured Bulgar maps. She remained, until we swept over that part of the country, as something of a mystery, and an exhibit to be shown with pride to newcomers on that Front. "Lizzie" knocked holes in "Rupert" several times at a range of seven miles, and the descent of the "chap in the clothes-basket" was considered by connoisseurs to be quite good for a free performance. One of these balloons was also brought down by a bold and skilful German aviator.

The Final Advance.

In no other theatre of war had the R.A.F. so difficult a task as in Macedonia. The whole Allied Army of the Orient can justly pride itself that it contributed fully as much as any Force to the final overthrow of Germany. And when the Serbs in the great offensive broke through to the west of the Vardar, performing such feats of fighting and marching as modern warfare has rarely known, in company with their French and Greek Allies, then the costly British attacks on the impregnable Doiran positions were justified.

Then, their only line of retreat threatened by the victorious Allies, the Bulgars began their retirement from before the British

"Rupert" & "Balkan Lizzie"

You Cannot Afford The Risk-

of splintering or breaking glass when landing. Goggles, windshields, instrument glasses, etc., have been known to inflict severe wounds even with experienced pilots.

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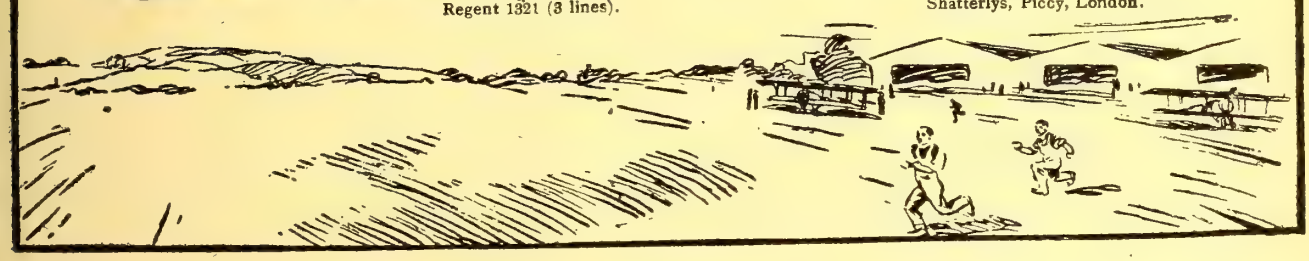

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Above Lake Doiran. The Bulgar trenches are in front of the town. In the background, the Beles Range, 5000 to 7000 ft high.

Front, and the great chance of the flying men came. Over a great stretch of road crowded with troops and transport of every description, bullock carts and horse wagons, motor vehicles, infantry, artillery, the bombing machines cruised, and the terrible condition of this road for days afterwards bore evidence to the deadly thoroughness of their work. To the brilliant success of this two weeks' campaign, with its total of 900 guns captured and 100,000 prisoners, the R.A.F contributed as much as any arm, and with the rest of the B.S.F., can justly ask for some better recognition than the studied neglect and even ridicule with which this fine portion of the British Army has been treated.

By the collapse of Bulgaria and its immediate consequences, the surrender of Turkey and the downfall of Austria, the Armies of Macedonia drove the final wedge into the tottering German fabric, and were the first—and, indeed, the only—Force to march victoriously on enemy soil in Europe.

A LONG FLIGHT.

The most extended flight yet planned by the Air Service of the U.S. Army, in the interest of recruiting, charting of routes, and the locating of landing fields, is contemplated by Lieut.-Col. R. S. Hartz, J.M.A., A.S.A., Commanding Officer at Bolling Field, Washington, D.C. The aeroplane used will be a U.S. Martin bomber.

The flight as planned will total 7,805 miles as follows:—Washington, D.C., to Miami, Fla., 1,120 miles; Miami, Fla., to San Antonio, Tex., 1,140 miles; San Antonio, Tex., to San Diego, Cal., 1,120 miles; San Diego, Cal., to Seattle, Wash., 1,170 miles; Seattle, Wash., to Duluth, Minn., 1,375 miles; Duluth, Minn., to Augusta, Maine, 1,345 miles; Augusta, Maine, to Washington, D.C., 535 miles; total 7,805 miles.

AFFILIATED AERO CLUBS.

The Directors of Aero Stations, Ltd., all of whom have been actively engaged in the Aircraft Industry since 1908, have for years past been selecting suitable sites for landing places for aircraft adjoining the principal commercial centres of Great Britain.

It is the policy of Aero Stations, Ltd., to render these places self-supporting, pending the development of commercial aviation, by running each aerodrome as a County Sporting Club.

Such a club was organised before the war at Shoreham between Worthing and Brighton, but during the war the premises were taken over by the War Office. This club, the Sussex County Aero Club, has now been reorganised, and will constitute a model for the clubs to be established on the outskirts of other large towns.

Clubs have been registered as Proprietary Companies at the following places:—Aberdeen, Bristol, Birmingham, Carlisle, Derby, Dundee, Edinburgh, Exeter, Folkestone, Glasgow, Grimsby, Inverness, Ipswich, Leeds, Liverpool, Manchester, Newcastle, Norwich, Plymouth, and the Sussex County at Shoreham.

The Affiliated Aero Clubs of the British Empire, Ltd., are to provide £200,000, and of this sum £10,000 is to be devoted to starting each of the above clubs. Shares in the above company can be bought, and shareholders holding not less than 200 £1 shares have right of membership of all the clubs free of subscription.

G. Arthur Wingfield, Esq., is a Director of the Affiliated Aero Clubs, Ltd., and Chairman of the Sussex Aero Club, Ltd., and Flying Transport, Ltd. He has done much good work for aviation, and was one of the "moving spirits" in the Sussex Club, which was established before the war.

The Sussex County Aero Club's new aerodrome adjoins the old position which is now an R.A.F. aerodrome. The Club House is a substantial farm-house with four cottages and large well-built dairy buildings, and the architects estimated that £20,000 would cover all the necessary alterations, laying out the grounds, golf course, tennis lawns, etc. The grounds cover 150 acres.

Bungalow Town adjoins the flying ground, which is within half an hour's flight of London, and within a very few minutes of Brighton, Hove and Worthing.

The sea and a large expanse of smooth tidal water are available for seaplanes and motor-boats.

It is intended to develop the Club as a Country Club on the lines of Ranelagh, Hurlingham, etc.

An affiliation arrangement has been completed with the London Flying Club at Hendon. The Club will be unofficially reopened on September 6th.

FORECASTS OF FLYING MACHINES.

Some interesting correspondence has appeared in the "Scotsman" recently dealing with forecasts of flying machines. The following letter appeared in the issue of July 28th:—

Sir,—Last year I saw and heard an airship passing over my house. I returned to my book, "Lectures by Dean Ramsay," and, by a strange coincidence, the passage before me was the following—it occurs in the lecture on "Social and Moral Influences of the Iron Road":—

"There is a very remarkable passage on the subject of steam and its agency for mankind in Dr. Erasmus Darwin's 'Botanical Garden,' a poem little known to the present generation. . . . In the year 1793 Dr. Darwin thus wrote of steam and its powers, then only just coming into effect:—

"'Soon shall thy arm, unconquered steam! afar
Drag the slow barge or drive the rapid car.'

"Thus Dr. Darwin distinctly, in 1793, predicted what has come to pass since his day—steam navigation and land locomotives. It was a remarkable prediction and remarkably accomplished. But Dr. Darwin predicts also steam conveying men by air as well as by land and water. In a note he says:—'There is reason to believe it may in time be applied to the rowing of barges and the moving of carriages along the road,' and then, very coolly, adds, 'as the specific levity of air is too great for the support of great burdens by balloons, there seems no probable method of flying conveniently but by the power of steam or some other explosive material which another half-century may invent.' And upon this idea he proceeds in the poem to describe ladies shaking their pocket-handkerchiefs to friends below them out of the flying chariots, and armies on land looking with dismay on the arrival of troops coming to reinforce their enemies' ranks by a steam aerial transport. He looks forward to the time when the unconquered arm of steam

"'Shall on wide-waving wings expanded bear
The flying chariot through fields of air,
Fair crews triumphant leaning from above
Shall wave their fluttering 'kerchiefs as they move,
Or bands alarm the gaping crowd
And armies shrink beneath the shadowy cloud.'"

We may say that we have seen this "remarkable prediction remarkably accomplished."

W. M. S.

To "Aeroplane" Subscribers.

Since the Armistice, the subscription list of the AEROPLANE has steadily increased: an eminently satisfactory development which we are anxious to encourage.

Of the many books published on the war on the Western front, none conveys a more realistic impression of the work of a particular arm than FLYING COLOURS by Captain H. M. S. Saundby, A.F.C., R.A.F., M.C., published at **£2 2s.** net (Edition de luxe) and **15/-** net (Popular Edition).

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If the subscriber already has a copy of FLYING COLOURS, and would wish to take advantage of this offer, then he may secure McCudden's "Five Years in the R.F.C." **(7s. 6d.)**; Richthofen's "Red Air Fighter" **(3s. 6d.)**, and Gill's "The Aerial Arm" **(6s. 6d.)** at half price, *i.e.* **8s. 9d.** the three, plus the year's subscription to the AEROPLANE.

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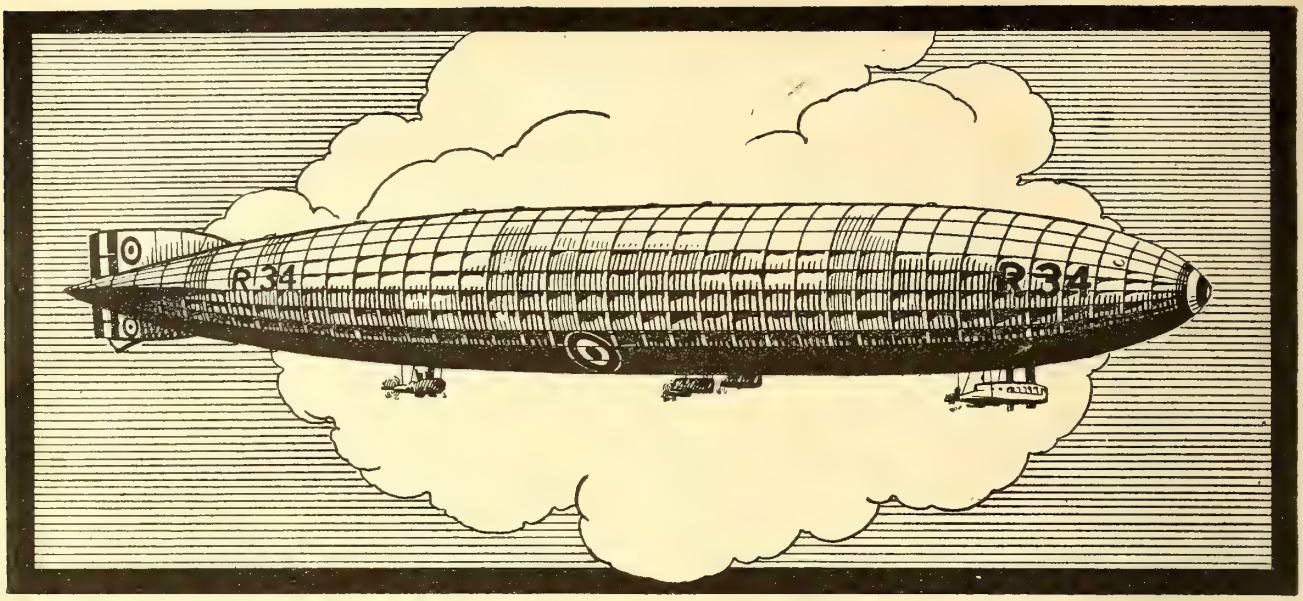

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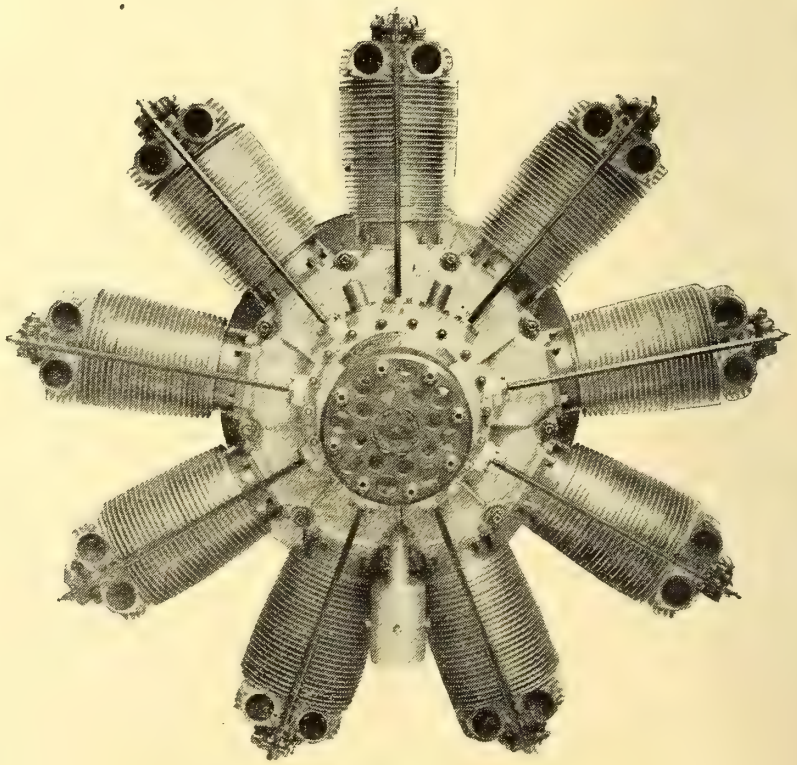

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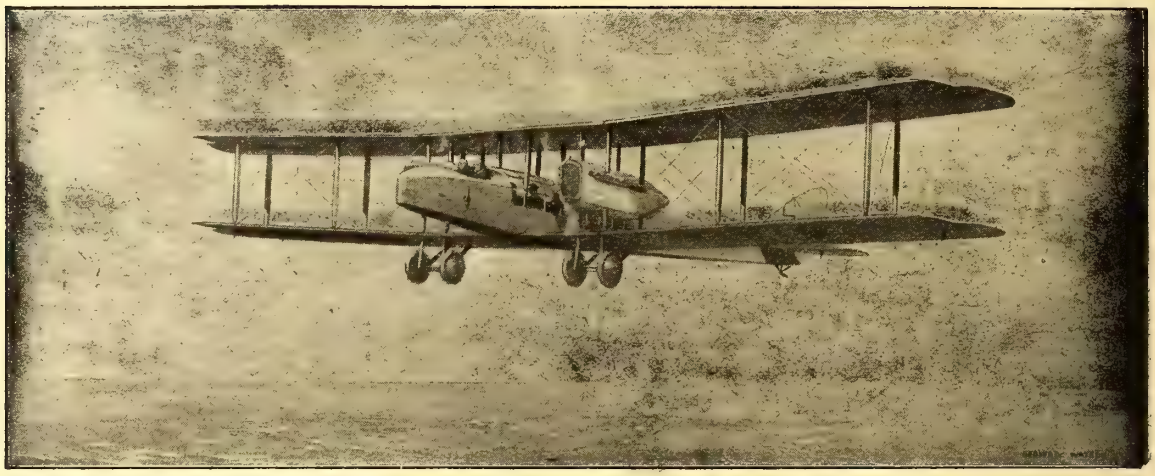

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THE WEEKLY COMMENTARY.

In a leading article "Strasbourg" comments upon the monopoly of technical knowledge which the Technical Department of the Air Ministry appear to intend to create.

He disposes of the plea of military necessity for maintaining secrecy on such a subject in a manner novel and ingenious, though little complimentary to those charged with the direction of military affairs.

The machines produced by the Fairey Aviation Co., Ltd., under the direction of Mr. C. R. Fairey, form the subject of this week's instalment of "Modern British Aeroplanes."

It is noteworthy that Mr. Fairey has produced a large number of seaplanes with quite different characteristics by using a quite limited number of standard components, and that the machines thus turned out have by no means suffered in performance.

An illustrated description of one of the latest German multiple-engined machines, with a short historical account of its development, is given on page 531.

This machine is of a type not yet in use in this country, in that the power plant is concentrated in the central fuselage and drives the airscrews by gears and shafts.

Difficulties with the transmission gear were encountered, but German engineers, unlike their British rivals, were permitted to overcome them.

ON A MONOPOLY OF KNOWLEDGE.

By "STRASBOURG."

There was a time, even within the memory of some of the more venerable of those who are now connected with the Aeroplane Industry, when that Industry, resembling in this respect, and perhaps this alone, the early Christians, had all things, including information, in common.

In those, apparently for ever, departed days even the Advisory Committee on Aeronautics condescended to publish to the world at large the results of their cogitations, and of such experimental work as was carried out by the N.P.L. and even by the Royal Aircraft Factory.

True these reports were published at a price, and that price beyond the means of any but the wealthiest members of the aeronautical fraternity; but as they were usually confined—where they were not entirely erroneous—to a restatement of facts perfectly well known to the experienced, this mattered little.

To-day the aviation community is scattered over the earth; its members no longer each know each by their respective nicknames; and the direct interchange of experiences takes place only to a limited degree.

Confidential Information.

For five years technical information has been doled out, under oaths of secrecy and under deadly penalties for the infringement of such oaths, by a collection of assorted trouser-polishers, mostly young, mainly learned, and all of them possessed of that worst of devils—*pace* the author of the "Ingoldsby Legends"—the best of intentions.

Had the mischief been confined solely to the distribution of information it had been sufficiently regrettable.

Unfortunately this circle of the elect has successfully prevented not only the circulation of information, but even the acquirement of knowledge by individuals of an experimental turn of mind.

Were one minded to attempt the construction of any brand of aircraft differing in its conception from those ideas which they held in favour, effective means were discovered to prevent such an effort.

Did a sacrilegious Hun produce a biplane which outclassed our own machines, the fact was carefully suppressed till those who had met such a machine, and by some happy chance escaped to tell the tale, had spread the news.

Then a careful official explanation of the reasons why this machine could not conceivably do those things it was known to do, supported by official tests on a battered and probably incorrectly rigged sample of an out-of-date machine of the same make, would be issued as a confidential memorandum not to be divulged to the world at large.

These things were so, and these things, eight months after the cessation of hostilities, still are so.

It is still an offence for a technical journal to publish information contained in any of the confidential technical reports which have been published, under one title or another, by any of those bodies which have been engaged in the cornering of aeronautical technical information during the war.

Technical Offences.

It is still an offence for two aeroplane designers publicly to discuss the merits or demerits of any method of computation laid down by the official wisdom-mongers. It is still illegal to query, except privately and in the darker places of the earth, the pronouncements of those in office as to what is or is not a suitable material to be used for a given purpose.

It may be that such things were an essential corollary of war. If it be so, it is merely an index of how stupid an affair war is.

It may even be that it is necessary, in the interest of the military branches of aeronautics, that some very close control upon the designers and makers of military aircraft be continued.

If this be so, then is the R.A.F. foredoomed. It may —it probably will—become a rival to the Army for the favour of those of our youthful males who possess more money than brains.

It very probably will develop, in its technical branches, an asylum for such as, incapable of earning a living in the open market, are yet too conscientious merely to play with their alleged work, and who will live continuously subject to the contempt of their more thoroughly incompetent "brothers in arms," even as do the Sappers of the Army.

It is, of course, obvious to any mind which is both intelligent and informed that it is essential for the well-being of the world at large that military forces should be utterly inefficient.

Providential Foresight.

Providence must be credited with a foresight so sufficient that it has moulded the human mind in such wise that, once it be safely and securely entangled in any governmental mechanism, it becomes dull, self-opinionated and ineffective.

An army of 100,000 men of average European intelligence, directed with the efficiency of even an average British manufacturing concern, could in a year produce quite a noticeable and a permanent effect upon the appearance of the earth at large.

Several armies, of a total approaching 20,000,000 men, directed according to the time-honoured rules of war, have recently spent over four years in an attempt to destroy each other's portion of the earth.

They have slightly modified the state of a few hundred square miles, at a cost, both to themselves and to their neighbours, of very considerable hardships and inconvenience, but the verbiage which has resulted from their efforts is likely to survive any other effect.

So while it may be well that our Air Forces should be thus restrained in their progress, that the next war may not be conducted with any greater effectiveness than was the last, that the earth may not be utterly destroyed thereby, it yet remains far from well in so far as the same restraint is imposed upon the commercial development of aircraft.

It might be argued that it were better that the wars of the future be thus shorn of some of their terrors, even at the cost of industrial development.

In fact, equipment makes little difference to the effectiveness of an army or other military force.

Equip a fool army with the finest and most deadly of the weapons of precision, it remains a fool army, and will so remain whilst Governments are what they are, and the traditions of Government service continue to be based upon form and not upon effect.

When mankind has sufficient sense to govern itself for its own profit, and not for the pleasure of its ears and eyes, it will have too much sense to waste its time destroying its own handiwork, and war can confidently be expected to cease, except, perhaps, as a spectacular pageant, fought according to very conventionalised rules and with very prehistoric weapons, and with a fair proportion of the gate-money as the victors' reward.

The use of aircraft would naturally be ruled out by the International War Federation in drawing up the regulations for such affairs, since their use would tend to rob the more serious and sanguinary part of the show of those elements of surprise and uncertainty which should be their most attractive feature.

Thus there is not really any real military danger involved in the rapid development of the technique of aeronautical engineering, and there is not the slightest excuse for the delay in publication, on the part of the Air Ministry, of the immense amount of data upon which they are now sitting.

Concealed Data.

It is generally alleged that this data has been placed at the disposal of all those who have any real use for it. This is by no means the fact. Designers have been refused permission to design, or to carry on experimental work, merely because their proposals did not commend themselves to the officials of the Technical Department, and have been refused even information as to why their proposals were scorned.

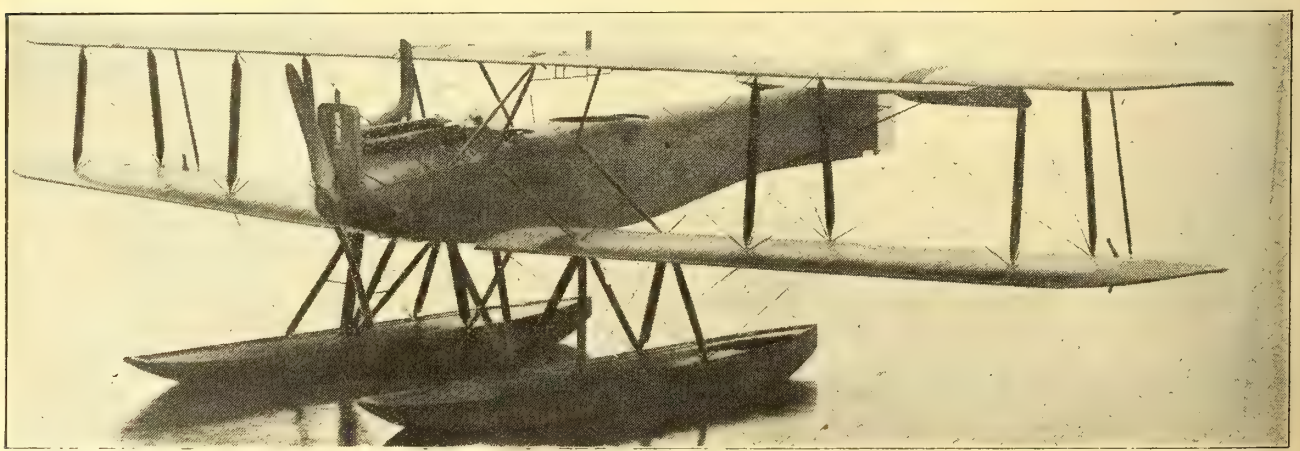
But even this is relatively unimportant. Most of the facts disclosed in confidential technical reports issued by the late Air Board and the present Air Ministry have been wrapped up and disguised in the opinions of the official technical experts, and to a large extent practice has been compelled along the lines of these opinions.

What is needed is the free and open discussion, in the Press and elsewhere, of the real meaning of the data which these reports contain, and of the results obtained by designers from experiments based on this data.

The Government of the United States of America have begun to issue reports of experimental work carried out under the control of the American Advisory Committee on Aeronautics.

These reports are excellently conceived. They are, so far as they have at present been examined, free from special pleading or personal interpretations. They record not merely the results of the experiments, but are extraordinarily frank as to the limits of accuracy of the methods employed in reaching them.

It may therefore be expected that within a very short space all enterprising aeronautical engineers will be able to look, not without relief, to some source of information which is not tainted with Boloism.



A single-engined Friedrichshafen Seaplane, of a type which proved itself extremely useful in the North Sea during 1917. It will be noticed that the tail and rudder are elevated in the Brandenburg manner, and that the floats, as is usual in German sea machines, are of the Howard Wright type.

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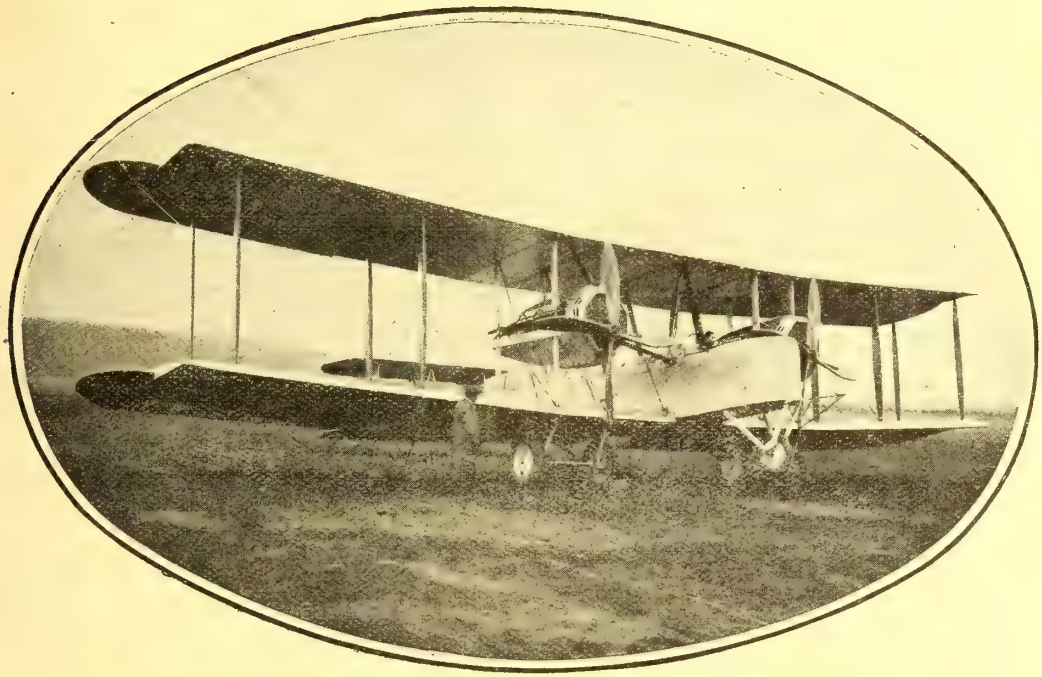

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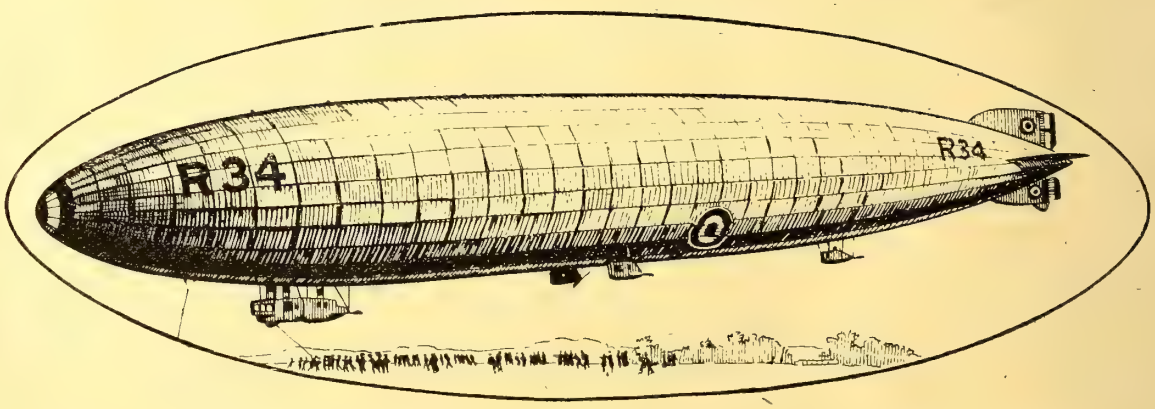

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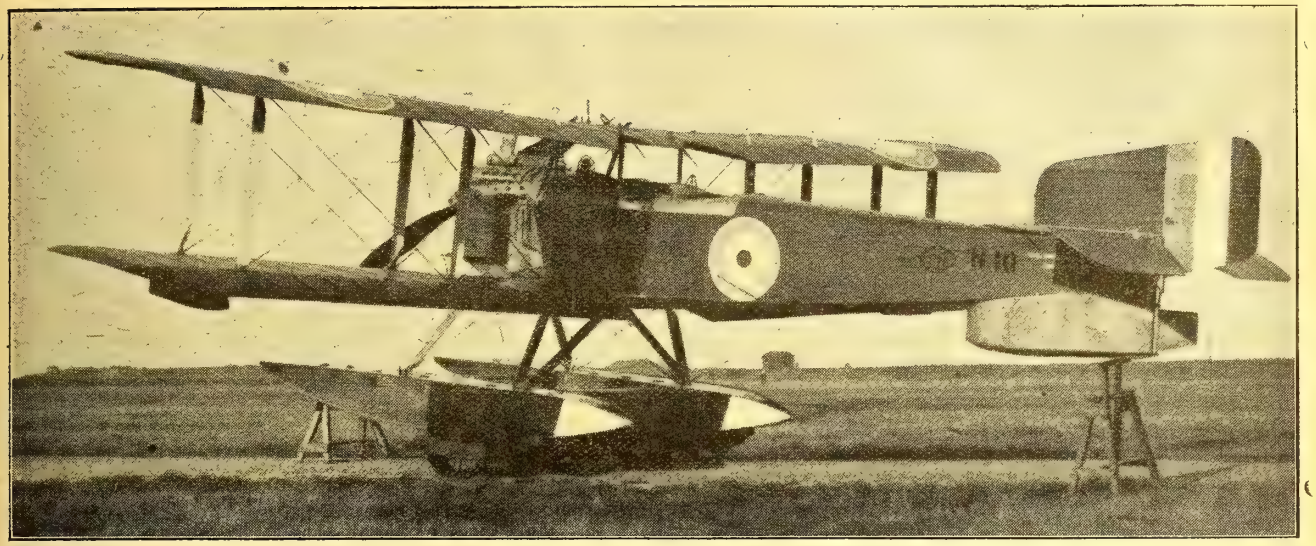
MODERN BRITISH AEROPLANES.

X.—The Fairey Aviation Co., Ltd.



Three-quarter view from rear of the Fairey N.10 in her original form (Type III). 260 h.p. Sunbeam engine.

Mr. C. R. Fairey's connection with aeroplane development in England goes back to very early times.

He was associated with the Blair Atholl Aeroplane Syndicate, and took an active part in the development of the Dunne machines as practicable aeroplanes. He then joined Short Bros. at Eastchurch, and was intimately connected with the development of the Short Seaplanes, which rendered such good service with the R.N.A.S.

In 1915, Mr. Fairey founded the Fairey Aviation Co., Ltd., of which he is managing director.

Amongst a number of valuable contributions to the applied science of aeronautical engineering due to Mr. Fairey, probably the most valuable is the Fairey Variable Camber gear.

This consists of a flap similar in construction to the ordinary aileron, but extending over the whole span of the wing, and so arranged that it may be moved either up or down relatively to the fixed part of the wing, on both sides at once, quite independently of the ordinary use of the whole flap, or a part thereof, as an aileron.

This has the effect of providing a variable camber and makes it possible to use an aerofoil section with a low maximum lift and a high lift to drag ratio, heavily loaded, and giving a high speed, and of converting this aerofoil whilst in flight into a heavily cambered high-lift section which will give a low landing speed.

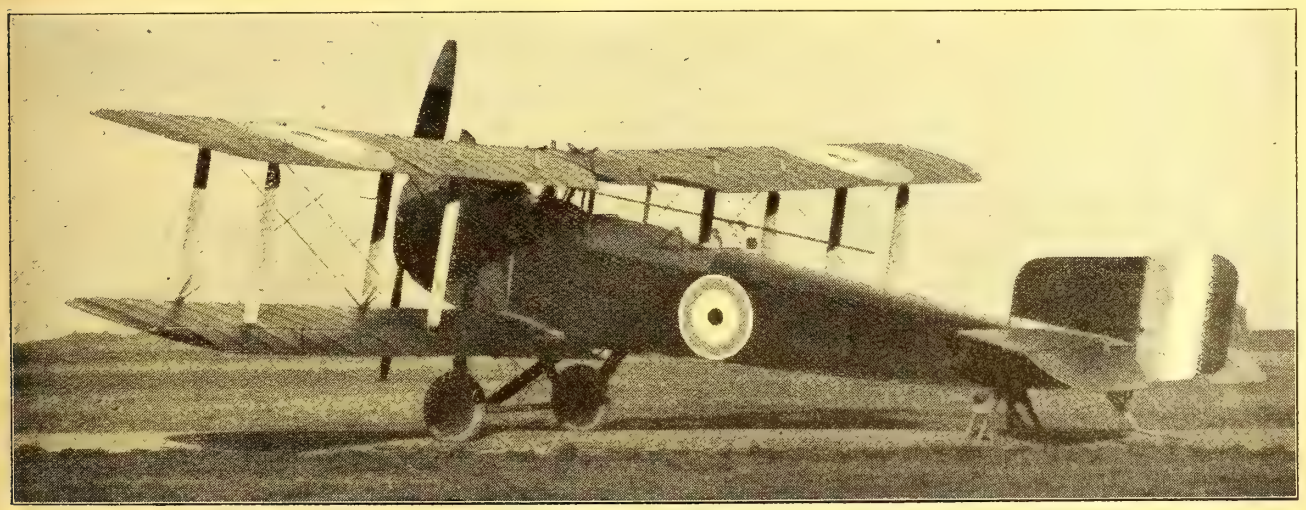
THE FAIREY TWIN-ENGINED FIGHTER.

This machine was completed and flown during 1915. It was designed for fighting purposes in the days before the advent of the synchronised gun, and at a time when the single engine tractor type was generally considered useless for offensive purposes.

In spite of its excellent performance and its superiority to any other type then available, it was lost amongst the shifting sands of our aerial policy, and was never reproduced.

SPECIFICATION.

Type of machine	Biplane
Name or type number of machine	F.2
Span (upper plane overall)	77 ft.
Gap (maximum and minimum)	6 ft.
Overall length	40 ft. 6½ in.
Maximum height	13 ft. 5⅝ in.
Chord	5 ft. 6 in.
Total surface of wings	718.4 sq. ft.
Span of tail	17 ft. 6 in.
Total area of tail (including elevators)	103.9 sq. ft.
Area of elevators	39 sq. ft.
Area of rudder (2 rudders)	10 sq. ft. each—20 sq. ft.
Area of fins (10.9 each)	21.8 sq. ft.
Area of ailerons	47.8 sq. ft. each—95.6 sq. ft. total
Maximum cross-section of body	3 ft. by 2 ft. 6 in.
Horizontal area of body	97 sq. ft.
Vertical area of body	75 sq. ft.
Engine type and h.p. (2 engines)	190 h.p. Rolls-Royce
Weight of machine loaded	4680 lbs.
Load per square foot	6.8 lbs.
Weight per h.p.	13 lbs.
Tank capacity in hours	3½ hours
PERFORMANCE—	
Speed low down	81 knots
Climb—	
To 5,000 ft.	6 mins.



The Fairey N.10 in her second form (Type IIIA) with land undercarriage for deck flying.

THE HAMBLE BABY.

This machine was the result of an effort to provide a light fast seaplane fitted with a standard rotary engine, which should combine a low landing speed, a fair top speed, and the capacity to climb to a reasonable height loaded with two 65 lb. bombs.

The first of the type was manufactured by fitting a "Sopwith Baby Seaplane" fuselage and chassis with a new set of wings equipped with the variable camber device, to which reference has already been made, and an enlarged tail, rudder, fin, and tail float.

The result was so successful that a large number of the type was ordered.

SPECIFICATION.

Type of machine	Seaplane
Name and type No.	F129 Hamble "Baby"
Span overall	27 ft. 9½ in.
Gap	4 ft. 6 in.
Length overall	23 ft. 4 in.
Maximum height	9 ft. 6 in.
Chord	4 ft. 9 in.
Total surface	246 sq. ft.
Span of tail	10 ft. 9 in.
Total area of tail (including elevators)	41 sq. ft.
Area of elevators	17 sq. ft.
Area of fin	4.3 sq. ft.
Area of ailerons	9.1 sq. ft. each—36.4 sq. ft. total
Maximum cross-section of body	3 ft 2 in. by 2ft 7 in.
Horizontal area of body	39.4 sq. ft.
Vertical area of body	34 sq. ft.
Engine type and h.p.	Clerget 110-h.p.
Weight loaded	1,900 lbs.
Load sq. ft.	7.8 lbs.
Weight per h.p.	17.21 lbs.
Tank capacity in hours	3½ hours
Performance—	
Speed low down	85 knots
Climb—	
To 5,000 ft.	8 mins.

THE FAIREY "CAMPANIAS," F.16, F.17, AND F.22.

These three machines are all very similar—they are, in fact, modifications of the same design.

The "Campania" design was limited in its overall dimensions to suit the hatchways and stowage accommodation of the seaplane-carrier "Campania." The specification called for a combination of high top speed, low landing, and getting off speeds, together with the greatest possible fuel and bomb capacity.

The original F.16 was designed with a fairly high lift wing section, fitted with the Fairey flap gear, and was equipped with an early Rolls-Royce "Eagle," giving 250-h.p.

On test it was found not to come up to the designer's expectation. The high lift wing with the flaps upturned were not efficient, and the high speed reached was disappointing.

F.17 was accordingly built. This machine differed mainly in having wings of a standard high-speed type, fitted with flaps to secure a low landing speed. The tail was somewhat modified, a larger fin and a smaller rudder were fitted and an Eagle engine of a later series and greater power was installed. The results were excellent.

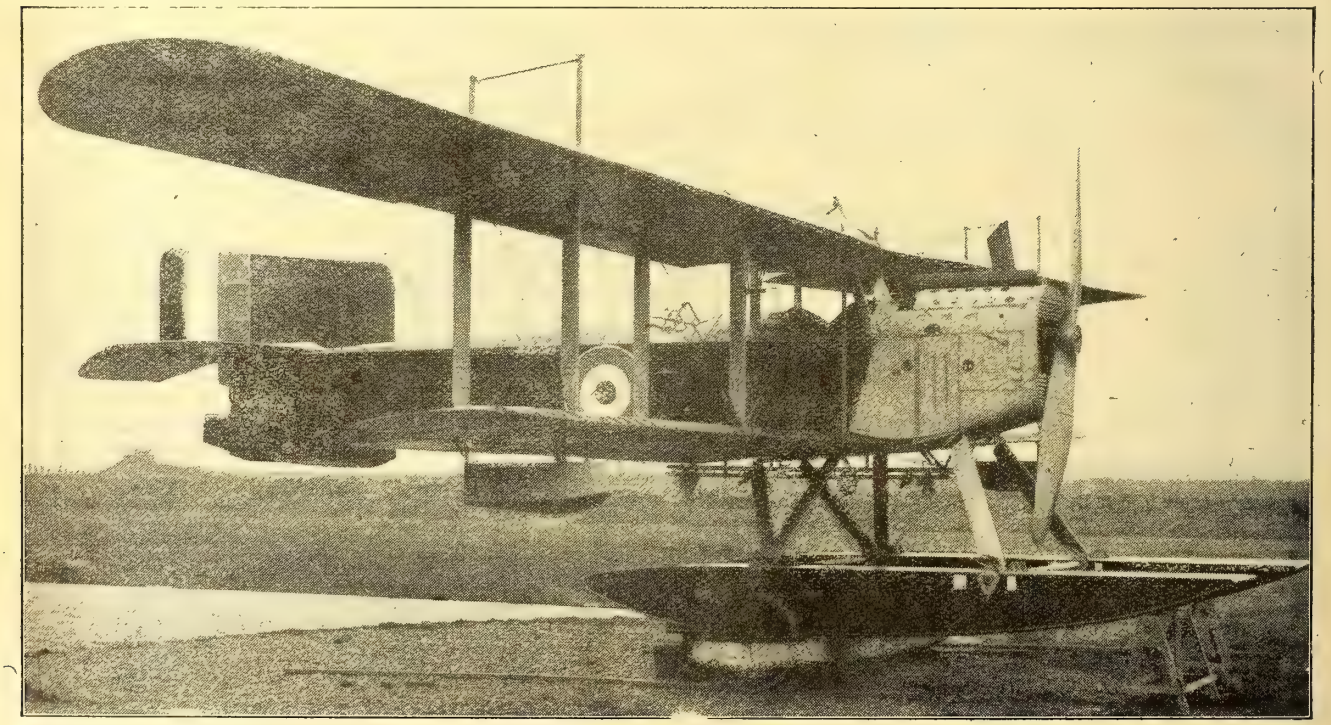
It was then decided that 375 h.p. Rolls-Royces could not be spared for mere seaplanes, and the machine was modified to take the 260-h.p. Sunbeam engine. In this form it was known as the F.22, and was produced in fair numbers.

SPECIFICATION.—F.16.

Type of machine	Seaplane
Name or type No.	F.16 Campania
Span overall	61 ft. 7½ in.
Gap	6 ft. 6 in.
Length overall	43 ft. 3⅜ in.
Maximum height	15 ft. 1 in.
Chord	6 ft. 4 in.
Total surface of wings	639.8 sq. ft.
Span of tail	13 ft.
Area of tail, including elevators	75.1 sq. ft.
Area of elevators	28.1 sq. ft.
Area of rudder	28 sq. ft.
Area of fin	14 sq. ft.
Area of ailerons	23.4 sq. ft. each—46.8 sq. ft total
Maximum cross-section of body	3 ft. 6 in. by 3 ft. 1 in.
Horizontal area of body	90 sq. ft.
Vertical area of body	88 sq. ft.
Engine type and h.p.	250-h.p. Rolls-Royce
Weight fully loaded	5,500 lbs.
Disposable load	1,026 lbs.
Load per square foot	8.6 lbs.
Weight per h.p.	22.2 lbs.
Tank capacity	88 galls.
Performance—	
Speed low down	72 knots
Landing speed	42 knots
Climb—	
To 5,000 ft.	14 mins.

SPECIFICATION.—F.17.

Type of machine	Seaplane
Name or type No.	F.17 Campania
Span overall	61 ft. 7½ in.
Gap	6 ft. 6 in.
Length overall	43 ft. 3⅜ in.
Maximum height	15 ft. 1 in.
Chord	6 ft. 4 in.
Total wing surface	627.8 sq. ft.
Span of tail	13 ft.
Area of tail (including elevators)	75.1 sq. ft.
Area of elevators	28.1 sq. ft.
Area of rudder	19.6 sq. ft.



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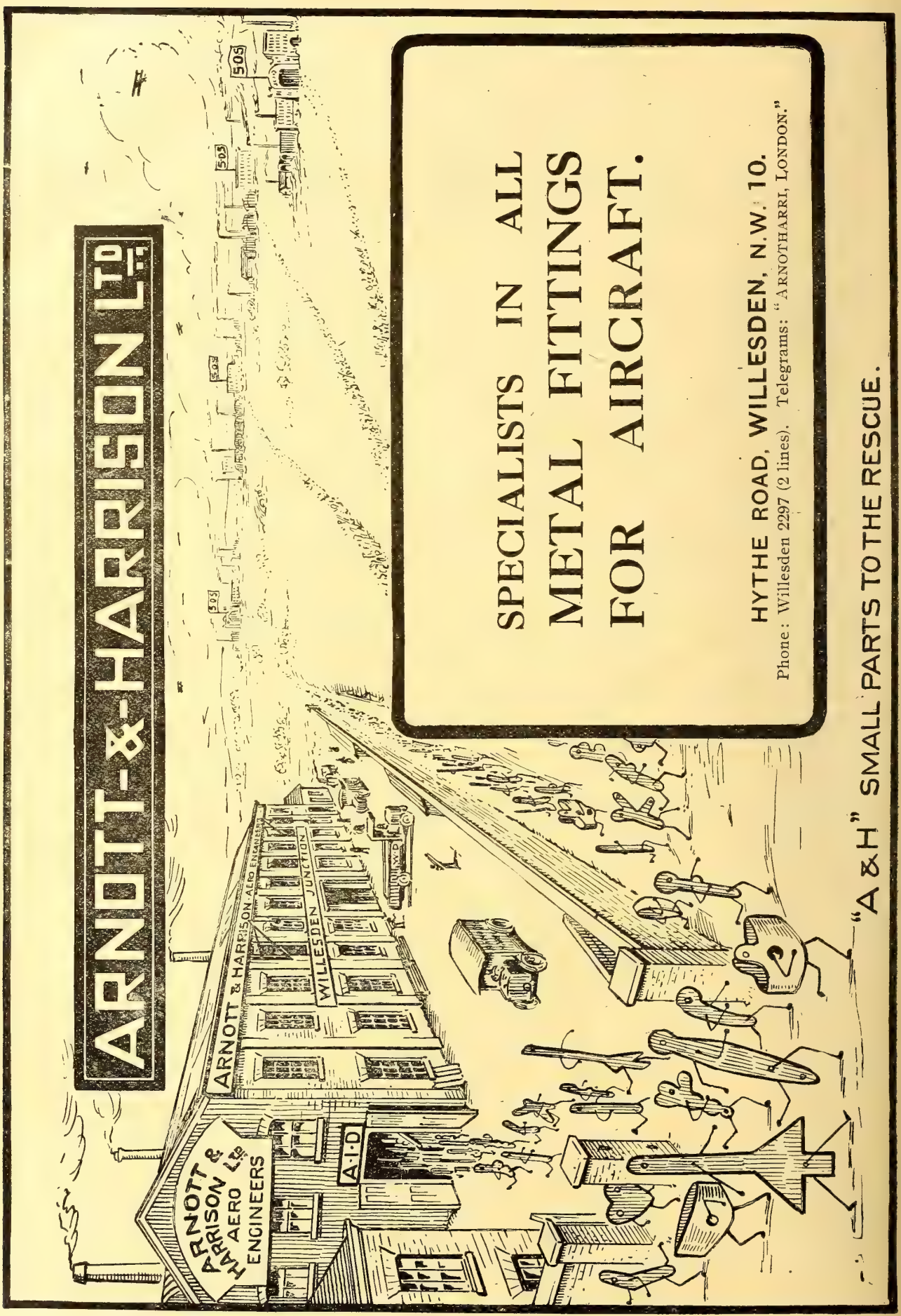

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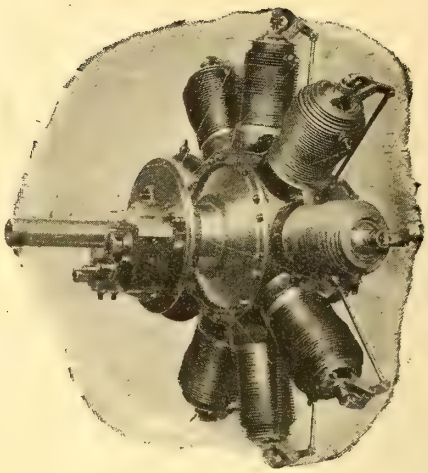

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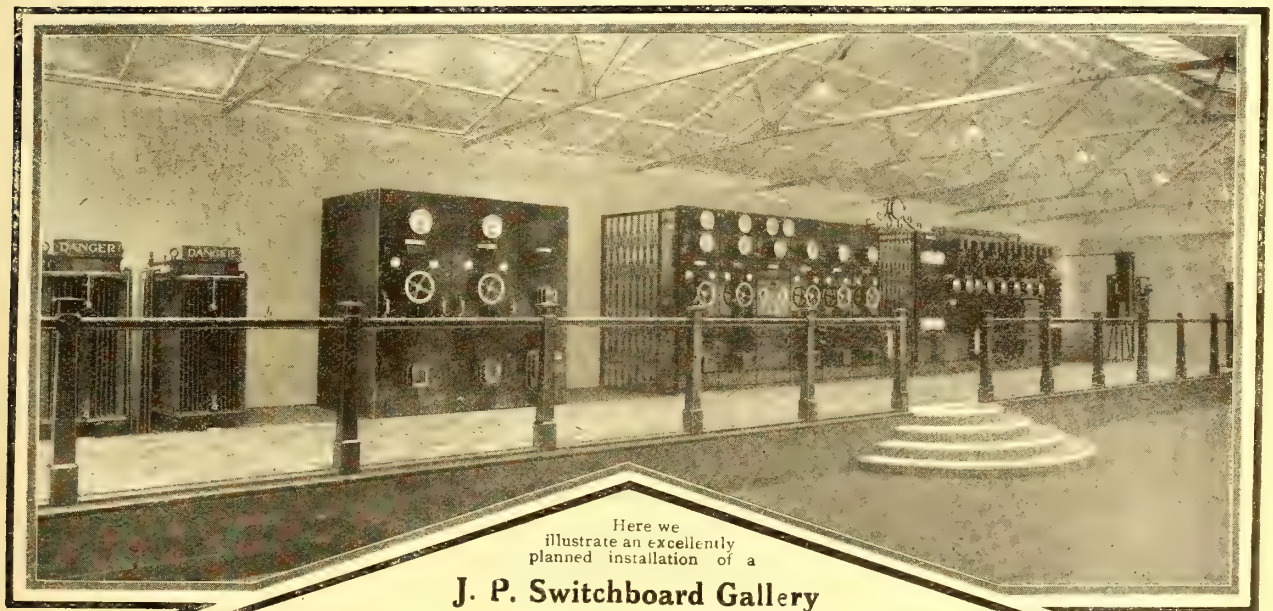

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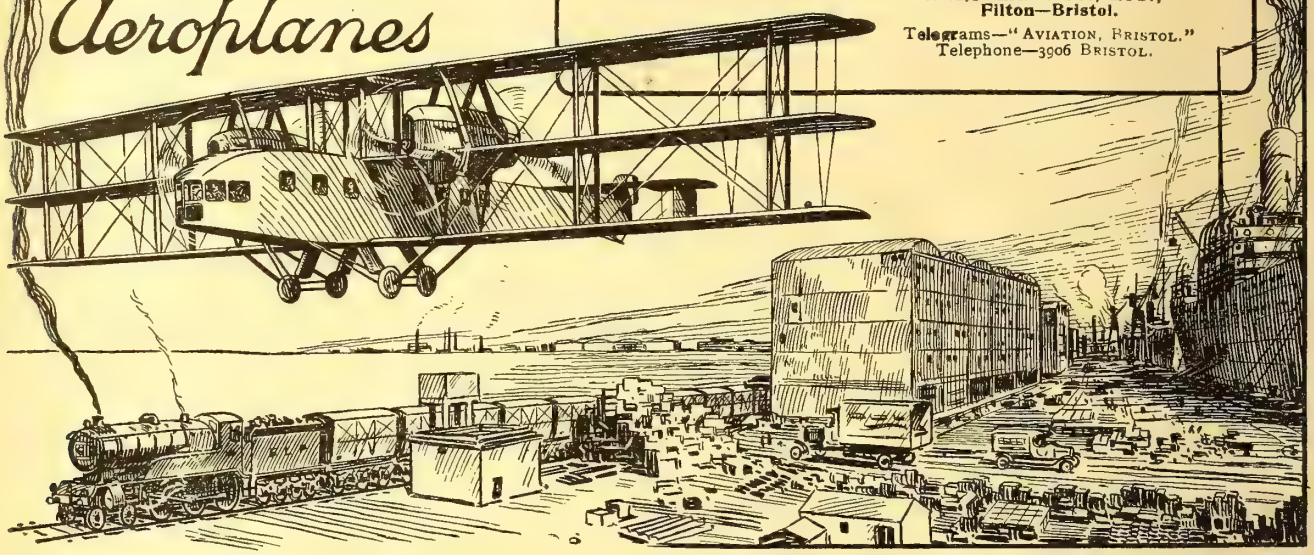

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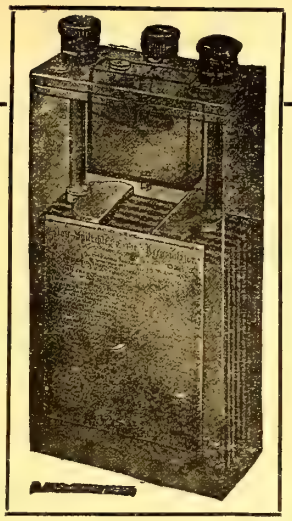

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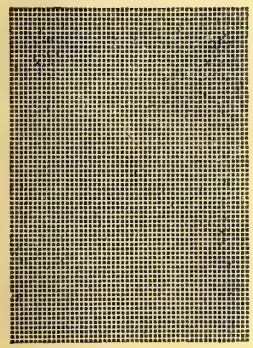

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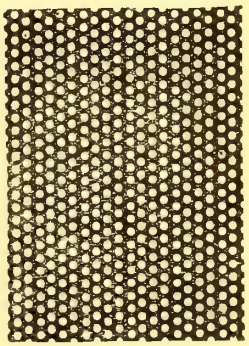

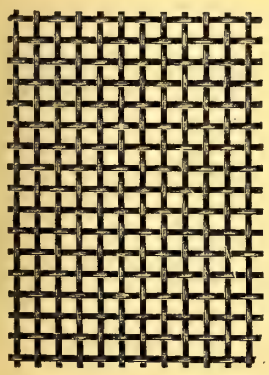

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Napier & Son, D., Ltd., 14, New Burling Street, London, W., and at Acton, "Nitrifier, London" Gerrard

Rolls-Royce, Ltd., 14 and 15, Conduit Str W.1. "Rolhead, London." Gerrard 1654

The Siddeley-Deasy Motor Car Co., L Coventry. Coventry 954. "De Coventry."

Sunbeam Motor Car Co., Ltd., Wolverha ton. "Moorfield, Wolverhampton Wolverhampton

The Gnôme & Le Rhône Engine Co., L 27, Buckingham Gate, S.W.1. "Ele fold, London." Walthamstow 81 lines).

Walton Motors, Ltd., Walton-on-Tha "Motors, Walton-on-Thames." Walton-on-Thames

Electrical Accessories—

Belling & Co., Montague Road, U Edmonton, N.18. "Belling, Ed ton." Tottenham

Brown Bros., Ltd., Gt. Eastern St., E

Johnson & Phillips, Ltd., Charlton, don, S.E.7. "Juno, London." Central 2207; London Wall

The Rotax Motor Accessories Co., Ltd., toria Road, Willesden Junction, N. "Rodynahte, 'Phone, London." Willesden

Electric Cables—

E. Kalker and Co., Coventry. "Kal Coventry." Coventry

Johnson & Phillips, Ltd., Charlton, Lon S.E.7. "Juno, London." Central 2207; London Wall

Electric Lighting and Powe

Johnson & Phillips, Ltd., Charlton, don, S.E.7. "Juno, London." Central 2207; London Wall

Mann, Egerton & Co., Ltd., 117, Cleve Street, London, W. "Installing, road." Museum 70 (4 li

Electro Platers and Me Polishers' Engineers—

W. Canning & Co., 133-137, Great Ham Street, Birmingham. "Materials, mingham." Birmingham 3622 Central (3 li

Fireproof Petrol Tanks—

The Aircraft Improvements Co., Morn ton Works, Arlington Road, Can Town, N.W.1.

Flare Lights—

Imperial Light, Ltd., 123, Victoria St London, S.W.1. "Edibrac, 'Ph London." Victoria 3540 (3 li

Flexible Shafts—

Herbert Terry & Sons, Ltd., Redd "Springs, Redditch." Redditch

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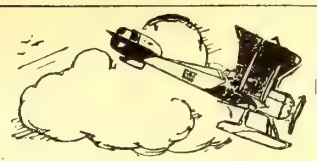

Fluxes—
Imperial Light, Ltd., 123, Victoria Street, London, S.W.1. "Edibrac, 'Phone, London." Victoria 3540 (3 lines).
The Auto Controller Co. (Fluxite), Vienna Road, Bermondsey, Eng.

Flying Boat Builders—
Gosport Aircraft Co., Gosport. "Flight, Gosport." Gosport 217.

Galvanising—
Boulton & Paul, Ltd., Rose Lane, Norwich. "Aviation, Norwich." Norwich 851.

Gauges—
J. A. Prestwich & Co., Northumberland Park, Tottenham, N.17.
Voucher, Co., Auto Tool Works, Walsall "Voucher Walsall." Walsall 0196.

Gears—
Moss Gear Co., Ltd., Thomas Street, Aston, Birmingham. "Mosgear, Birmingham." East 407.

Glue—
Cannon, B., & Co., Ltd, Lincoln. London Office, 110, Cannon Street, E.C.4. "Bececolin, Cannon, London." City 1206.
Improved Liquid Glues Co., Ltd, Gt. Hermitage Street, E. (Croid.) "Excroiden, 'Phone, London." Avenue 4611-2.
Meudine Co., 8, Arthur Street, E.C. Bank 5873.

Goggles—
Triplex Safety Glass Co., Ltd., 1, Albemarle Street, Piccadilly, W.1. "Shatterlys, Piccy, London" Regent 1340

Heating and Ventilating—
Chas. P. Kinnell and Co., Ltd., 65 & 65A, Southwark Street, London, S.E.1. "Kinnell, London." Hop 372 (2 lines).
The Thames Bank (Blackfriars) Iron Co., Ltd, Upper Ground Street, London, S.E.1. "Hot Water, Friars, London." Hop 703.

Instruments—
British Wright Co., Ltd., 33, Chancery Lane, W.C.2. Holborn 1308.

Instruments (Scientific, Altimeters, etc.)—
Short & Mason, Ltd., Macdonald Road, Walthamstow, E.17. "Aneroid, Phone, London." Walthamstow 180.

Insurance—
Aviation Insurance Association, 1, Royal Exchange Avenue, E.C.3. London Wall 6044.
Bray, Gibb & Co, Ltd., 166, Piccadilly, W.1
S. Sackville & Sons, Duchy Chambers, 4, Clarence Street, Manchester.
Harold Townend, Ltd., 13-14, Abchurch Lane, King William Street, E.C.4. "Carinsur, London." Central 156 (2 lines).
Percy Wingfield, 22, Newgate Street, E.C.1 City 4672.

Leather Cloth—
New Pegamoid, Ltd., 134, Queen Victoria Street, London. "Pegamoid, Cent., London." City 0704 (2 lines).

Lubricating Oil Refiners and Merchants—
W. B. Dick & Co, Ltd, 90, Fenchurch Street, E.C.3 Telegrams, Dicotto Fen, London. Avenue 7854 (2 lines)

Magneto Driving Pieces—
Herbert Terry & Sons, Ltd., Redditch. "Springs, Redditch." Redditch 61.

Magnetos—
The British Lighting & Ignition Co., Ltd., 204, Tottenham Court Road, W.1. "Vicksmag, Phone, London." Museum 430.
The British Thomson-Houston Co., Ltd., Lower Ford Street, Coventry. "Asteroidal, Coventry." Coventry 278.

Metal Casement Manufacturers—
Henry Hope & Sons, Ltd., 55, Lionel Street, Birmingham. "Conservatory, Birmingham." Central 999 (2 lines).

Metal Manufacturers—
Clifford, Chas, & Sons, Ltd., Birmingham. "Clifford, Birmingham." Central 42-43. Avenue 1432.

Metals in General—
Samuel Mercer & Co., 198, Upper Thames Street, E.C.4. "Reconciled, Cannon, London." City 6342.

Metal Parts and Fittings—
Accles & Pollock, Ltd., Oldbury, Birmingham. "Accles, Oldbury." Oldbury 111 (4 lines)
Arnott & Harrison, Ltd, Hythe Road, Willesden Junction. Willesden 2207.
Bayliss, Jones, & Bayliss, Ltd., Wolverhampton. (Bolts and Nuts.) "Bayliss, Wolverhampton." Wolverhampton 1041.
Blackburn Aeroplane & Motor Co., Ltd., Olympia, Leeds. "Propellors, Leeds." Roundhay 345 (3 lines).
British Metal (Kingston), Ltd., Kingston-on-Thames.
Brown Bros., Ltd., Gt. Eastern St., E.C.1.
Mann, Egerton & Co., Ltd., 177, Cleveland Street, London, W.1 "Installing, Eusroad, London." Museum 70.
Rubery Owen & Co., Darlaston, South Staffs.
Sankey, Joseph, & Sons, Ltd., Wellington, Shropshire. "Sankey, Wellington, Salop." Wellington 66.
The Pulvo Engineering Co., Ltd., 10 to 16, Dane Street, High Holborn, London, W.C.1. "Pulvipult, Phone, London." Holborn 410.
The Selsdon Aero & Engineering Co., Ltd., 1, Albemarle Street, Piccadilly, W.1. "Selaero, Phone, London." Regent 1181.
The Rotax Motor Accessories Co., Ltd., Victoria Road, Willesden Junction, N.W.10. "Rodynalite, Phone, London." Willesden 2480.
Thompson Bros., Ltd., Bradley, Bilston. "Thompson Bros., Bilston." Bilston 10.

Metric Bolts—
Cashmore Bros, Hildreth Street, Balham, S.W. Battersea 415.
Rubery Owen & Co., Darlaston, South Staffs.

Miscellaneous—
Anderson, D., & Son, Ltd. (Roofs), Belfast. "Anderson, Belfast." Belfast 4033-4034-4035
British Metal (Kingston), Ltd., Kingston-on-Thames
Brown Bros., Ltd, Great Eastern Street, E.C.1 "Imbrowned, Bethroad, London." London Wall 6300.
Herbert Frood Co., Ltd., Chapel-en-le-Frith. "Frodobrake, Birmingham" Central 793
MacLennan, J., & Co., 30, Newgate Street, E.C.1., and at Glasgow. Tapes, Cords, and Threads. City 3115.

Motor Cars—
Arrol Johnston, Ltd., Dumfries. "Mocar, Dumfries." Dumfries 281-282.
Mann, Egerton & Co., Ltd., 379/381, Euston Road, London, N.W.1. "Manegecar, Eusroad, London." Museum 70.
Standard Motor Car Co., Coventry. "Flywheel, Coventry." Coventry 530 (4 lines).

Nameplates and Labels—
British Metal (Kingston), Ltd, Kingston-on-Thames
The Clegg Metal Engraving Co., Ltd., Worthing. "Clegg, Worthing."

Observation Panels—
Triplex Safety Glass Co., Ltd., 1, Albemarle Street, Piccadilly, W.1. "Shatterlys, Piccy, London." Regent 1340.

Oils—
C. C. Wakefield & Co., Ltd, Wakefield House, Cheapside, E.C.2. "Cheery, Cent, London" Central 11305 & 13466.

Parachutes—
E. R. Calthrop's Aerial Patents, Ltd., Eldon Street House, Eldon Street, London, E.C. "Savemalivo, Ave, London" London Wall 3266-3267.
The North British Rubber Co., Ltd., Castle Mills, Edinburgh. "Weba, Edinburgh." Edinburgh 3880 Central. (5 lines.)
C. G. Spencer & Sons, Ltd. (See under "Balloons").

Piston Rings—
The Standard Piston Ring and Engineering Co., Ltd., Don Road, Sheffield. "Ocean, Sheffield." Sheffield 2149

Presswork—
Rubery Owen & Co., Darlaston, South Staffs.
Terry, Herbert, & Sons, Ltd., Redditch. "Springs, Redditch." Redditch 61.

Propellers—
The Aircraft Improvements Co., Mornington Works, Arlington Road, Camden Town, N.W.1
Blackburn Aeroplane & Motor Co., Ltd., Olympia, Leeds. "Propellors, Leeds." Roundhay 345 (3 lines).
Boulton & Paul, Ltd., Rose Lane, Norwich, "Aviation, Norwich." Norwich 851.
Ebora Propeller Co., 11 & 12, Surbiton Park Terrace, Kingston-on-Thames "Ebora, Kingston." Kingston 672.
Integral Propeller Co., Ltd., "Aviprop, Hyde, London." Hendon 9. Kingsbury 104
Lang Propeller, Ltd., Weybridge. "Aerosticks, Weybridge." Weybridge 520-521.
Oddy, W. D., & Co., Leeds. "Airscrews, Leeds." Leeds 20547-8.
Westland Aircraft, Yeovil. "Aircraft, Yeovil." Yeovil 129.

Pyrometers—
The Foster Instrument Co., Letchworth, Herts. "Foster Instruments, Letchworth." Letchworth 26.

Rawhide Hammers—
Ira Stephens, Whitelands Leather Works, Ashton under-Lyne. "Stephens, 709, Ashton." Ashton 709.

Rigging for Aircraft—
Cradock, Geo., & Co., Ltd., Wakefield, England "Cradock, Wakefield." Wakefield 466.

Rubber Tubing & Accessories—
Hancock, James Lyne, Ltd., 266, Goswell Road, London, E.C.1 "Masticator, Isling, London." City 3811 & 3812
The North British Rubber Co., Ltd., Castle Mills, Edinburgh. "Weba, Edinburgh." Edinburgh 3880 Central. (5 lines.)

Safety Belts—
C. H. Holmes & Son, 38, Albert Street, Manchester. "Semloh, Manchester." City 4432.

Screwing Die Heads—
Voucher, Co., Auto Tool Works, Walsall. "Voucher Walsall." Walsall 0196

Screw-driving Machines—
Russell Bros. (Redditch), Ltd., Littleworth, Redditch. "Inventors, Redditch." Redditch 74.

Seaplane Manufacturers—
Blackburn Aeroplane & Motor Co., Ltd., Olympia, Leeds. "Propellors, Leeds." Roundhay 345 (3 lines).
Phœnix Dynamo Manufacturing Co., Ltd., Thornbury, Bradford. "Dynamo, Bradford." Bradford 3700 (7 lines).
Short Bros, Rochester. "Seaplanes, Rochester." Chatham 627.
Supermarine Aviation Works, Ltd., Southampton "Supermarin, Southampton." Woolston 37.

Searchlights & Landing Lights
Brown Bros., Ltd., Great Eastern St., E.C.1.
Imperial Light, Ltd., 123, Victoria Street, London, S.W.1. "Edibrac, Phone, London" 3540 Victoria (3 lines).
The Rotax Motor Accessories Co., Ltd., Victoria Road, Willesden Junction, N.W.10 "Rodynalite, Phone, London." Willesden 2480

Shock Absorbers—
Luke Turner & Co., Deacon Street, Leicester Leicester 967.
Tubbs, Lewis & Co., Ltd., 29 & 30, Noble Street, E.C.2. "Elastics, London." City 22.

Sheet Metal Pressings—
Accles & Pollock, Ltd., Oldbury, Birmingham. "Accles, Oldbury." Oldbury 111 (4 lines)
Blackburn Aeroplane & Motor Co., Ltd., Olympia, Leeds. "Propellors, Leeds." Roundhay 345 (3 lines)
British Metal (Kingston), Ltd., Kingston-on-Thames.
Rubery Owen & Co., Darlaston, South Staffs.

Sheet Metal Work—
The Acetylene Corporation of Great Britain, Ltd., 49, Victoria Street, S.W.1. "Flamma, Vic, London." Vic 4830
British Metal (Kingston), Ltd., Kingston-on-Thames. [Staffs.
Rubery Owen & Co., Darlaston, South
The Selsdon Aero & Engineering Co., Ltd., 1, Albemarle Street, Piccadilly, W.1. "Selaero, Phone, London." Regent 1181.
Imperial Light, Ltd., 123, Victoria Street, London, S.W.1. "Edibrac, Phone, London." Victoria 3540 (3 lines).

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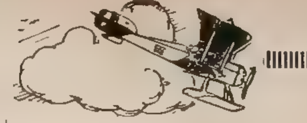

Accumulators—

The Chloride Electrical Storage Co., Ltd., Clifton Junction, near Manchester. "Chloridic, Pendlebury" Central Manchester, 1635 Pendleton, 11.

Acetylene Welding Plant—

Acetylene Corporation of Great Britain, Ltd., The, 49, Victoria Street, Westminster, S.W.1. "Flamma, Vic, London" Vic 4830

Imperial Light, Ltd., 123, Victoria Street, London, S.W.1 "Edibrac, 'Phone London" 3540 Victoria (3 lines)

Aeroplane Manufacturers—

Aircraft Manufacturing Co., Ltd., Hendon. "Airmanship, Hyde, London" Kingsbury 220

Armstrong, Sir W., Whitworth & Co., Ltd., Newcastle-on-Tyne "Armstrong Aviation, Newcastle-on-Tyne" Gosforth 500

Blackburn Aeroplane & Motor Co., Ltd., Olympia, Leeds "Propellors, Leeds" Roundhay 345 (3 lines)

Boulton & Paul, Ltd., Rose Lane, Norwich, "Aviation, Norwich" Norwich 851

British Aerial Transport Co., Ltd. Head Office: 18, Conduit Street, London, W.1 "Batigram Reg London" Mayfair 637, 638

Works: Hythe Road, Willesden, London N.W.10 "Aerbritrans, Phone, London" Willesden, 2272, 2273

British & Colonial Aeroplane Co., Ltd. (The Bristol Co.), Filton, Bristol "Aviation, Bristol" Bristol 3906

Central Aircraft Co., High Road, Kilburn, N.W.6 "Aviduction, Phone, London" Hampstead 4403 and 4424

Dawson, John, & Co., Ltd., Newcastle-on-Tyne. "Dependable, Newcastle-on-Tyne." Central 2604 (2 lines).

Eastbourne Aviation Co., Ltd., Eastbourne "Aircraft, Eastbourne" Eastbourne 1176

Gosport Aircraft Co., Gosport "Flight Gosport" Gosport 217

Grahame-White Company, Ltd., London Aerodrome, Hendon "Volplane, Hyde, London" Kingsbury 120 London Office, 12, Regent Street, S.W.1 Regent 2004

Handley Page, Ltd., 110, Cricklewood Lane, N.W.2 "Hydrophid, Crickle, London" Hampstead 7420

Hooper & Co., Ltd., 54, St. James St., Piccadilly, London, S.W. "Sociable, St. James, London" Regent 612

Mann, Egerton & Co., Ltd., Norwich "Motors, Norwich" Norwich 482 (4 lines)

Martinsyde, Ltd., Brooklands, Byfleet, "Martinsyde, Weybridge" Woking 331, Byfleet 171

"Nieuport" & General Aircraft Co., Cricklewood, London, N.W.2 "Nieuscout, Crickle, London" Willesden 2455

Phœnix Dynamo Manufacturing Co., Ltd., Thornbury, Bradford. "Dynamo, Bradford" Bradford 3700 (4 lines)

The Regent Carriage Co., Ltd., 126/132, New King's Road, Fulham, S.W.6 "Carbodis, London" Putney 2240-2241

Roe, A. V., & Co., Ltd., Manchester "Triplane, Manchester" City 8530-8531, Manchester

Saunders, S. E., Ltd., East Cowes, I.O.W. "Consuta, East Cowes" Cowes 103

Short Bros., Rochester, Eastchurch and Whitehall House, S.W. "Tested, Phone, London" Regent 378

The Siddeley Deasy Motor Car Co., Ltd., Coventry Coventry 954 "Deasy, Coventry."

Sopwith Aviation Co., Ltd., Kingston-on-Thames. "Sopwith, Kingston" Kingston 1988 (8 lines).

The Supermarine Aviation Works, Ltd., Southampton. "Supermarin" Woolston 37 (2 lines)

Vickers, Ltd., Imperial Court, Basil Street, Knightsbridge, S.W.3 "Vickerfyta, Knights, London." Kensington 6810.

Waring & Gillow, Ltd., Hammersmith. "Warisen, Ox, London." Museum 5000.

Westland Aircraft, Yeovil "Aircraft, Yeovil." Yeovil 129.

White, J. Samuel, & Co., Ltd., East Cowes. "White, East Cowes" Cowes 3.

Airships—

Airships, Ltd., High Street, Merton. Wimbledon 1314

The North British Rubber Co., Ltd., Castle Mills, Edinburgh "Weba, Edinburgh" Edinburgh 3880 Central. (5 lines)

Short Bros., Rochester, Eastchurch, and Whitehall House, S.W. "Tested, 'Phone, London" Regent 378

C. G. Spencer and Sons, Ltd. (See under "Balloons").

Aluminium Castings (Sand and Die)

Coan, R. W., 210, Goswell Road, London, E.C.1 "Krankases, Isling, London" City 3846

Balloons—

The North British Rubber Co., Ltd., Castle Mills, Edinburgh "Weba, Edinburgh" Edinburgh 3880 Central (5 lines)

C. G. Spencer and Sons, Ltd., 50A, Highbury Grove, N.5 "Aeronaut, London." Dalston 1893

Bent Timber Parts—

Hopton & Sons, George Street, Euston Square, London, N.W.1. "Hoptons, Eusquare, London" Museum 496. Also at Market Harborough, Leicestershire "Hoptons, Market Harborough" Market Harborough 13.

Bearings (Etonia Cast Phosphor Bronze)

Brown Bros., Ltd., Gt. Eastern St., E.C.1

Yorkshire Engineering Supplies, Ltd., Wortley, Leeds "Yes, Leeds" Central 3927.

Blowpipes (Oxy-Acetylene)—

Acetylene Corporation of Great Britain, Ltd., The, 49, Victoria Street, Westminster, S.W.1 "Flamma, Vic, London" Vic. 4830

Imperial Light, Ltd., 123, Victoria Street, London, S.W.1 "Edibrac, 'Phone, London" Vic. 3540 (3 lines)

Bolts—

Mitchell Wedgewood & Co., Campbell Works, Stoke Newington, London, N.16 Dalston 2500 (2 lines).

Books (Aero Engines)—

Dykes' Auto Encyclopedia, Gillam, 149, Strand, W.C.2

Buildings—

Boulton & Paul, Ltd., Rose Lane, Norwich "Aviation, Norwich" Norwich 851

Rubery Owen & Co., Darlaston, South Staffs

Cable Coverings and Cable Controls—

The Bowden Brake Co., Ltd., Tyseley, Birmingham "Bowden, Acock's Green" Acock's Green 103 & 104

Bowden Wire, Ltd., Willesden Junction, "Bowirelin, Harles, London" Willesden 2400 (3 lines).

Herbert Terry & Sons, Ltd., Redditch "Springs, Redditch" Redditch 61

Carburettors—

Hobson, H. M., Ltd., 29, Vauxhall Bridge Road, S.W.2 Victoria 4070

Casein—

Nieuwhof, Surie & Co., Ltd., 5, Lloyds Avenue, London, E.C.3 "Suricodon, Fen, London" Avenue 34 and 35

Clothing—

Burberry's, Ltd., Haymarket, S.W.1 Regent 2105

Dunhill's Ltd., Euston Road, N.W.1 "Dunsend, London" North 3405-6.

The North British Rubber Co., Ltd., Castle Mills, Edinburgh "Weba, Edinburgh" Edinburgh 3880 Central. (5 lines)

Component Parts—

Accles & Pollock, Ltd., Oldbury, Birmingham "Accles, Oldbury." Oldbury 111 (4 lines)

Brown Bros., Ltd., Gt. Eastern St., E.C.1.

Central Aircraft Co., High Road, Kilburn, N.W.6. "Aviduction, 'Phone, London." Hampstead 4403 & 4404.

Thompson Bros. (Bilston), Ltd., Bradley, Bilston, England "Thompson Bros., Bilston" Bilston 10

Cords, Tapes, and Threads—

MacLennan, J., & Co., 30, Newgate Street, E.C.1. And at Glasgow. City 3115

Dopes—

Titanine, Ltd., 175, Piccadilly, W.1 "Tetrafree, Piccy, London" Gerrard ...

British Cellulose Co., 8, Waterloo Place, S.W.1. "Cellutate, London" Regent ...

The British Emaillite Co., Ltd., 30, Regent Street, S.W.1 "Ridleypren, Piccy, London" Gerrard ...

Cellon, Ltd., 22, Cork Street, London, W.1 "Ajawb, Reg, London" Gerrard ...

Robt. Ingham Clark & Co., Ltd., West Ham Abbey, E.15 "Oleotine, Stra, London" East ...

Engines and Parts—

Allen, W. H., & Co., Ltd., Bedford "Pump, Bedford" Bedford No. 1

Arrol-Johnston, Ltd., Dumfries "... Dumfries" Dumfries ...

Beardmore Aero Eng., Ltd., 112, Great Portland Street, W.1 "Beardmore, London" Gerrard ...

The Cosmos Engineering Co., Ltd., Fishponds, Bristol

Dudbridge Iron Works, Ltd. (Salmson), 89, Victoria Street, London, S.W.1 "...flight, Vic, London" Vic ...

Gordon Watney & Co., Ltd., Weybridge "Mercédès, Weybridge" Weybridge 550 (7 lines)

Green Engine Co., Ltd., Twickenham Richmond ...

Gwynnes, Ltd., Hammersmith, "Gwynne, Hammersmith" Hammersmith

Napier & Son, D., Ltd., 14, New Burlington Street, London, W., and at Acton, "Nitrifier, London" Gerrard ...

Rolls-Royce, Ltd., 14 and 15, Conduit Street, W.1 "Rolhead, London" Gerrard ...

The Siddeley-Deasy Motor Car Co., Ltd., Coventry Coventry 954 "Deasy, Coventry"

Sunbeam Motor Car Co., Ltd., Wolverhampton "Moorfield, Wolverhampton" Wolverhampton

The Gnôme & Le Rhône Engine Co., Ltd., 27, Buckingham Gate, S.W.1 "Elo... toid, London" Walthamstow ... (... lines)

Walton Motors, Ltd., Walton-on-Thames "Motors, Walton-on-Thames" Walton-on-Thames ...

Electrical Accessories—

Belling & Co., Monmouth Road, Lower Edmonton, N.18 "Belling, Edmonton." Tottenham ...

Brown Bros., Ltd., Gt. Eastern St., E.C.

Johnson & Phillips, Ltd., Charlton, London, S.E.7 "Juno, London" Central 2207, London Wall ...

The Rotax Motor Accessories Co., Ltd., Victoria Road, Willesden Junction, N.W. "Rodynalite, Phone, London" Willesden ...

Electric Cables—

E. Kalker and Co., Coventry "Kalker, Coventry" Coventry ...

Johnson & Phillips, Ltd., Charlton, London, S.E.7 "Juno, London" Central ..., London Wall ...

Electric Lighting and Power—

Johnson & Phillips, Ltd., Charlton, S.E.7 "Juno, London" Central 2207, London W. ...

Mann, Egerton & Co., Ltd., 177, Cleveland Street, London, W. "Installing, Eusroad" Museum 70 ...

Electro Platers and Metal Polishers' Engineers—

W. Canning & Co., 133-137, Great Hampton Street, Birmingham "Materials, Birmingham" Birmingham 3022 Central (3 lines)

Fireproof Petrol Tanks—

The Aircraft Improvements Co., Mornington Works, Arlington Road, Camden Town, N.W.1

Flare Lights—

Imperial Light, Ltd., 123, Victoria Street, London, S.W.1 "Edibrac, London" Victoria 3540 (3 lines)

Flexible Shafts—

Herbert Terry & Sons, Ltd., Redditch "Springs, Redditch" Redditch ...

Fluxes—

Imperial Light, Ltd., 123, Victoria Street, London, S.W.1 "Edibrac, 'Phone, London." Victoria 3540 (3 lines)

The Auto Controller Co. (Fluxite), Vienna Road, Bermondsey, Eng.

Flying Boat Builders—

Gosport Aircraft Co., Gosport. "Flight, Gosport" Gosport 217.

Galvanising—

Boulton & Paul, Ltd., Rose Lane, Norwich "Aviation, Norwich." Norwich 851

Gauges—

J. A. Prestwich & Co., Northumberland Park, Tottenham, N.17

Voucher, Co., Auto Tool Works, Walsall "Voucher Walsall" Walsall 0196

Gears—

Moss Gear Co., Ltd., Thomas Street, Aston, Birmingham "Mosgear, Birmingham" East 407

Glue—

Cannon, B., & Co., Ltd., Lincoln. London Office, 110, Cannon Street, E.C.4 "Beecolin, Cannon, London" City 1206

Improved Liquid Glues Co., Ltd., Gt. Hermitage Street, E. (Croid) "Excroiden, 'Phone, London" Avenue 4011-2

Mendine Co., 8, Arthur Street, E.C. Bank 5873

Goggles—

Triplex Safety Glass Co., Ltd., 1, Albemarle Street, Piccadilly, W.1 "Shatterlys, Piccy, London" Regent 1340

Heating and Ventilating—

Chas. P. Kinnell and Co., Ltd., 65 & 65A, Southwark Street, London, S.E.1 "Kinnell, London" Hop 362 (2 lines)

The Thames Bank (Blackfriars) Iron Co., Ltd., Upper Ground Street, London, S.E.1 "Hot Water, Friars, London" Hop 763

Instruments—

British Wright Co., Ltd., 33, Chancery Lane, W.C.2. Holborn 1308

Instruments (Scientific, Altimeters, etc.)—

Short & Mason, Ltd., Macdonald Road, Walthamstow, E.17. "Aneroid, Phone, London." Walthamstow 180

Insurance—

Aviation Insurance Association, 1, Royal Exchange Avenue, E.C.3 London Wall 1044

Bray, Gibb & Co., Ltd., 166, Piccadilly, W.1

S. Sackville & Sons, Duchy Chambers, 1, Clarence Street, Manchester

Harold Townend, Ltd., 13-14, Abchurch Lane, King William Street, E.C.4 "Carinsur, London" Central 156 (2 lines).

Percy Wingfield, 22, Newgate Street, E.C.1 City 1672

Leather Cloth—

New Pegamoid, Ltd., 131, Queen Victoria Street, London "Pegamoid, Cent, London" City 5103 (2 lines).

Lubricating Oil Refiners and Merchants—

W. B. Dick & Co., Ltd., 90, Fenchurch Street, E.C., Telegrams, Dicotto Fen, London Avenue 7154 (2 lines)

Magneto Driving Pieces—

Herbert Terry & Sons, Ltd., Redditch "Springs, Redditch" Redditch 61

Magnetos—

The British Lighting & Ignition Co., Ltd., 204, Tottenham Court Road, W.1 "Vicksmag, Phone, London" Museum 4.0

The British Thomson Houston Co., Ltd., Lower Ford Street, Coventry "Asteroidal, Coventry" Coventry 278

Metal Casement Manufacturers—

Henry Hope & Sons, Ltd., 55, Lionel Street, Birmingham "Conservatory, Birmingham." Central 609 (2 lines).

Metal Manufacturers—

Clifford, Chas., & Sons, Ltd., Birmingham. "Clifford, Birmingham" Central 42-13. Avenue 1432.

Metals in General—

Samuel Mercer & Co., 198, Upper Thames Street, E.C.4 "Reconciled, Cannon, London" City 6342

Metal Parts and Fittings—

Accles & Pollock, Ltd., Oldbury, Birmingham. "Accles, Oldbury." Oldbury 111 (4 lines)

Arnott & Harrison, Ltd., Hythe Road, Willesden Junction Willesden 2207

Bayliss, Jones, & Bayliss, Ltd., Wolverhampton (Bolts and Nuts) "Bayliss, Wolverhampton" Wolverhampton 1041.

Blackburn Aeroplane & Motor Co., Ltd., Olympia, Leeds "Propellors, Leeds" Roundhay 345 (3 lines)

British Metal (Kingston), Ltd., Kingston-on-Thames

Brown Bros., Ltd., Gt. Eastern St., E.C.1

Mann, Egerton & Co., Ltd., 177, Cleveland Street, London, W.1 "Installing, Eusroad, London" Museum 70

Rubery Owen & Co., Darlaston, South Staffs

Sankey, Joseph, & Sons, Ltd., Wellington, Shropshire "Sankey, Wellington, Salop" Wellington 66

The Pulvo Engineering Co., Ltd., 10 to 16, Dane Street, High Holborn, London, W.C.1. "Pulvipult, Phone, London." Holborn 110

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The Rotax Motor Accessories Co., Ltd., Victoria Road, Willesden Junction, N.W.10 "Rodynalite, Phone, London" Willesden 2480

Thompson Bros., Ltd., Bradley, Bilston. "Thompson Bros., Bilston" Bilston 10

Metric Bolts—

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Miscellaneous—

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MacLennan, J., & Co., 30, Newgate Street, E.C.1, and at Glasgow Tapes, Cords, and Threads City 3115

Motor Cars—

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Mann, Egerton & Co., Ltd., 479-371, Euston Road, London, N.W.1 "Manegecar, Eusroad, London" Museum 70

Standard Motor Car Co., Coventry "Flywheel, Coventry" Coventry 530 (4 lines)

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The Clegg Metal Engraving Co., Ltd., Worthing "Clegg, Worthing."

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Blackburn Aeroplane & Motor Co., Ltd., Olympia, Leeds "Propellors, Leeds" Roundhay 345 (3 lines).

Boulton & Paul, Ltd., Rose Lane, Norwich, "Aviation, Norwich" Norwich 851.

Ebora Propeller Co., 11 & 12, Surbiton Park Terrace, Kingston-on-Thames "Ebora, Kingston" Kingston 672.

Integral Propeller Co., Ltd., "Aviprop, Hyde, London" Hendon 9 Kingsbury 104

Lang Propeller, Ltd., Weybridge "Aerosticks, Weybridge" Weybridge 520-521.

Oddy, W. D., & Co., Leeds "Airscrews, Leeds" Leeds 20547-8.

Westland Aircraft, Yeovil. "Aircraft, Yeovil" Yeovil 129.

Pyrometers—

The Foster Instrument Co., Letchworth, Herts "Foster Instruments, Letchworth" Letchworth 20

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Cradock, Geo., & Co., Ltd., Wakefield, England "Cradock, Wakefield" Wakefield 466

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Voucher, Co., Auto Tool Works, Walsall. "Voucher Walsall" Walsall 0196

Screw-driving Machines—

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Phœnix Dynamo Manufacturing Co., Ltd., Thornbury, Bradford "Dynamo, Bradford" Bradford 3700 (7 lines)

Short Bros., Rochester "Seaplanes, Rochester." Chatham 627.

Supermarine Aviation Works, Ltd., Southampton "Supermarin, Southampton" Woolston 37

Searchlights & Landing Lights

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Imperial Light, Ltd., 123, Victoria Street, London, S.W.1. "Edibrac, Phone, London" 3540 Victoria (3 lines)

The Rotax Motor Accessories Co., Ltd., Victoria Road, Willesden Junction, N.W.10 "Rodynalite, Phone, London" Willesden 2480

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Tubbs, Lewis & Co., Ltd., 29 & 30, Noble Street, E.C.2 "Elastics, London" City 22.

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Sheet Metal Work—

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Samuel Mercer & Co., 198, Upper Thames Street, E.C.4. "Reconciled, Cannon, London." City 6342.

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Lodge Sparking Plug Co., Ltd., Rugby. "Igniter, Rugby." Rugby 235.
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The Robinhood Engineering Works, Ltd., Newlands, Putney Vale, S.W.15. Makers of KLG Plugs. "Kaelgee, Phone, London." Putney 2132-3.

Springs—
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Terry, Herbert, & Sons, Ltd., Redditch. "Springs, Redditch." Redditch 61 (3 lines).

Steel—
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Brown Bros., Ltd., Great Eastern St., E.C.1.
Firth, Thos., & Sons, Sheffield. "Firth, Sheffield." Sheffield 3230 to 3237.
Nicklin, Bernard, & Co., Birmingham. "Bernico, Birmingham." Smithwick, 224.
Spear & Jackson, Ltd., Ætna Works, Sheffield. "Spear, Sheffield." Central 4522-3-4.

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Timber—
Hopton & Sons, George Street, Euston Square, London, N.W.1. "Hoptons, Eusquare, London." Museum 496. Also at Market Harborough, Leicestershire. "Hoptons, Market Harborough." Market Harborough 13.

Time Recorders—
Gledhill Brook Time Recorders, Ltd., 26, Victoria Street, S.W.1. Victoria 1310.

Tools—
Richard Mather & Son, Shoreham Street Works, Sheffield Sheffield 4349.

Turnbuckles—
Brown Bros., Ltd., Great Eastern St., E.C.1.
Rubery Owen & Co., Darlaston, South Staffs.

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The Palmer Tyre, Ltd., Shaftesbury Avenue. "Tyricord, Westcent." Gerrard 1214 (5 lines).

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Thomas Parsons & Sons, 315 & 317, Oxford Street, London, W.1. "Varjap, Phone, London." Mayfair 6347 (3 lines).
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Harland, W., & Son, Merton, London, S.W.19. "Harland, Wimbledon 45." Wimbledon 45 and 1395.
Naylor Bros., Ltd., Southall, Middlesex. "Naylor, Southall." Southall 30.

Washers—
Terry, Herbert, & Sons, Ltd., Redditch. "Springs, Redditch." Redditch 61.

Welding and Cutting Plant—
Acetylene Corporation of Great Britain, Ltd., The, 49, Victoria Street, Westminster, S.W.1. "Flamma, Vic, London" Vic 4830.
Imperial Light, Ltd., 123, Victoria Street, London, S.W.1. "Edibrac, Phone, London." Victoria 3540 (3 lines).

Welding Repairs—
Imperial Light, Ltd., 123, Victoria Street, London, S.W.1. "Edibrac," Phone, London." Victoria 3540 (3 lines).

Wind Shields—
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The Rotax Motor Accessories Co., Ltd., Victoria Road, Willesden Junction, N.W.10. "Rodynalite, Phone, London." Willesden 2480.
Triplex Safety Glass Co., Ltd., 1, Albemarle Street, Piccadilly, W.1. "Shatterlys, Piccy, London." Regent 1340.

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Terry, Herbert, & Sons, Ltd., Redditch. "Springs, Redditch." Redditch 61.

Woodworking Machinery—
Robinson, Thomas, & Son, Ltd., Rochdale, "Robinson, Rochdale." Rochdale 467.
Sagar, J., & Co., Ltd., Halifax. "Sawtooth," Halifax." Halifax 136.
Wadkin & Co., Leicester. "Woodworker, Leicester." Leicester 3614.

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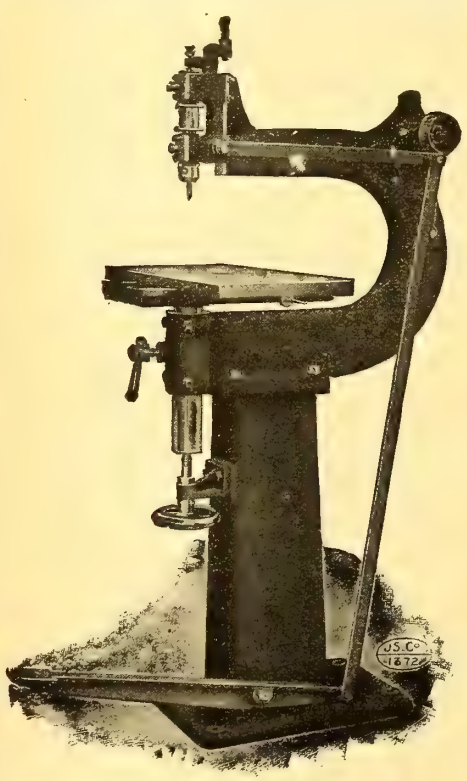

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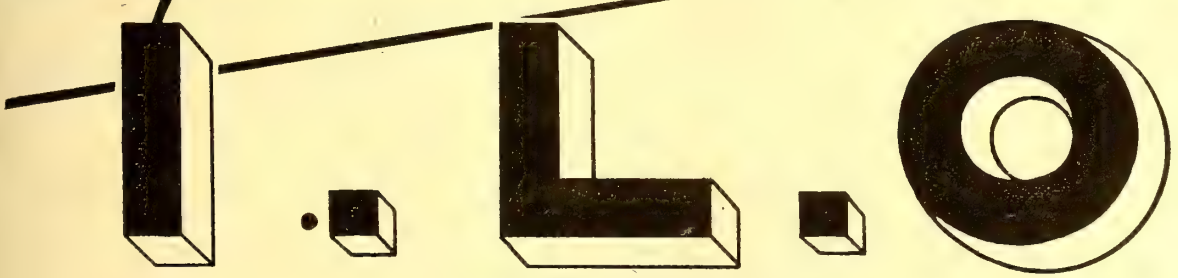

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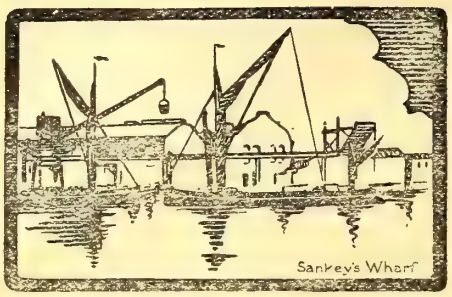

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Area of fin	16.2 sq. ft.
Area of ailerons	23.4 sq. ft. each—46.8 sq. ft. total
Maximum cross-section of body	3 ft. 6 in. by 3 ft. 1 in.
Horizontal area of body	90 sq. ft.
Vertical area of body	88 sq. ft.
Engine type and h.p.	275-h.p. Rolls-Royce
Weight fully loaded	5,560 lbs.
Disposable load	1,100 lbs.
Load per sq. ft.	8.7 lbs.
Weight per h.p.	19.5 lbs.
Tank capacity	88 galls.
PERFORMANCE—	
Speed low down	78 knots
Landing speed	43 knots
Climb—	
To 5,000 ft.	12 min. 30 sec.

SPECIFICATION.—TYPE F.22.

Type of machine	Seaplane
Name or type No.	F.22 Campania
Span overall	61 ft. 7½ in.
Gap	6 ft. 6 in.
Length overall	43 ft. 0⅝ in.
Maximum height	15 ft. 1 in.
Chord	6 ft. 4 in.
Total surface of wings	627.8 sq. ft.
Span of tail	13.0 ft.
Area of tail (including elevators)	75.1 sq. ft.
Area of elevators	28.1 sq. ft.
Area of rudder	19.6 sq. ft.
Area of fin	16.2 sq. ft.
Area of ailerons	23.4 sq. ft. each—46.8 sq. ft. total
Maximum cross section of body	3 ft. 6 in. by 3 ft. 1 in.
Horizontal area of body	90 sq. ft.
Vertical area of body	88 sq. ft.
Engine	260-h.p. Sunbeam
Weight of machine loaded	5,329 lbs.
Disposable load	1,086 lbs.
Load per sq. ft.	8.14 lbs.
Load per h.p.	20.1 lbs.
Tank capacity	88 galls.
PERFORMANCE—	
Speed low down	74 knots
Landing speed	40 knots
Climb—	
To 5,000 ft.	18 min.

THE FAIREY N.9.

This machine was designed for reconnaissance work at sea, and was not intended to carry a large bomb load. In its general lines it resembled the "Campania" type, but had cut-down lower planes and was powered with a 190-h.p. Falcon Rolls-Royce.

Like the "Campanias" it was fitted with variable camber gear.

Only one machine of the type was built, largely on account of the shortage of Rolls-Royce engines, and the solitary example was used for experimental work.

An interesting feature of this machine's history is the fact that it was the first British seaplane to begin a flight by being thrown off the deck of a ship by a catapult gear.

SPECIFICATION.

Type of machine	Seaplane
Name or type number of machine	F.127
Purposes for which intended	Shipwork
Span	50 ft.
Gap (maximum and minimum)	5 ft. 7 in.
Overall length	35 ft. 6 in.
Maximum height	13 ft.
Chord	5 ft. 6 in.
Total surface of wings	420 sq. ft
Span of tail	13 ft.
Total area of tail	34.2 sq. ft.
Area of rudder and fin	9 ft. 8 in.
Area of each aileron and total area	18 sq. ft.
Engine type and h.p.	190 h.p. R.R.
Load per square foot	9.08 lbs.
Weight per h.p.	18.15 lbs.
Tank capacity in hours	5¼
Tank capacity in gallons	70
PERFORMANCE—	
Speed low down	78 knots
Speed at 10,000 ft.	74 knots
Landing speed	38 knots
Climb—	
To 5,000 ft.	9 min. 30 sec.
To 10,000 ft.	38 min.
Disposable load apart from fuel	516
Total weight of machine loaded	3,812 lbs.

THE FAIREY TYPE III, IIIA, IIIB, AND IIIC.

The original Type III machine—known as N.10 in the R.N.A.S.—was mainly a modified N.9, with the lower wing extended to a span equal to that of the upper wing, and fitted with the 260-h.p. Sunbeam.

This machine underwent a number of metamorphoses. Fitted with a land chassis in place of floats, it became a "deck flier," or ship plane. This form became known as the Type III, and fitted with flotation air bags and hydrovanes for alighting on water was reproduced in some quantitiy.

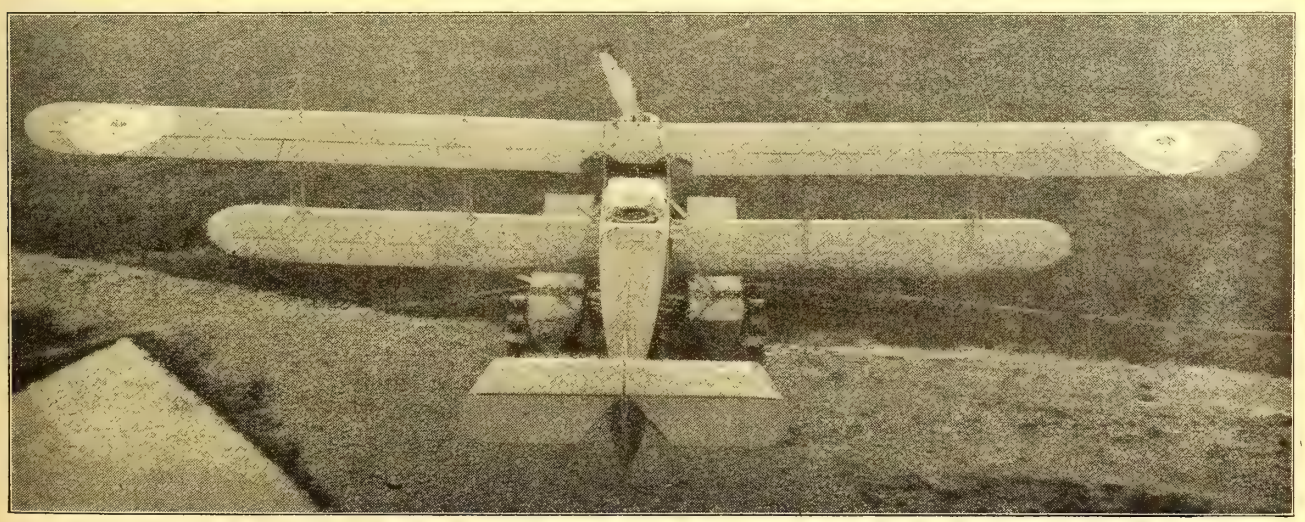
After this the same fuselage was fitted with a set of wings of greater span, larger floats, and a heavier chassis, was equipped with bomb gear and became the prototype of the Type IIIB.

Later still, the "Eagle" Rolls-Royce engine in its 375-h.p. edition became available, and a kind of mixture of the N.10 varieties was produced, known as the Type IIIC.

This consists of the standard fuselage, fitted with the wings of the original Type III, and the chassis and floats of the Type IIIB, with enlarged fuel tanks and a greatly improved performance. The following specifications give the main details of these varieties of the N.10 type.

SPECIFICATION.—TYPE III.

Type of machine	Seaplane
Name or type number of machine	F.128
Purpose for which intended	Sea scout
Span	46 ft. 2 in.
Gap (maximum and minimum)	5 ft. 7 in.
Overall length	36 ft.
Maximum height	13 ft.
Chord	5 ft. 6 in
Total surface of wings	476 sq. ft.
Span of tail	13 ft.
Total area of tail	34.2 sq. ft.
Area of rudder and fin	9.8 sq. ft.
Area of each aileron	16.5 sq. ft.
Engine type and h.p.	260-h.p. Sunbeam
Load per sq. foot	8.74 lbs.
Weight per h.p.	15.69 lbs.
Tank capacity in hours	4½ hours
Tank capacity in gallons	76 galls.
PERFORMANCE—	
Speed low down	90 knots



Rear View of the Fairey Type IIIB Seaplane with 260 h.p. Sunbeam engine.

Speed at 10,000 ft.	82 knots
Landing speed	41 knots
Climb—	
To 5,000 ft.	9.15 min.
To 10,000 ft.	23 min.
Disposable load apart from fuel	584 lbs.
Total weight of machine loaded	4,160 lbs.

SPECIFICATION.—TYPE IIIA.

Type of machine	Tractor biplane
Name or type number of machine	F111 a
Purpose for which intended	General
Span	44 ft.
Gap (maximum and minimum)	5 ft. 7 in.
Overall length	31 ft.
Maximum height	13 ft.
Chord	5 ft. 6 in.
Total surface of wings	476 sq. ft.
Span of tail	13 ft.
Total area of tail	34.2 sq. ft.
Area of rudder and fin	9.8 sq. ft.
Area of each aileron	16.5 sq. ft.
Engine, type and h.p.	260-h.p. Sunbeam
Load per sq. foot	7.76 lbs.
Weight per h.p.	13.93 lbs.
Tank capacity in hours	4½ hours
Tank capacity in gallons	76 galls.
Performance—	
Speed low down	95 knots
Speed at 10,000 ft.	90 knots
Landing speed	40 knots
Climb—	
To 5,000 ft.	7.1 min.
To 10,000 ft.	17.3 min.
Disposable load apart from fuel	584 lbs.
Total weight of machine loaded	3,694 lbs.

SPECIFICATION.—TYPE IIIB.

Type of machine	Seaplane
Name or type number of machine	F111 b
Purpose for which intended	Sea bomber
Span	62 ft. 9 in.
Gap (maximum and minimum)	5 ft. 7 in.
Overall length	26 ft.
Maximum height	13 ft.
Chord	5 ft. 6 in.
Total surface of wings	570 sq. ft.
Span of tail	13 ft.
Total area of tail	34.2 sq. ft.
Area of rudder and fin	12.4 sq. ft.
Area of each aileron	23 sq. ft.
Engine, type and h.p.	260-h.p. Sunbeam
Load per sq. ft.	8.5 lbs.
Weight per h.p.	18.5 lbs.
Tank capacity in hours	4½ hours
Tank capacity in gallons	76 galls.
Performance—	
Speed low down	83 knots
Speed at 10,000 ft.	76 knots
Landing speed	42 knots
Climb—	
To 5,000 ft.	12.3 min.
To 10,000 ft.	36.0 min.
Disposable load apart from fuel	1,041 lbs.
Total weight of machine loaded	4,892 lbs.

SPECIFICATION.—TYPE IIIC.

Type of machine	Seaplane
Name of machine	F111 c.
Purpose for which intended	Reconnaissance
Engine type and h.p.	375-h.p. Rolls-Royce "Eagle"
Load per sq. ft.	10.6 lbs.
Weight per h.p.	14 lbs.
Tank capacity in hours	6 hours
Tank capacity in gallons	120 galls.
Performance—	
Speed low down	97 knots
Speed at 10,000 ft.	90 knots
Landing speed	44 knots
Climb—	
To 5,000 ft.	6.4 min.
To 10,000 ft.	17.30 min.
Disposable load apart from fuel	1,030 lbs.
Total weight of machine loaded	5,050 lbs.

THE N.4 TYPE FLYING-BOAT.

This machine, designed by Mr. Fairey, in collaboration—so far as hull was concerned—with Major Linton Hope—was intended for work with the Fleet at sea.

The main requirements were great air endurance, seaworthiness, a formidable armament, and a high performance

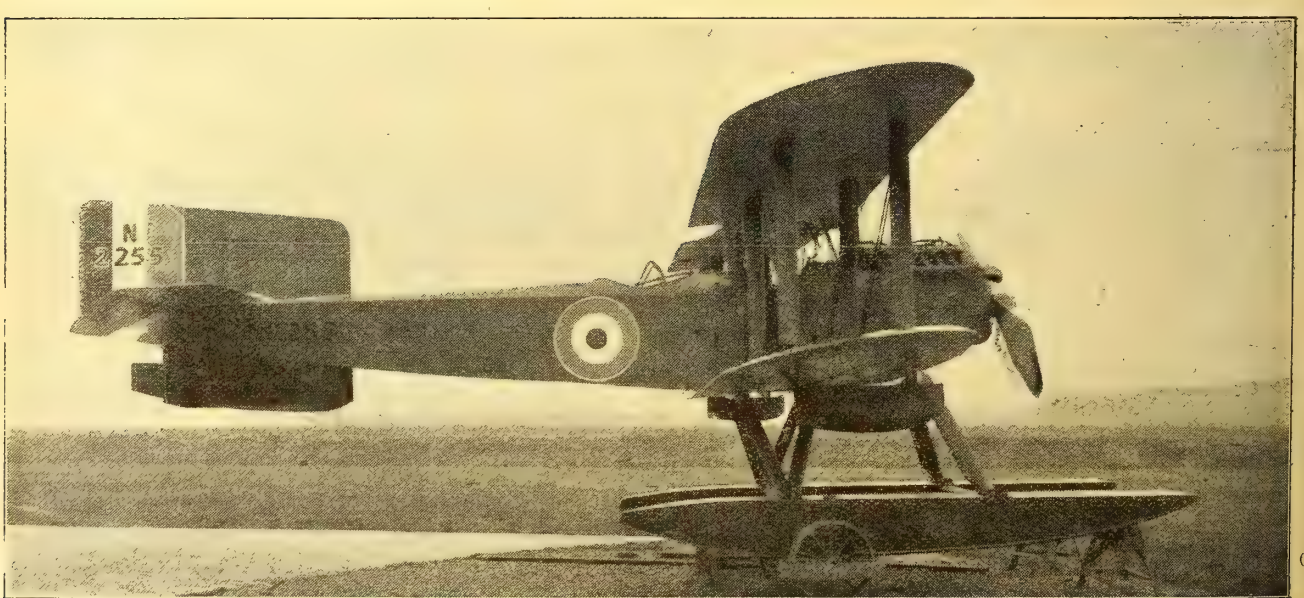
The machine is being built in two varieties known as the "Atalanta" and the "Titania." The first type has fixed section wings, whereas the "Titania" is to be fitted with the Fairey variable camber gear.

This type of machine is too interesting and presents too many novel features for justice to be done to it in this article.

A general specification is attached, but it is hoped that it will shortly be possible to describe it in detail, and further particulars and illustrations will then be given.

SPECIFICATION.

Type of machine	Flying-boat
Name and type number	N.4 "Atalanta" or "Titania"
Span	139 ft. top, 93 ft. bottom
Gap	14 ft. centre, 12 ft. at tip
Length overall	66 ft.
Maximum height	29 ft. 6 in.
Chord	12 ft. 6 in.
Total surface of wings	2,900 sq. ft.
Span of tail	25 ft.
Area of tail, including elevators	350 sq. ft.
Area of elevators	50 sq. ft.
Area of rudders	50 sq. ft.
Area of fins	50 sq. ft.
Area of ailerons	83 sq. ft.
Engines	4 Rolls-Royce "Condor" 600-h.p.
Total weight loaded	30,500 lbs.
Load per sq. foot	10.5 lbs.
Load per h.p.	12.7 lbs.
Tank capacity	1,000 galls—12 hours



Side View of the Fairey Type IIIC Seaplane (375 h.p. "Eagle" Rolls-Royce engine).

THERE will be but one type of car that people will buy next year. And that will be the car built in Aircraft Specification Material. The Technical Motor Press is *entirely* in agreement upon this point.

The "Victory" Arrol-Johnston is the only car built in Aircraft Specification Material to-day. And it is built by the builders of the famous "BEARDMORE" Aero Engine.

ARROL-JOHNSTON, Ltd.
Dumfries.

Ever since the R 34 left at frequent intervals the American weather bureau, a most admirable organisation, regarding which you ought to hear the opinions of Mr. Harris, has sent radios giving forecasts based upon more data than are usually available at short notice on your side of the Atlantic. The bureau here works with the utmost personal goodwill, because, to quote its officers, "England has shown the United States remarkable courtesy in allowing an American observer to travel both ways on the first flight, and also given us every information down to samples of the castrol oil for engine-bearings, which we want to analyse for our own purposes."

OVER THERE
R34 in America

THE "DAILY TELEGRAPH" of July 12th contained the cable reproduced here from its correspondent in NEW YORK.

THE LUBRICANT WHICH HAS AROUSED SUCH GRATIFYING INTEREST IS

WAKEFIELD Castrol REGD. (R)

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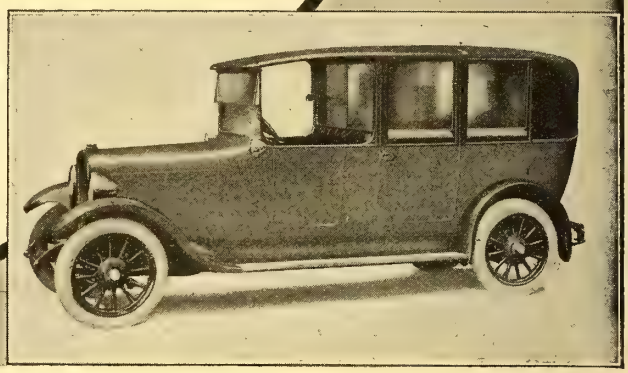

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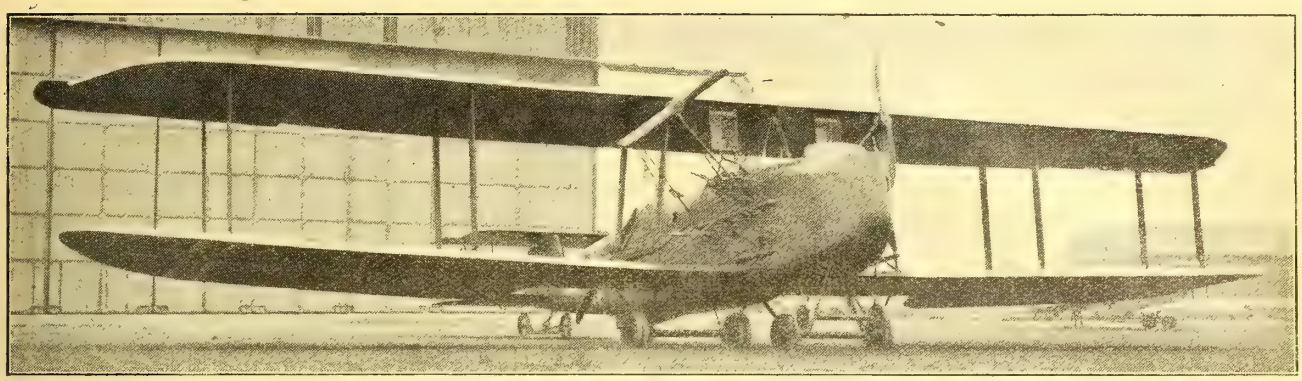
THE D.F.W. FOUR-ENGINED BIPLANE.



The 1,040 h.p. four-engined D.F.W. Biplane.

The D.F.W. machine hereafter described is of a type which, as yet, is exclusively German, so far as practical construction is concerned. It is of the multiple-engined type, with all the engines within the fuselage and with airscrews on the wings, shaft-driven from the engines.

The first D.F.W. of this type was begun in September, 1915.

Four 220-h.p. Mercédès engines were carried within the fuselage, two engines, one above another on each side, with a central gangway between.

Each engine drove through bevel gears and shafts a single airscrew. These airscrews were arranged in the manner shown in the scale drawing—one pair of tractor airscrews mounted high in the interplane gap on each side and one pair of "pusher" airscrews low down and (in front elevation) immediately below the tractors.

Thus the disadvantages of the tandem arrangement of airscrews are avoided.

Preliminary trial flights were made successfully, and the machine was subjected to military acceptance on Oct 19th, 1916, at Döberitz.

Weighing empty 6,800 kgm., with a total load of 2,600 kgm., and a total loaded weight of 9,400 kg. (9.4 tons), the machine showed a maximum speed of 130 k.m.h. (81 m p.h.), and climbed 1,000 metres in 10 mins., 2,000 metres in 25 mins., and 3,300 metres (10,900 ft.) in 53 mins.—this being the apparent ceiling.

During further trials at Döberitz a number of crankshaft failures occurred, which were attributed to the excessive length of the 8-cylinder 220-h.p. Mercédès engine. Extra strong engine bearers were provided, and the transmission shafts were fitted with universal joints, and the trouble was thus overcome.

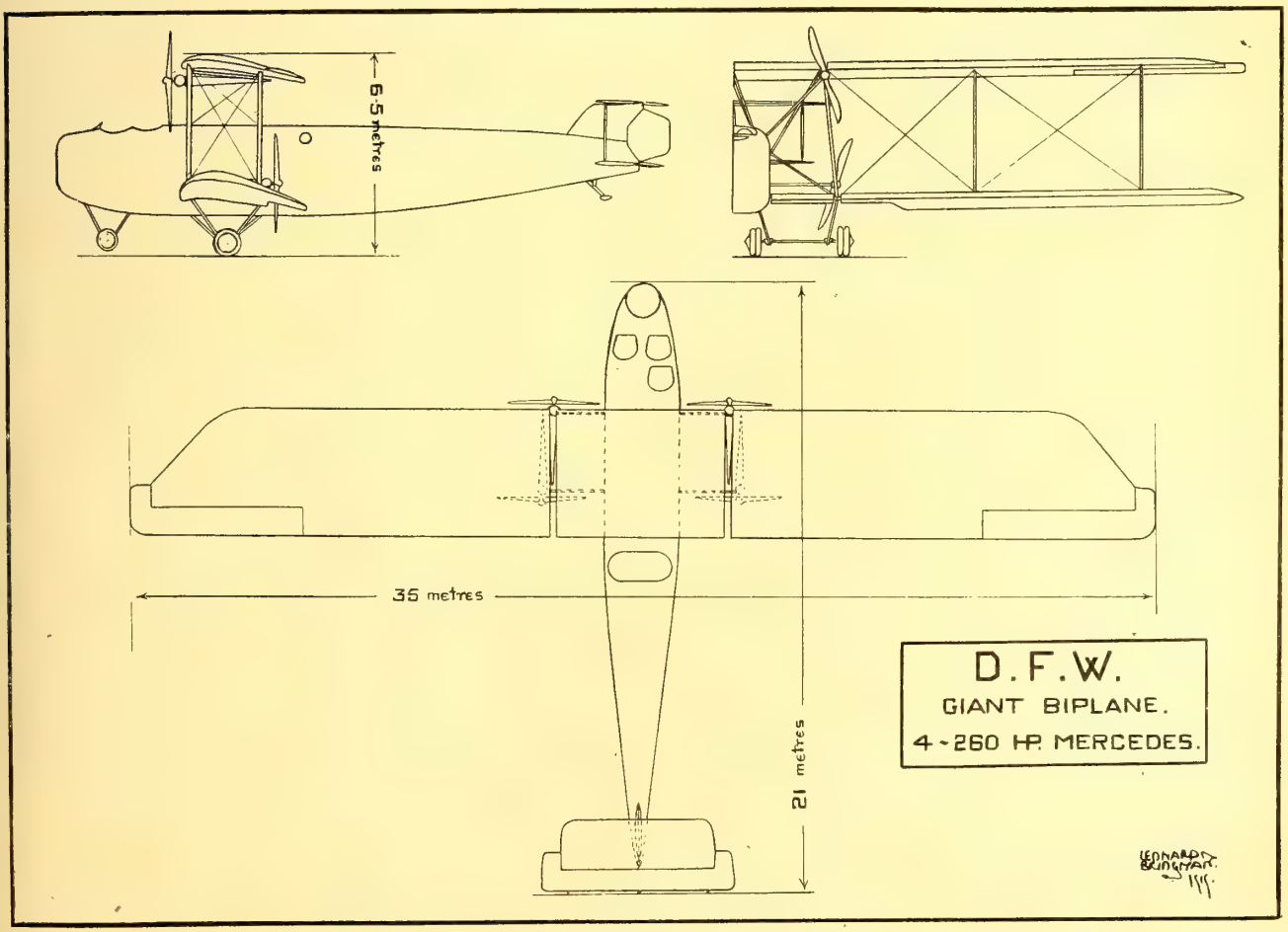
After tests the machine was sent to the Eastern front, where it arrived on April 30th, 1917.

It was found to possess good manœuvring and climbing capacity, and six enlarged editions were ordered.

These were to be equipped with the 260-h.p. six-cylinder Mercédès, and to carry a load of 3,400 kgm. instead of 2,600, as in the original.

The first machine of the enlarged type was begun early in 1918, and preliminary test flights were made in August.

Considerable trouble was experienced with the transmission. The shafts from engine to airscrew shaft were geared up to 3,000 r.p.m. and vibrated excessively. These shafts were, therefore, encased in stiff tubes and, presumably, supported therein on ball races, with satisfactory results.



In April, 1919, the machine was sent to Cologne, and there carried out numerous tests.

The general arrangement of the power plant is similar to that of the original type. The transmission systems embody reduction gears which bring each airscrew down to 900 r.p.m.

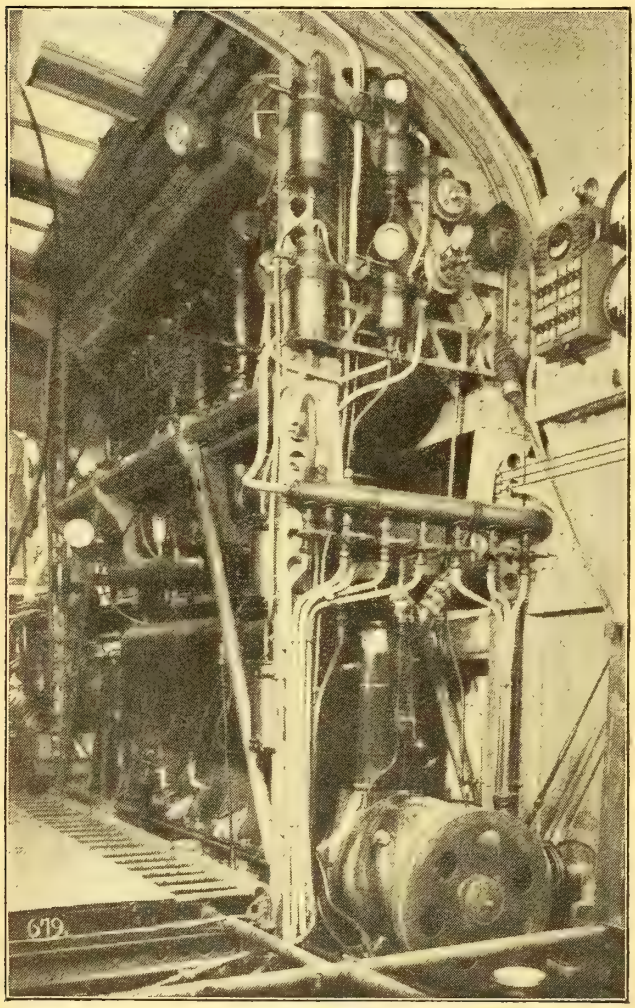
A photograph is reproduced which gives a good idea of the engine installation.

The general arrangement of the whole machine is well shown in the drawings reproduced.

The general dimensions and particulars are given in the appended specification :—

SPECIFICATION.

Span	35 m.
Length overall	21 m.
Height overall	6.5 m.
Total surface	260 sq. m.
Weight empty	8,600 kg.
Weight of fuel and oil	1,440 kg.
Instruments and lighting set	130 kg.
Crew (6)	470 kg.
Disposable load	1,700 kg.
Total loaded weight	12,340 kg.
Weight per h.p.	12 kg.
Weight per sq. metre	47 kg.
Max. speed	132 km. p.h. (84 m.p.h.)



View in the engine-room of the D.F.W. Giant showing the starboard pair of 260 h.p. Mercédès engines, one above the other.

A NEW CATALOGUE.

Fredk. Sage and Co., Ltd., of Gray's Inn Road, W.C., and of Peterborough, have just issued an illustrated brochure entitled "Sage Aircraft."

This gives a description of the work which the firm carried out in the construction of aircraft during the war, together with outline drawings and specifications of a number of machines designed to suit post-war conditions.

The production is excellently got up and splendidly illustrated.

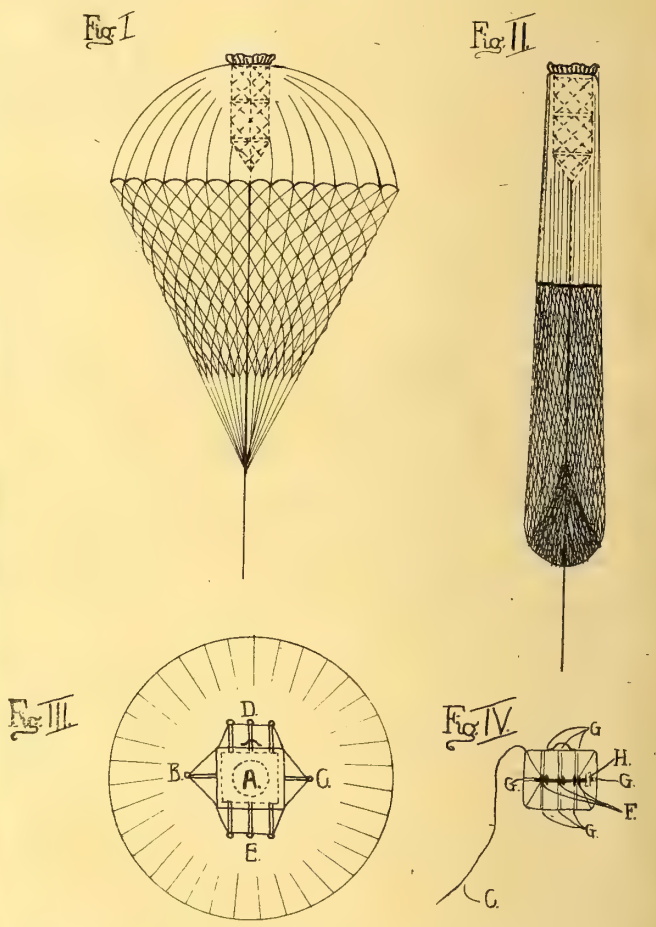
A NEW FORM OF PARACHUTE.

The following letter has been received :—

Sir,—As a Parachute enthusiast I was very interested in the notes on parachutes by Lieut.-Col. H. S. Holt in your issue of April 9th, which is very interesting and instructive.

I may state while on active service in France last June, 1918, on Lewis gun work, I invented a parachute for aeroplanes which I claim to open almost instantaneously when exposed to air pressure.

The parachute has an airshaft consisting of hoops and netting which helps to open it, and the usual lines are netted over or simply replaced by netting, thus preventing any entanglement—this addition of about four pounds is well worth the extra weight to insure instantaneous opening, and to avoiding entanglements.



The parachute can be folded up or rolled up anyhow and is carried in a wrapper which is quite secure, but at the same time easy and quick to open. This wrapper consists of a piece of material stitched on top of the parachute in the shape of a rectangle, leaving a loose piece of flap on all four sides. Fig. 3 gives a top view of the parachute, showing A the wrapper, B, C, D and E the flaps. The two smaller flaps B, C have a ring at the ends, the two larger, D and E, several rings, through which a pin is passed to hold the bulk together when folded up. Elastic bands are stretched from the rings to the stretched-on parts of the wrapper so that the flaps contract as soon as the pin is drawn from the rings, thus exposing the parachute to the air pressure.

Fig. 4 shows F, the rings G, the elastic bands, and H, the pin. The wrapper need not be stitched on the parachute.

I have made several models which I have tried and they work well. I cannot find any fault with the design and all aviators to whom I have shown it—both French and British—agree with me that we ought to have parachutes on aeroplanes in case of fire or some other unforeseen breakage where the aviator has not a ghost of a chance to see the aeroplane safely to earth.

J. F. Matey, R.A.

AEROPLANES FOR SALE.

A sale is announced, by direction of the Disposal Board of the Aircraft Disposal Department, of a limited number of new Handley Page aeroplanes, fitted with Rolls-Royce engines complete, and also two second-hand (practically new) Handley Page machines.

They can be seen at Cranwell Aerodrome, Sleaford, Lincs. Further particulars and permits to view can be obtained from the Controller of the above Department at Kingsway, W.C.2.

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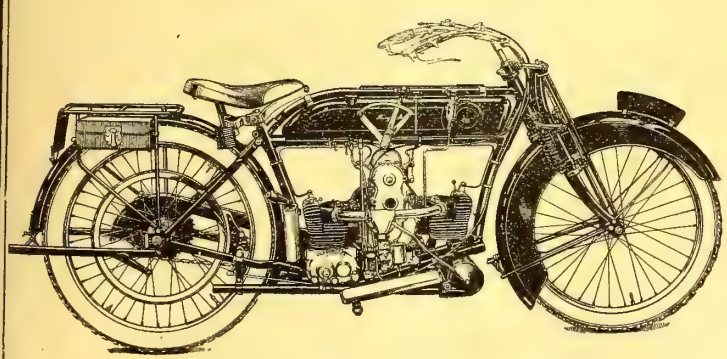
"I am pleased to note that you have increased the price of your machine, as I considered it was far too cheap. I have found it to be the most perfect and even-balanced engine that I have yet passed through my hands. Being an old Douglas agent I am quite conversant with your Flat Twin Model."

This letter of appreciation confirms the general opinion of the 3½ h.p. Twin Humber Motor Cycle.



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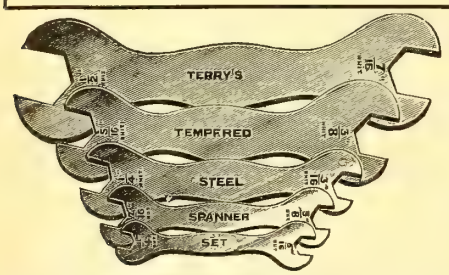

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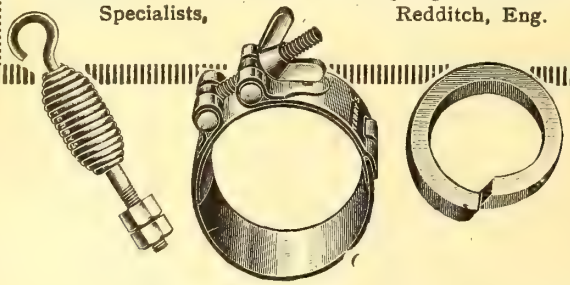

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PATENTS INDEX

The subjoined list of recent inventions has been specially compiled by The Aeroplane from the Current Official Patents Records :—

Patents Applications.

Complete Specifications Accepted, prints of which can be Obtained on and after June 26th, 1919.

127,289. Nov. 6th, 1916. Weiss, P., and Verdier, J. Process for the production of intense artificial clouds, fogs, or mists.

127,299. April 5th, 1917. Smith, G. P. Bragg-., Desbleds, L. B., and Aeronautical Institute of Great Britain. Girder structures particularly applicable to the construction of aircraft.

127,300. April 10th, 1917. Ellor, J. E., and Fowler, Sir H. Aero-engines.

127,307. April 10th, 1917. Vickers, Ltd., Pierson, R. K., and Duncan, T. S. Tail skid or runners of aeroplanes.

127,311. April 13th, 1917. Dudd, H. B. Means for applying tape and the like to the wings of aeroplanes, and for like purposes.

127,320. April 19th, 1917. Fowler, Sir H., and Salmon, P. Internal combustion engines for aircraft.

127,327. April 20th, 1917. Ricardo, H. R. Driving mechanism for propeller.

127,332. April 23rd, 1917. Antoine, T. Pedal control for aeroplanes, motor-cars, and the like.

127,337. April 25th, 1917. Gledhill, A. H. Apparatus for releasing bodies from aircraft.

127,373. May 1st, 1918. Dunlop Rubber Co., Macbeth, C., and Paull, W. H. Wheels for vehicles, particularly aircraft.

127,402. May 29th, 1918. Christmas, W. W., and Christmas Aeroplane Co. Aeroplanes.

127,418. June 10th, 1918. Asperen, C. H. Van. Aerial lifting devices.

THE MAINTENANCE OF CAR LIGHTING SETS.

Of the readers of this journal, certainly a fair number, and, probably, the great majority, are to some extent interested in motoring.

To all these the handbook of running instructions for the C.A.V. Dynamo lighting and starting system, which has just been issued by Messrs. C. A. Vandervell and Co., Ltd., Acton, should be of interest.

It contains clear and easily understood instructions for the use, care, maintenance, and adjustment of this particular lighting set, with a particularly full treatment of the care of batteries.

AVIATION INSURANCE.

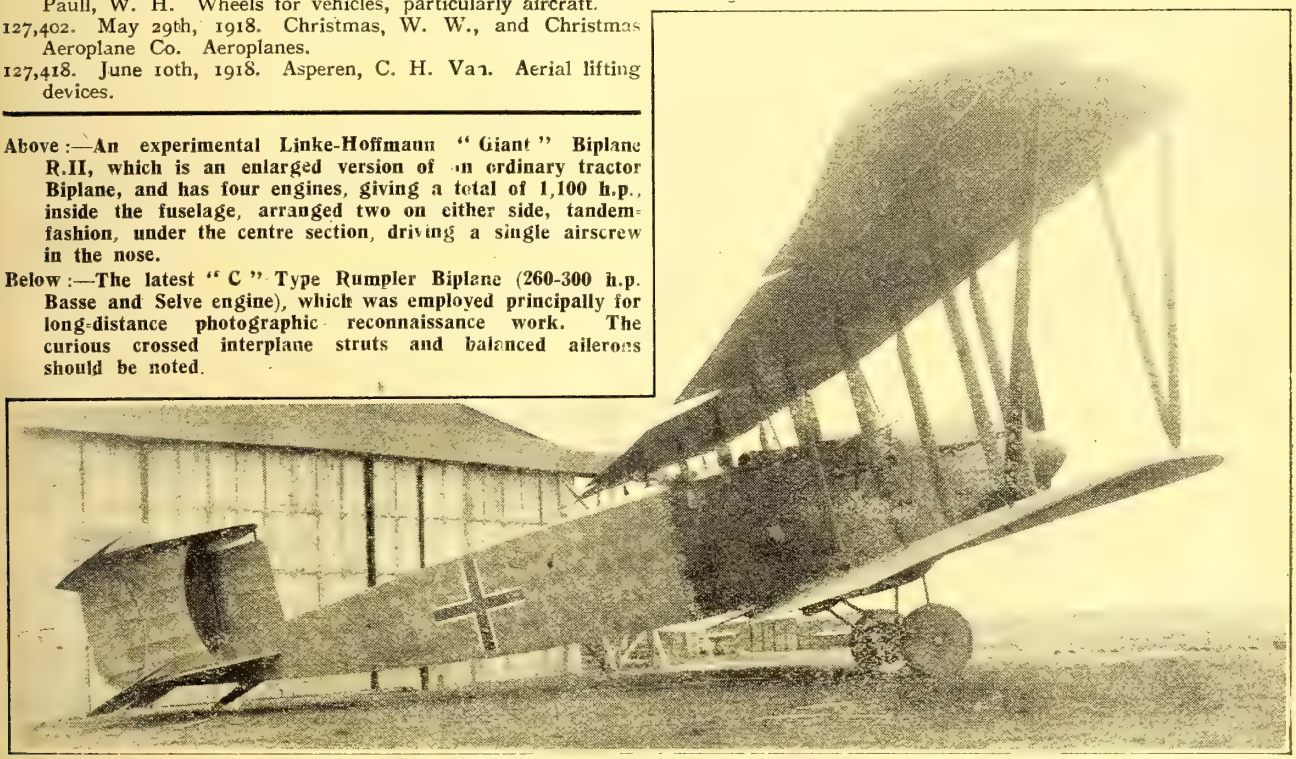
Anyone wishing to benefit their relations—a strange wish, as relations are always the last people to whom one desires to leave money—could do this with the minimum of trouble by insuring his life for £5,000 by paying 25s. and then proceeding to have a joy (?) flip in a dud aeroplane, and a crash from a good height.

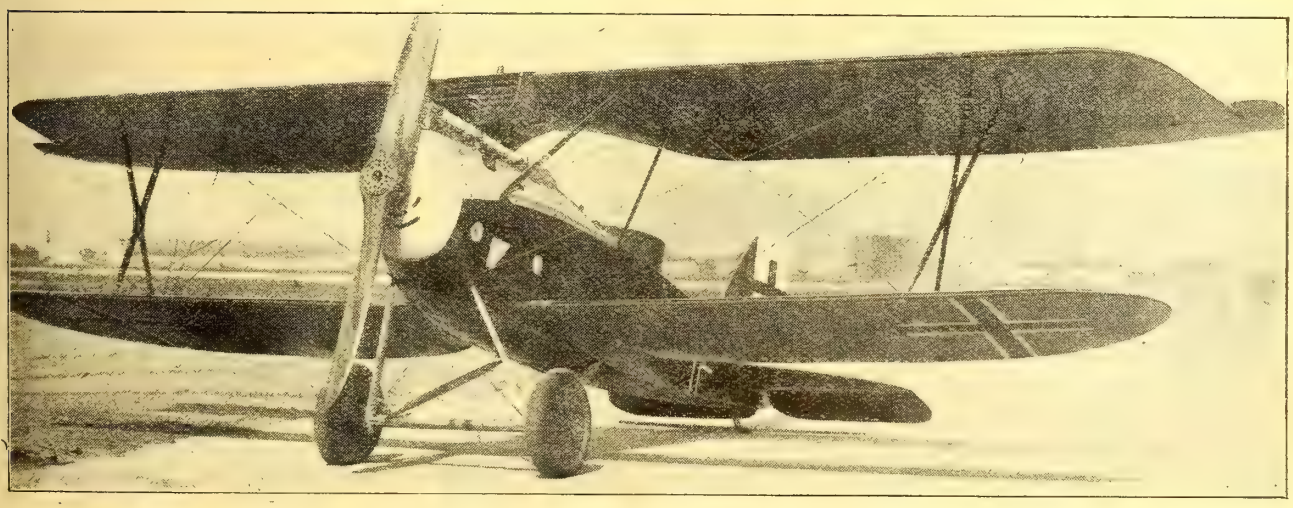
Muir, Beddall and Co., Ltd., of 4, Bucklersbury, E.C.4., have an aviation department which undertakes to insure a man against death for £500 on payment of 5s. for any trip whatsoever in the United Kingdom, no matter how many machines are flown in upon the journey. The limit to this is £5,000 for a corresponding multiple of premium.

Only 2s. 6d. per £500 insurance is required for joy flights, from which it is easy to calculate as above, £5,000 for 25s.; and the only thing required of one is to get well crashed.

Above :—An experimental Linke-Hoffmann "Giant" Biplane R.II, which is an enlarged version of an ordinary tractor Biplane, and has four engines, giving a total of 1,100 h.p., inside the fuselage, arranged two on either side, tandem-fashion, under the centre section, driving a single airscrew in the nose.

Below :—The latest "C" Type Rumpler Biplane (260-300 h.p. Basse and Selve engine), which was employed principally for long-distance photographic reconnaissance work. The curious crossed interplane struts and balanced ailerons should be noted.





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You couldn't see it from below

but it's nevertheless a fact—a fact which every flying man and aircraft manufacturer should note—that the majority of the machines competing in the Aerial Derby, including the three which were placed 1st, 2nd and 3rd, at the end of the race, were fitted with

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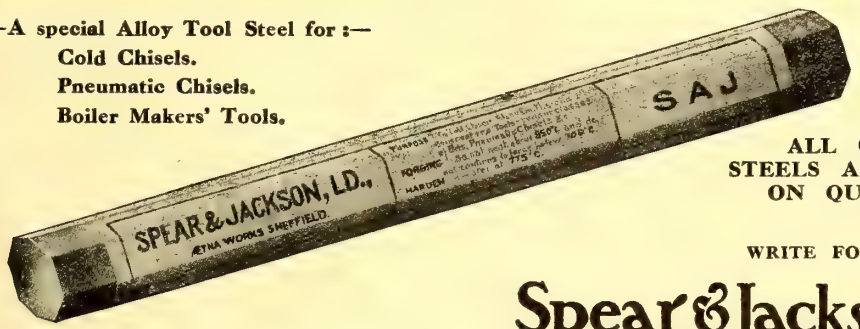

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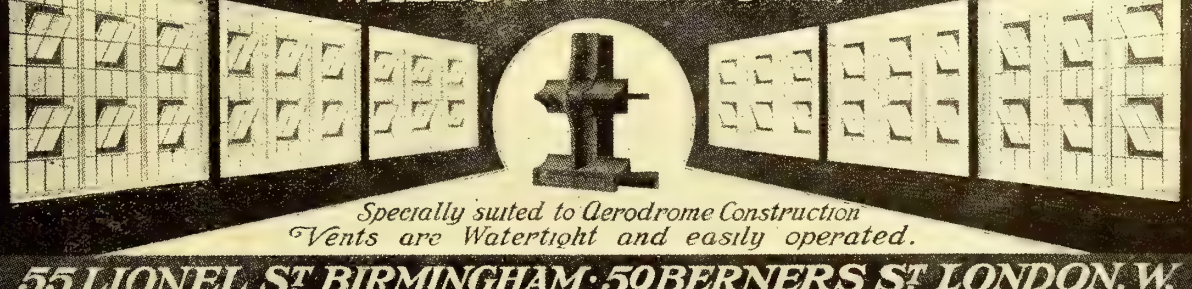

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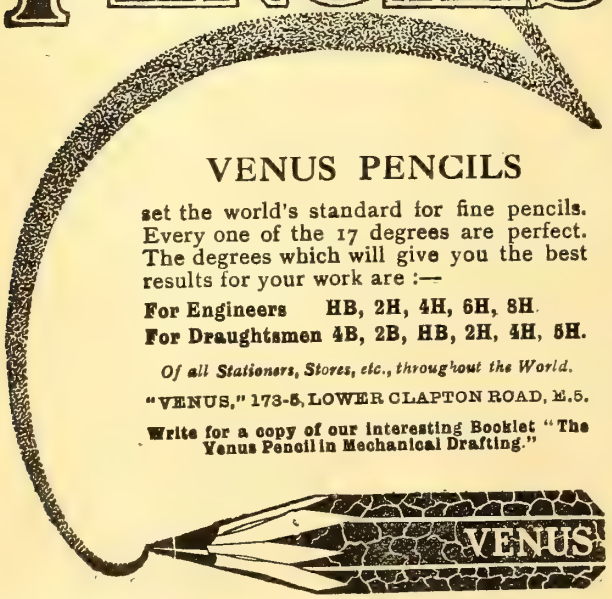

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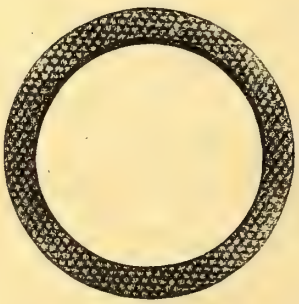

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COMMERCIAL AERONAUTICS & CIVIL AERIAL TRANSPORT

ON MINDING ONE'S OWN BUSINESS.

By "MEDWAY."

Last week, when trying to begin a discussion on the development of commercial aerial services—particularly overseas—I arrived at the preliminary conclusion that the British Aircraft Industry, taken as a whole, does not itself show enough confidence in this admirable proposition. Possibly this lack of confidence is more apparent than real, and it occurs to me that it may be due, in part at least, to the fact that manufacturers are being constantly pressed to go beyond their natural jobs and to become promoters of aerial haulage-contracting and passenger-conveying companies.

Let us try to consider where the legitimate business of the manufacturer begins and ends, before starting to abuse him for not interfering in what are, in reality, other people's affairs.

First, he must manufacture. Secondly, he must sell his product. Thirdly, he must endeavour to ensure that the product, when sold, gives good service and produces satisfactory financial results. Unless he attends to this third consideration, his business can only be a very temporary one.

I shall not attempt to advise him on his first job. The British Industry certainly knows how to manufacture. The next question is whether it knows equally well how to sell. Its experience in that direction is very much more limited. Many firms possess none at all, because negotiation of Government contracts does not amount to the same thing as selling, in the ordinary sense of the term.

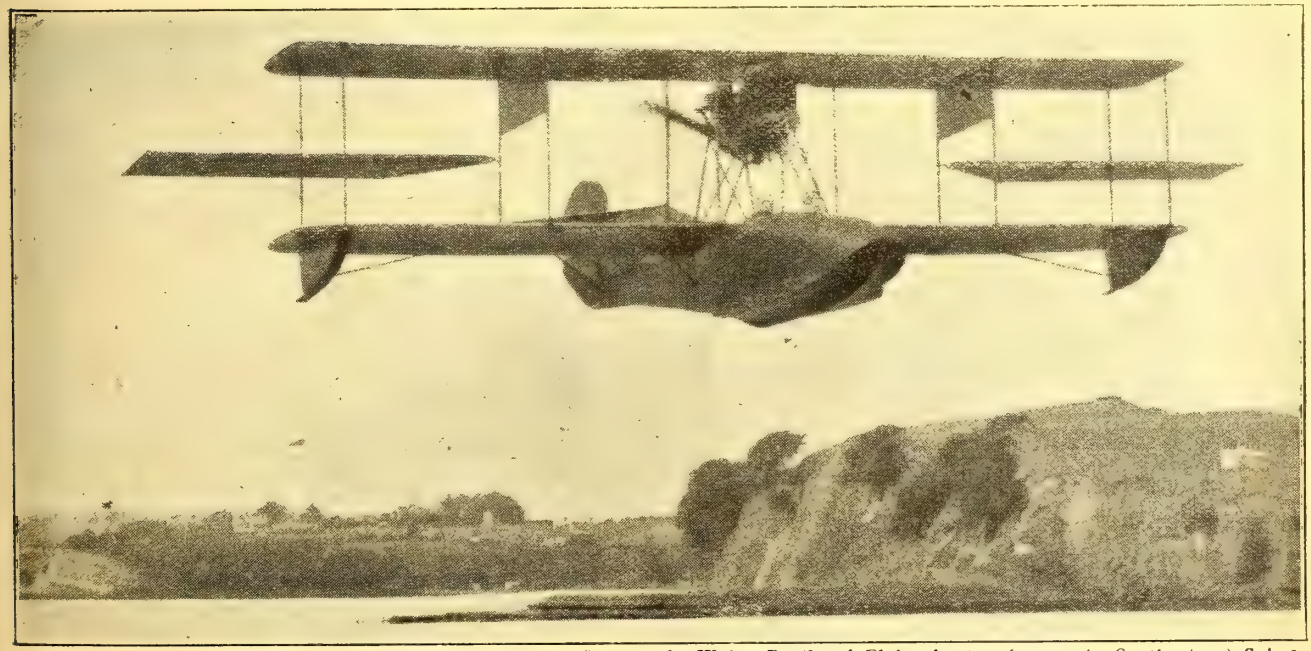
The Art of Salesmanship.

You cannot sell an aeroplane as you would a packet of pins. It is a new proposition, fairly expensive and distinctly speculative. Therefore, sales depend on effective propaganda and demonstration. The latter, I think, must in general precede the former, because commercial propaganda must be based on sound figures, and these can best be compiled as the result of properly organised demonstration.

Demonstrations may be either individual or collective. If the manufacturer is determined to play a lone hand, probably his best plan is to establish a number of small but properly equipped services in various promising parts of the world. It is likely enough that such services will show an initial loss. Later they may pay, and be sold as going concerns to operating companies which would have a natural leaning towards building up their increased fleets by the purchase of further machines of the same make, so simplifying the maintenance and spare-parts problems. Loss in the first instance must, however, be faced, and must be written off as advertisement expenditure.

In connection with these demonstration services, very carefully audited accounts must be kept, each service being treated as a separate company, to which the main concern sells at a commercial price. In this way there would be created valuable data as to actual costs of operation under various conditions.

Also, a good publicity staff must be provided in connection with each demonstration service. The costs of this will be charged partly to the service and partly to the parent concern. The publicity department will have two jobs to do. One is the ordinary advertising necessary to secure patronage for any haulage or carrying business. This must be debited to the service. The other is the provision and transmission of matter and photographs to the parent body. These would form the basis of very valuable free publicity, being obviously acceptable to the Press in almost any part of the world.



A FIELD FOR COMMERCIAL AERONAUTICS.—One of the Walsh Brothers' Flying boats (of an early Curtiss type) flying along the coast of New Zealand, near Auckland.

What fine illustrated articles could, for instance, be based on such stuff referring, let us say, to a flying-boat service on a big river in China or South America!

Into the Enemy's Camp.

The manufacturer may object that what I am advising is contrary to the title at the head of this note. It is no business of his to run operating concerns, but rather to sell them. This last is freely admitted. Personally, I think it is bad policy of any manufacturer to go into competition with the potential buyers of his goods. It serves to drive them into the enemy's camp. That is why I mentioned that, when established, the services would be disposed of as going concerns. Given satisfactory proved figures of cost and takings, there would be no great difficulty about this, and from that point the manufacturer would step gracefully into the background and merely continue to sell stuff to the purchaser of the services. He would endeavour to get to this stage as soon as a natural demand for his products had been stimulated.

At the risk of vain repetition I repeat that what he is doing at first is no more than necessary demonstration, coupled with equally necessary collection of data for purposes of propaganda.

The present position is one that has to be faced and passed by every industry, the products of which must justify themselves by economic performance after sale. The commercial motor industry has gone through it and emerged successfully. The aircraft industry can do the same. It needs, however, to apply somewhat heroic measures, because circumstances have given it an output out of all proportion to the developed demand.

Up to the present I have referred only to individual demonstrations. I propose to deal with collective demonstrations and the proper use of propagandist material in subsequent articles.

INFANTICIDAL OFFICIALS.

By IL PENSEROSO.

It is a biological fact that, as regards the formation of the skull and brain, there is less difference between the higher classes of ape and man than there is between the higher and lower types of ape. This appears to offer a possible explanation for the conduct of those beings in the Department of Civil Aviation who are at present engaged in carefully ruining the prospects of commercial aeronautics in this country. They appear absurdly like men in the architectural design of the head; but the entire absence of reasoning power would seem to indicate that they belong to a lower species. And yet, on the other hand, there are two considerations which point directly against this conclusion.

The Instinct of Self-Preservation.

The first is that if the axiom "to err is human" be accepted as a scientific law, then the officials of the Civil Aviation Department can clearly claim to be, not merely human, but super-human. The second consideration deals with that characteristic which is found far more highly developed in man than in any animal, insect, reptile or fish. That quality is self-preservation.

When we examine communities of ants, bees and certain animals, we find that although their internal economy and individual habits are in many ways superior, though different in kind, to those of mankind, in man the instinct towards self-preservation is stronger because it is conscious.

In primitive types of man the instinct is individualistic; it is only in much later stages that it is realised that the good of the tribe or community is synonymous with the good and self-preservation of the individual. In the officials referred to the preservation-instinct is very strongly marked, and conscious.

In placing a mass of red tape, inane regulations and unnecessary obstacles in the way of commercial aviation, they are evidently acting on the assumption that if there were no regulations there would be no need for officials, and they themselves would be swept into the ranks of the unemployed or the Salvation Army. We can see, therefore, that this self-preservation instinct is clearly of the primitive type, for it does not see that the prosperity of British commercial aviation means the growth of the Civil Aviation Department.

After duly considering these arguments for and against the man theory, the question as to the species to which these officials belong is problematical. The best way to get a ruling on the matter would be to follow the example (reported by Professor Westermarck) on an Australian savage tribe which could not decide whether women were human beings or not. A kind of general election was held among the men, and the representatives solemnly debated the question. After much cerebration and excitement, it was put to the vote and settled by a narrow majority that women were human beings.

Aerial Legislation.

But, after all, it is perhaps not the foolish officials themselves that matter so much as the policy behind them. Before we see how that policy has arisen, let us note how it works in every-day business. It is essentially a system of bureaucratic administration, which is, of course, quite a different thing from bureaucratic legislation, though an equally poisonous growth. Nearly all modern laws are extremely loosely-phrased documents: someone truly remarked that there was never a statute you could not drive a coach and four through. It is the interpretation of the law that really matters. And therein lies the power and danger of bureaucratic administration.

Take the question, for example, of aerodromes. The law lays down that all aerodromes for passenger-carrying must be licensed; but it does not state the conditions under which licenses will be granted. There at once you have the aperture for the coach and four to drive through.

The administration decides under what circumstances they shall be licensed; and with a sensual delight in its own power the Department of Civil Aviation refuses to licence an aerodrome under 200 yards square. That is to say, it virtually decrees that every aerodrome shall be large enough to land every aeroplane, from a fast scout landing at 80 or 90 m.p.h. to a shorthorn pancaking down backwards at minus 3 miles per epoch.

The idea of not licensing aerodromes for certain types of aircraft is about as sensible as it would be for the Admiralty to prohibit cutters from putting in at Broadstairs jetty on the ground that a liner would feel uncomfortable there.

This absurd restriction knocks joy-ride tours on the head completely, owing to the impossibility of finding such comparatively large tracts of flat open ground accessible to large towns. Incidentally, these tours would be easily the best way of fostering aviation in this country amongst the general public, besides being the most paying proposition of their kind at present.

If there are a thousand potential joy-riders in a town, the only way to make a profit out of them is by taking them all up within a definite space of time—say, a week (with six machines). The only way to get them within the week is by restricting their opportunity for a flight to a week. The time factor is enormously important in commerce as well as in war. This is the principle on which the whole of the theatrical business in the provinces is run.

The Department cannot or will not see it. It is infinitely superior to joy-riding or exhibition riding. It cannot see that cross-country passenger and regular transport services will develop from joy-riding; that only after having been reassured of the safety of flying through the personal experience of a joy-ride will John Citizen be induced to travel by air.

Engineers' Licences.

Consider, again, the question of ground engineers' licences. The Directions issued with the Air Navigation Regulations say (IV—5) a candidate may apply for a licence to overhaul and inspect *all* flying machines, or for a licence limited to the inspection of any named type. A candidate can certainly apply for a general licence—for that matter anyone can apply for anything anywhere—but he will find that the silly people don't know their own silly rules.

An applicant known to the writer was informed by the examiners that they had never heard of licences for all types. So that if a man has had five years' experience on Avros, Pups, Camels, 1½ Strutters, Handley Pages, and Farmans, he will not be licensed to inspect a D.H.10; whereas if he has had a couple of years on D.H.4's, 6's, and 9's, he would probably get a licence to inspect "D.H. machines," and would therefore inspect D.H.10's. Which, as Euclid remarked, is absurd.

But, then, the whole examination is a farce. A.I.D. officers of whom nothing is known ask ambiguous questions concerning matters of which they appear to know nothing. Chief and assistant engineers and works managers of firms which have been making aeroplanes and engines for years have been turned down in an arbitrary and autocratic manner as "not being competent"; R.A.F. officers who have been inspecting aircraft for years in squadrons or repair sections or parks have been turned down for "not being competent." They may quite possibly be incompetent; but so may the examiners. And the examinations ought to be

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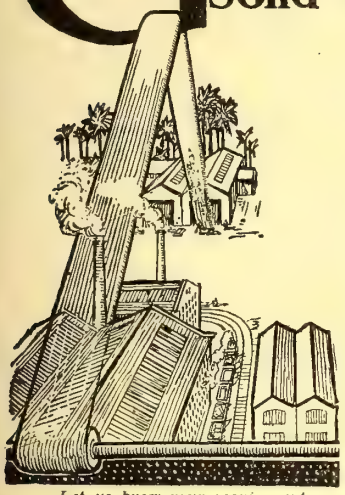

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public instead of secret, and the examinee ought not to be at the personal mercy of unknown examiners.

One or two examples have been given of the wooden-headed manner in which the regulations are being carried out. Everyone who has had dealings with the Department of Civil Aviation can supply further instances *ad lib.* But the real question is why this policy of official regulation and restriction exists. For, one must remember, it exists not only in aviation, but in almost every branch of British Industry. To investigate this we must go back a little in British economic history.

Some Commercial History.

Up to 20 years before the end of the eighteenth century, the Mercantile system was in operation in these islands. Under that system successive Governments made well-meaning but entirely futile attempts to foster British commercial prosperity, by means of Navigation Acts, Corn Laws, Corn Law Repeal Acts, prohibitions on the export of bullion, enormous tariffs on imports and bounties on exports. Adam Smith made a violent protest against this system of regulation and restriction in his "Wealth of Nations" in 1776, and his followers constituted the *Laissez Faire* school of thought.

By the beginning of the nineteenth century *Laissez Faire* held absolute sway as the official commercial policy. The Government gave up all attempts at regulation and controlling and wet-nursing industry, and practically all the restrictions on trade were removed with startling rapidity. Henceforth men were to be free to buy and sell how and where they liked. Competition was to be the sole driving and regulating force in commerce, and "leave-alone" would be the policy of the Government.

Following on that change, and helped enormously by the Industrial Revolution and the wide application of power to machinery, we had what has been called the golden age—a period of unprecedented prosperity. Our blast furnaces made England the forge of the world; our ships gave us three-quarters of the world's carrying trade; and the coal and steel and cotton and woollen industries made us in the nineteenth century the first industrial power in the world.

Social Reform.

That commercial prosperity brought with it an enormous number of social evils. It was the prosperity of the few; and the masses of workers were starved and sweated and cheated and injured. As a result, about the middle of last century a movement started towards the prevention of the more flagrant social evils, such as the working of children of eight and nine for 12 hours a day.

This movement necessitated, of course, Government interference with industry once more; though with a different motive this time, for its purpose now was to improve the condition of the workers' lot.

By 1886 this policy of control was firmly established, and gathering force each year, so that by 1914 it had brought us Factory Acts, Education Acts, Truck Acts, Employers' Liability Acts, the Trade Board (Disputes) Act, the Trade Board (Minimum Wage) Act, sanitation regulations in factories, the regulation of work in mines, and the control of industry in a multitude of other ways. The war came, and with it the necessity for Government regulation of output, both in kind and quantity. Dora and the Munitions Acts embedded the idea of the control of industry in every detail deep into the Government Departments.

The great industries can stand it. They were able to grow strong and prosperous untrammelled by official interference. The restrictions on the scandalous abuses of the Manchester cotton kings and the steel masters were socially absolutely necessary.

The Control of Civil Aviation.

But Civil Aviation cannot stand it. It is true that the safety of the public must be ensured; but quite obviously the interest of the Industry in that direction is the strongest possible check on unsafe flying. No one would quarrel with regulations securing crowds from risks from the air; but so far as other dangers are concerned, the monetary interest—to put it no higher—of firms is quite enough to secure, for the present, safety both to pilots and passengers.

It is one thing restricting a strong and lusty man; it is quite another thing restricting an infant that has not yet learnt to walk. If the same methods are used in the latter case as in the former the child will soon be dead.

Commercial aviation is that child. It has only just been born from the womb of time. It cannot walk yet; and it is surrounded by officials of the Civil Aviation Department, who at every step it attempts give it a blow on the head with a Regulation. Either the child will die or the officials must go. Public opinion in the world of aeronautics is all in favour of the child, and is unanimously determined to insist on the obstructionists in the Department being kicked out, if for no other reason than *pour encourager les autres.*

FLYING DEMONSTRATIONS IN SPAIN.

The Air Ministry announced recently that the three British machines which recently flew to Madrid for the purpose of exhibiton flights have now returned. Though somewhat belated, the adventures of these pioneers is worth recording.

"A D.H.4 machine, with a Rolls-Royce 'Eagle' engine, left Madrid at 6 a.m. and arrived after two stops, at Pau and Tours, at 8 p.m. the same night at Biggin Hill, having covered 855 miles in 8¾ flying hours. The pilot of the machine was Capt. H. H. Square, who had with him Lieut. J. P. Anderson as observer. The time occupied in the flight is all the more remarkable since they experienced heavy rain and wind all the way from the other side of the Pyrenees to Tours and thick fog from the Seine to Biggin Hill.

"Capt. Square skimmed the peaks of the Pyrenees, which are over 15,000 feet, with only 150 feet to spare, much to the amazement of some of the villages near the mountain tops. On the outward journey also bad weather was encountered on practically the whole route. The pilot reports that at Hendaye it was necessary to repair a flying wire which had been broken through hitting a bird when flying low. While at Madrid the engine was completely overhauled in the Spanish Air Services workshops at the aerodrome 'by extremely capable mechanics.'

"The Bristol Fighter, pilot Major L. G. S. Payne and observer Major C. G. Coe, left Madrid at 6.30 a.m., and after stops at Vittoria, Pau, and Tours, reached Hawkinge Aerodrome, Folkestone, at 9.30 p.m. The journey was uneventful.

The Result of a Rainstorm.

"The 4-engined Handley Page with Major Darley, Lts. Kilburn and Murray and three serjeant-mechanics appears to have had bad luck on both outward and return journeys. After leaving Pau for Madrid the machine ran into a terrific storm of rain which stripped the fabric from the tip of the starboard propeller. The clouds all the way to Biarritz were from 500 to 5,000 feet up. Meeting another heavy thunderstorm at San Sebastian Major Darley decided to return to Biarritz, and made a successful landing on the beach, which is barely 50 yards broad and has a slope of 45 degrees.

"While at Madrid a demonstration flight was undertaken to Barcelona. The machine carried seven passengers and four crew, together with 800 gallons of petrol, sufficient for the return trip. Amongst the passengers were the Duke of Durcal, Count Albiz, Col. Sanday, the British Attaché at Madrid, and two officers of the Spanish Flying Corps. The distance of 320 miles was covered in 4½ hours. The pilot records that the Handley Page caused great excitement at Barcelona. Both propellers were stripped by a heavy rainstorm on the return to Madrid.

A Mishap.

"On the journey back to England the machine safely negotiated the Pyrenees at 6,000 feet and was a few miles out at sea from Biarritz when a mishap occurred. A tremendous noise in the rear starboard engine suddenly arose. This engine was promptly switched off. It was then discovered that the propeller had gone, taking with it two engine stay-struts and a bracing wire, and also that a large hole had been torn in the top plane. The loosening wires caused the machine to veer to the right all the time. Major Darley planed down and, though the machine was barely under control, landed on the steep beach. Owing to the cross wind and the machine not steering properly, the pilot was unable to keep a straight course and the machine swung round and went about thirty yards into the sea. The incoming tide broke up the machine, but the engines were salved. The crew were very hospitably treated by the local authorities, who not only gave them clothes, but lodged them in the Royal Suite of the Palace Hotel. Major Darley managed to save the correspondence placed in his care by H.M. the King of Spain.

"An official report has been received from the British Air Attaché in Madrid that the visit of the British aircraft created a very favourable impression upon the Spanish people by demonstrating the practical developments of aviation. This is corroborated in congratulatory letters from the head of the Spanish Aviation Service, who, after referring to the 'magnificent quality' of the machines, says that the visit 'contributed powerfully to combine the friendliness between the English and Spanish Aerial Forces.'"

A CAPABLE TESTER.

Mr. J. H. Moore, who will be remembered as a particularly skilful pilot before the war, when he flew a machine of his own at Hendon, has now been demobilised from the R.A.F., and is open to take on work as a test pilot.

As an A.I.D. pilot, and later as an R.F.C. officer, Mr. Moore put some hundreds of machines through their tests during the war without ever having an accident other than minor mishaps caused by defects in the machines themselves. His record in this way is extraordinarily good, and therefore any firm open to engage a test pilot would do well to get in touch with him. Letters addressed to Mr. Moore, care of "The Aeroplane," will be forwarded at once.

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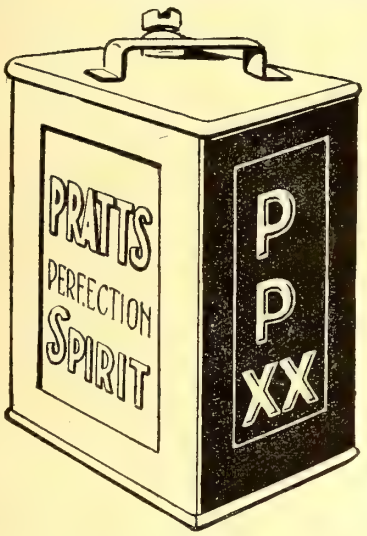

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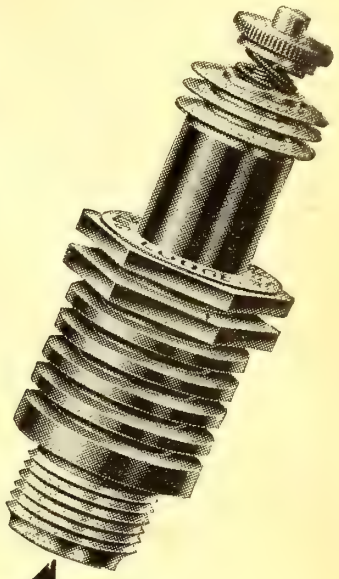

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CIVIL AERIAL TRANSPORT NOTES.

GREAT BRITAIN.

The Aircraft Disposal Department last week sold 300 Avro machines to Mr. S. W. Copley, managing director of Copley's Bank, Queen Victoria Street, E.C.4.

This is the largest individual aeroplane transaction ever made in England, and includes all the new Avro machines in the possession of the Department.

Infringement of Regulations.

The Air Ministry announces that, though the air navigation regulations have been in force since May 1st, and pilots and others have now had ample opportunity of acquainting themselves with the regulations, numerous instances of their infringement are still being reported. The regulations were made with a view to securing the public safety, and in future, proceedings will be taken when they are contravened.

The public are requested to co-operate with the Ministry by forwarding to the Secretary (C.G.C.A.), Air Ministry, London, particulars of alleged offences, including, if possible, the registration number or mark of the machine in question

The most common instances of infringement are:—Dropping leaflets and other advertising matter; taking up and landing passengers as a regular proceeding at places which have not been licensed as aerodromes; low flying, either over towns or to the danger of the public elsewhere; neglecting to obliterate military markings when a machine has ceased to be a military machine; and obscuring registration marks by means of advertisements or otherwise.

Flights to Amsterdam.

The Amsterdam Aircraft Exhibition opened on August 1st. British firms are to be well represented, but their exhibits will not be shown until August 11th.

The Air Ministry announces that pending a definite agreement on the basis of the Air Convention, and in order to enable Dutch and British Aircraft to visit England and the Netherlands, should they so desire during the exhibition, arrangements have been made with the Netherlands and Belgian Governments for the temporary opening of civil communication by air between the Netherlands and Great Britain.

In view of the distance of the sea passage from the east coast of England to Holland, seaplanes only may cross by this route, and aeroplanes will proceed to Holland *via* the Straits of Dover, France and Belgium. Arrangements have been made, by the courtesy of the Belgian authorities, for a refuelling base at Evère, near Brussels. Aeroplanes proceeding to Holland by this route may cross the Belgian frontier at any point which may be suitable.

The following is the text of the agreement with Holland:—

(a) Except in emergency, both seaplanes and aeroplanes entering Holland must land at Amsterdam.

(b) Except in emergency, aircraft entering England must land at :—(i) Seaplanes, Felixstowe; (ii) Aeroplanes, Lympne or Hounslow.

(c) Seaplanes will cross the Dutch coast between Scheveningen and Ymuiden. Aeroplanes entering Holland *via* Belgium may cross the Belgian frontier at any point which may be suitable.

(d) Seaplanes will cross the English coast between Orfordness and the Naze; aeroplanes between Folkestone and Dungeness.

(e) All machines and pilots taking advantage of these facilities must be provided with and carry such documents as may be required by their respective Governments, or by the competent authority.

(f) Passports will be carried by both passengers and crews, but such passports will not require the Dutch visa on leaving the United Kingdom if the period of stay in Holland does not exceed two days.

(g) No goods must be carried, either on the outward or return journey, without Customs formalities being observed.

(h) If aviation material is destined definitely for Holland, Customs dues must be paid.

(i) No photographic apparatus for use during the voyage may be carried.

(j) A manifest of goods carried under G and H, and a full list of passengers under F, will be carried by the pilot in charge of the machine.

The forms referred to in (g), (h), and (j) are as follows:—

Aircraft report and description of cargo, Form 150.

Notice of intended departure with goods, Form 151.

Manifest of general declaration of cargo, Form 152.

Pilot's declaration and clearance (outwards) without goods, Form 153.

Pilots intending to fly to Amsterdam will be afforded all available information in regard to aerodromes and including aerial route directions, etc., and copies of the above forms on application to the Controller-General of Civil Aviation, Room 521, Kingsway, W.C.2.

The Executive Committee of the Amsterdam Exhibition have made special arrangements that visitors from Britain to the exhibition shall be provided with hotel accommodation.

"Daily News" Flights.

The "Daily News" arranged to give 365 free flights during the week-end between August 2nd and 6th, at Cricklewood, Brighton, Bournemouth, Hastings, Ramsgate, Southend, and Weston-super-Mare.

Another Civil Aviator.

Another R.A.F. officer who is now engaged in civil aviation is Capt. A. H. Curtis, late R.A.F. Capt. Curtis joined the Central Aircraft Company some little time ago, and is now piloting their machines at Northolt.

Blackpool.

So strong was the wind at Blackpool last week that it lifted several of the machines five feet from their sandbag moorings on the beach. Naturally, the mechanics standing to their machines had the wind up.

As usual, Blackpool provided the largest number of passengers, amongst whom was Mr. Bracegirdle, a Manchester fish merchant, who took advantage of the Avro daily service between Blackpool and Manchester to send several hundredweight of fresh Fleetwood fish. Probably these were the first fish ever to travel by air. The journey between the two towns is scheduled to take 45 minutes, as the machine stops at Southport on the outward and inward trips, but even with this stop the train journey is well beaten.

The ten thousandth passenger was taken up last week at Blackpool, which is fairly good business considering that the flying there did not start till the middle of May. There has been no accident during the period with the exception of one machine, which landed in the sea owing to the high tension lead dropping off. The Avro motto of safety first which is painted on large notice-boards all round the aerodrome is well maintained. So confident are the public nowadays that they turn up for flights in any weather, rain, blow, or hail, whereas when the show started, they would not look at a machine if there were the semblance of a wind. Several days last week regular passenger flying was carried out in winds of between 30 and 40 m.p.h.

Several five-seater machines, fitted with 160 h.p. B.R.1 engines are now in use, which reminds one of a recent conversation with an alleged flying expert who rather gave himself away by calling the B.R.1 the Beardmore engine, and this despite the fact that he said he had been several years in the R.F.C. in France.

A blind man is to fly at Blackpool and to describe his experiences.

Capt. Pownall, one of the Blackpool pilots, returned from Manchester the other day on the routine flight, and found the tide up to the barriers on the sand. Nothing daunted, he landed in a disused road running down to the beach.

A small circus left Blackpool on Mono Avros last Monday for Amsterdam, where they will fly *via* Lympne and Brussels. Capt. W. G. R. Hinchcliffe, D.F.C., A.F.C., was in command, Lieut. Brown, Lieut. Shanks, Lieuts. Roberts and Inglis being the other pilots. Their places have been filled by Capt. Tully, A.F.C., late Wing Examining Officer in the Midland area, Lieut. Salthouse, and Lieut. Hudson.

The new international aeroplane numbers seem somewhat complicated. One Avro machine for Holland was painted G.E.A.I.H., which some wit stated must mean "German Emperor Arrives in Holland"; someone suggested another place beginning with an H would be more suitable!

Lancaster.

Lieut. Macrae, M.C., was the sole occupant of the Government hangars at Scale Hall, Lancaster, last week. No Service officers or men were there, and this despite the fact that Scale Hall Aerodrome is supposed to be one of the few Government places where civilian flying is catered for.

Leicester.

There is every possibility that an aviation ground will be established by an up-to-date company near the city. The Leicester Aviation Club will thus realise its ambition.

London.

Cricklewood.—Members of the British Guiana Colonisation Deputation made a flight over London on Judy 31st on a Handley Page.

Hendon.—Vast crowds of people refrained from visiting the Hendon Aerodrome on Saturday, Aug. 2nd, and, doubtless, those who did not attend, enjoyed a pleasant afternoon. The Grahame-White char-a-banc did not run to the flying ground, though there might have been a sufficient number of visitors to fill it.

These enthusiasts paid threepence each for the usual programme that had blank spaces in which the purchasers could write the names of the starters in the 20-mile cross-country Air Race for the London Aerodrome Trophy and 20 sovereigns, and second prize of the London Aerodrome Medal and 10 sovereigns.

Six names were put up on the notice-board, viz., Capt. P. R. T. Chamberlayne (Grahame-White Bantam, 80 h.p. Le Rhône), Lieut. G. R. Hicks (Avro, 110 h.p. Le Rhône), Major R. H. Carr, A.F.C., D.C.M. (Avro, 110 h.p. Le Rhône), Capt. D. H.

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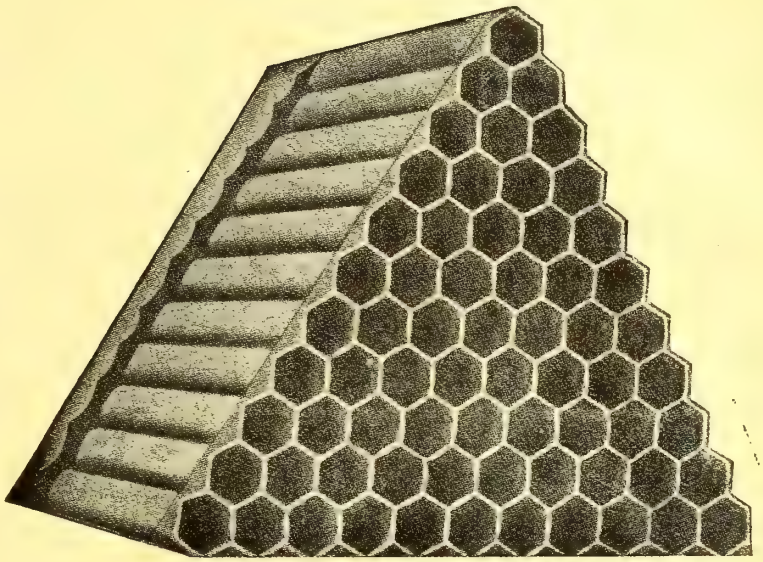

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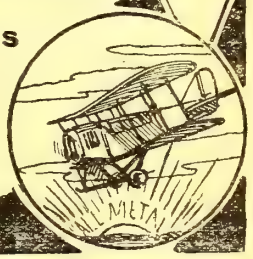

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Robertson, A.F.C. (Avro, 110 h.p. Le Rhône), Lieut. C. Turner, A.F.C. (B.A.T. "Baboon," 170 h.p. Wasp), and Capt. Hammersley (Avro "Baby," 35 h.p. Green).

It was advertised that the race would start at 4 p.m., but there were no signs of aeronautical vitality at the time. After waiting for some time in hot sunshine, a few of the straggling knots of dejected people adjourned to the tea room, where they paid two shillings a head, and continued to wait.

The time was, however, enlivened by a man with a megaphone, who announced that three of the six competitors had scratched. A pathetic spectacle was afforded by two bookmakers who, in the vast desert spaces cried the odds, but apparently without luring any backers.

At a quarter to five a rain-storm broke, and as the few visitors ran to seek shelter the three machines that were not scratched started. Rain continued during the race, which consisted of five laps of Brittacy Hill and aerodrome pylon circuit.

Major Carr (Avro, 110 h.p. Le Rhône), won the event, time 18 mins. 35 secs., and Capt. Robertson, on a machine of the same type, gained the second prize, time 20 minutes 26 secs. Lieut. Hicks, also on an Avro-Le Rhône, did not complete the last circuit.

It was a depressing day.

The "exhibition" on Monday was of much the same tameness as on Saturday. The "pièce de résistance"—a cross-country race to Bittacy Hill and back drew four starters, but Lieut. G. R. Hicks, retiring after the first five laps, owing to engine trouble, left the race to be contested by the remaining two G.-W. machines—the Avro, piloted by Major Carr, A.F.C., D.C.M., and the G.-W. Bantam, piloted by Capt. Chamberlayne, Capt. Vaughan, on the B.A.T. "Baboon," being entirely out of the running, owing to high flying and wide cornering. Major Carr led all the way and finished 10 seconds in front of Capt. Chamberlayne.

There was much activity in the passenger-carrying line by the usual G.-W. Avros, Kangaroos, and also Airco D.H.9s, etc. Mr. Newall repeated his double parachute descent from a Kangaroo, but, owing to misjudgment and wind, landed outside the aerodrome on some trees. Some excellent flying was done by Capt. McElvey (late 45 Squadron R.F.C. and R.A.F.) on a Bristol Bullet (80 h.p. Le Rhône).

Hounslow.—Sir Hari Singh of Kashmir flew to Swanage and back on Sunday, August 3rd, in an Avro. Other cross-country flights were made during the week ending August 5th to Crewe, Southampton, Margate, Worcester, and Swansea. Another machine was taken for the week end and flew to Cowes and Dover. Avros were sent for the Bank Holiday to the North Somerset Agricultural Association Fair at Bristol.

Isle of Man.

A. V. Roe and Co. intend starting a mail service daily between Blackpool and Douglas.

The flying season was opened on July 29th by the septuagenarian Mayor of Douglas, who flew as a passenger, piloted by Lt. Moxon, in an Avro machine, which afterwards took up many passengers at a guinea a head.

Lt. Moxon has been busy all the week on a small stretch of sand on the beach at Douglas, Isle of Man, where he receives many inquiries as to when the cross-Channel service is to start, and this is not to be wondered at when one sees queues half a mile long on the Liverpool landing stage waiting for boats. Indeed, one man arrived at Southport the other day about 9 p.m.—it was blowing a gale and the clouds were down to the ground—and offered £200 to fly to the Isle of Man, because his wife was there and he wanted to surprise her!

On August 4th an Avro seaplane, piloted by Captain Pixton, left England shortly after 6 a.m. with parcels of the "Daily News" weighing about 3 cwt., and alighted in Douglas Bay, close to the shore, at 8.5 a.m.

In the ordinary course, English newspapers do not reach the island until late in the afternoon, and delivery was expedited by eight hours.

Manchester.

Mr. Bracegirdle, a Manchester fishmonger, had a cargo of fish, weighing 12 stone, taken from Fleetwood to Manchester on Aug. 1st in an aeroplane. The journey took half an hour (51½ miles), and the fish was on sale three-quarters of an hour after the start.

To mark the event, Mr. Bracegirdle presented the Lady Mayoress with two turbots. It is believed that they had not survived the journey.

Margate.

For the week ending August 5th, 107 passengers, including 20 "Daily News" Free Flight passengers were taken up in Avro's.

New Brighton.

A one-legged high diver from New Brighton wishes to dive from an Avro in flight into the Mersey at Liverpool.

Preston.

A fortnight elapsed between the date of inspecting the proposed aerodrome at Preston and the granting of a temporary licence for flying there. This is fairly quick work for the Air Ministry.

Rhyl.

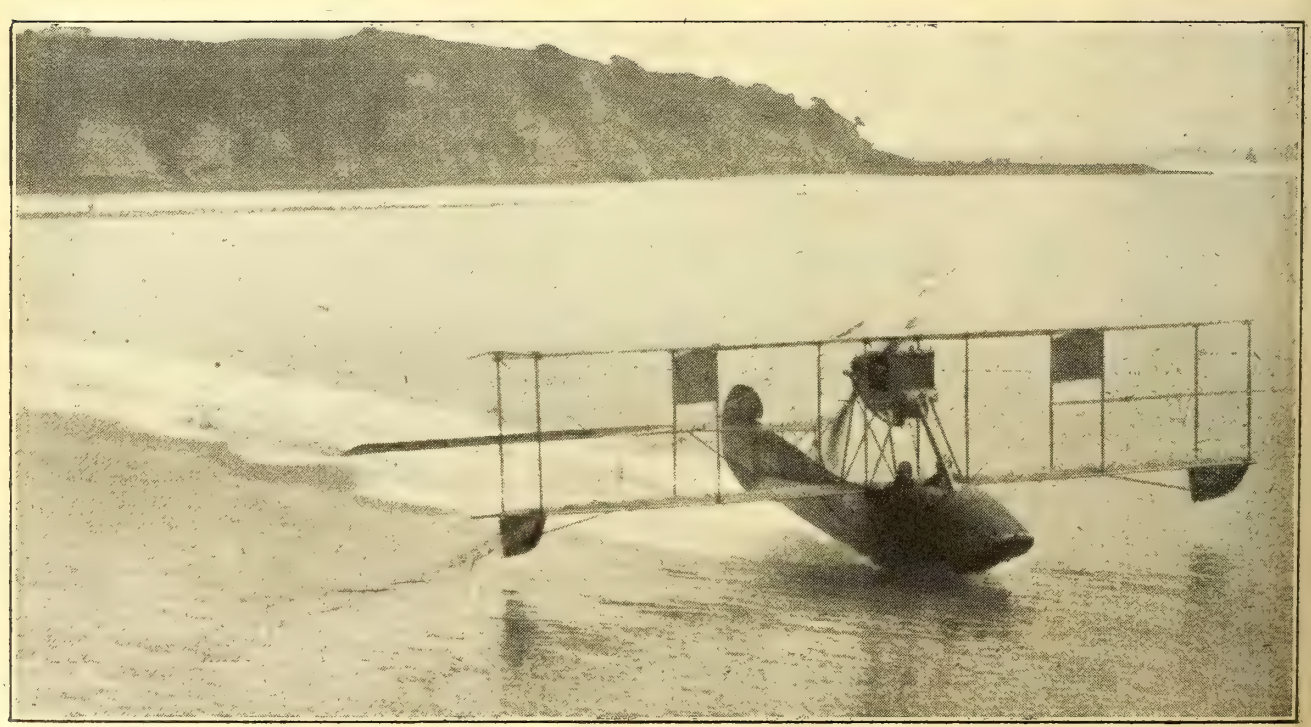
A record week's flying preceding August Bank Holiday is reported from the North. The Avro chain of air stations in Lancashire is now complete, Rhyl, in North Wales, being opened last Monday, when Major McMinnies, A.F.C., Capt. E. Maitland-Heriot, D.S.C., and Lieut. Hudson were flying.

Scotland.

St. Andrews.—Avro machines are flying from Leuchars to St. Andrews to take up passengers on August 6th-9th inclusive. The machines will operate form the stretch of sand to the west of the town.

Sheffield.

The Vickers Vimy commercial machine, which was flown by Capt. Sir John Alcock, K.B.E., D.S.C., during the Sheffield flying week, brought a total load of 13 people from Sheffield to London on July 29th. Nine of them were business men con



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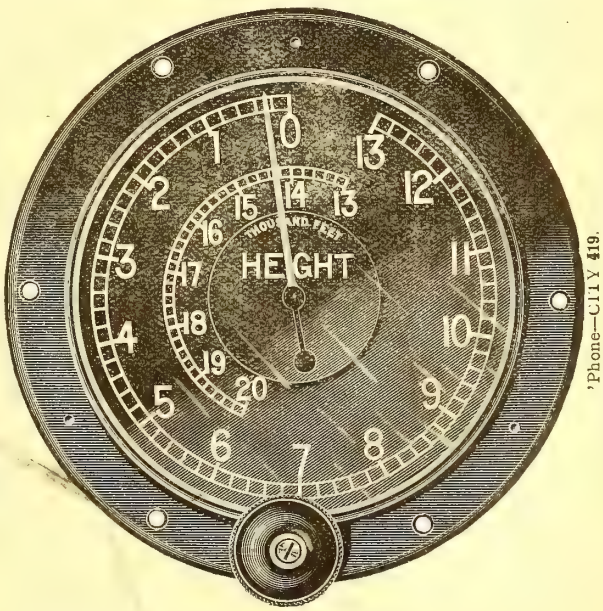

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nected with Vickers Ltd. The machine left Coal Aston aerodrome at 3.20 p.m., and arrived at Hounslow at 5.35 p.m. The passengers then motored to the offices of Vickers, Ltd., in Knightsbridge, where they arrived at 5.50 p.m.

SOUTHAMPTON.

Bournemouth had a daily aerial passenger service last week from Southampton, by a Supermarine four-seater, Channel type flying boat fitted with an 160-h.p. Beardmore engine, and having folding wings. Large numbers of visitors at Bournemouth were taken for flights.

On July 30th a woman of 72 and a man of 75 were taken up. Several trips were made from Southampton to Cowes with passengers having important appointments who missed the steamer.

When it is allowed the service will be extended to the north coast of France, calling at Cherbourg, Le Havre, and St. Malo.

Mrs. Leon Errol, a passenger from New York on the "Aquitania" which arrived at Southampton on August 2nd, flew from Hamble to London on that date.

Six weeks ago Mrs. Errol flew from London to catch the "Aquitania," as she had missed the boat-train

SOUTHPORT.

Southport was a good second to Blackpool, quite half the passengers being women. Six of the fair sex said that they wished to learn to fly, so keen have they become after the first few preliminary flights. It is generally found in these cases that the passengers are not satisfied until they have done everything that there is to be done in the air. This statement need not be taken entirely from a flying point of view, as an inquisitive pilot, finding his machine rocking considerably, turned round to see what was the matter and discovered his passengers enjoying for the first time an aerial embrace! Apparently from subsequent observations—taken on the sly—this form of amusement is by no means rare.

The Mayor of Southport, Ald. T. Wood, is becoming a keen passenger flier. He was looped and spun for the first time last week.

SWANSEA.

On July 26th Councillor George Hemmings opened the proceedings and was the first passenger to fly from a public aerodrome in Wales. Enormous crowds watch the flying from the beach. Aeroplanes are practically unknown and the flying is the chief topic of conversation for miles round.

Since two Avro three-seaters started passenger carrying at Brynmill, near Swansea, on July 26th, more than 200 people have been taken up.

AUSTRIA.

On July 31st a large German aeroplane, owned by a German aerial navigation company, flew from Kamentz Podolsk, Russia (Government of Podolia), to the Aspern Aerodrome near Vienna, with 22 passengers. On her arrival at Vienna she was seized by the Allied troops stationed there and handed over to the Italian Authorities.

DENMARK.

The following is from the Danish correspondent of THE AEROPLANE :—

The American Army pilot, Capt. Batts, who had brought a Curtiss flying boat with a modern Curtiss motor to Norway, where he is said to have been engaged by the big Danish cinema firm, the Northern Film Co., for some sensational flights over the mountains, has sold his flying boat to the Danish-American millionaire, Mr. John Larson, who crossed, with the former as pilot, the Skager Rak from Norway to Skagen, Denmark, flying next over his native city Sæby, which he had left as a poor farmer boy, dropping now, as the rich manufacturer of ice-producing plants, a present to his old mother.

He extended his flight from Copenhagen over five countries by continuing to Stockholm, after a night tug owing to the exhaust of petrol, and on to the new Baltic nations, Finland and Estland.

On the return to Denmark, Capt. Batts taught the Danish flying-boat pilots spinning, and with the Naval Air Service officers as observers took motive pictures of the capital and chief provinces in aid of the Sleswig Fund.

The Nielsen and Winther Works have, since their first contract for six Nieuport type scouts to the Danish Army, only produced a two-seater of this type, now handed over to the Danish Lieut. Jarfelt, chief of the Bolivian Air Service, for demonstration out there, a two-seater seaplane and two cheap flying boats to private order of a Danish and a Norwegian pilot, while a twin-engined flying boat, announced for the show to the order of a piano manufacturer for transport of his goods to England, two at a time, has not appeared so far. Nielsen and Winther have through their Hankow branch approached the Chinese Government for an exclusive concession for aeroplane manufacture in that country.

A company has been formed in Iceland to establish regular aeroplane traffic between the various towns and other countries. Capt. Cecil Faber is on the way to Iceland with aeroplanes and mechanics. The main base will be at Revkjavik.

FRANCE.

The following is sent by the Paris correspondent of THE AEROPLANE :—

From Aug. 1st, the Postal Authorities ceased to have any direct interest in the exploiting of aerial posts. This decision was reached owing to difficulties with an unsympathetic Treasury, and because the Chamber approved a motion according credits in the form of subsidies to aviation exploiting concerns. Also those high up in the Postal Services were anxious to retain their posts and were disinclined to commit themselves to any fixed programme. Thus ends the first year's experience and experiment in running aerial posts since it was in July, 1918, that an agreement was arrived at between the Postal Authorities and the Military Aviation Authorities.

Louis Bréguet, under guise of the company, "Messageries Aeriennes," has been running a daily service between Paris and Lille and vice versa. Each day, a pilot takes 100 to 150 kilos. of correspondence to Lille, and returns with a similar amount. Thus is the whole mail of Lille, Roubaix and Turcoing. From May 1st to July 30th the service has been interrupted only three times.

The scheme of prolonging this route to Brussels is being contemplated.

A Frenchman, Jean Ors, won the parachute competition at the Atlantic City Exhibition.

This week has seen the finishing touches to the many preparations made at seaside resorts to cater for the aviation-loving public.

The Compagnie Transaerienne have just put two dirigibles into commission called the Transaerien VI and the Transaerien VII.

The Transaerien VI is an Astra dirigible of 10,000 cubic metre capacity, fitted with two Renault motors of 250 h.p. each and a gondola capable of holding 14 to 16 passengers. It will be piloted by a marine officer loaned for the purpose by the French Naval Authorities.

This dirigible is to make "joy-ride flips" in the neighbourhood of Paris. Whenever the weather is propitious it will be flown to the battlefields and back, starting from and returning to the St. Cyr hangar.

The Transaerien VII is a Zodiac dirigible of 3,000 cubic metres and can carry, besides the pilot and mechanic, five passengers. This airship is to transport travellers from Havre to Deauville, and vice versa. Trips will also be made over the surrounding country, and these flights will appeal to everyone who knows the difficulties in crossing the Seine at this point.

The Société des Transports Aeronautiques du Sud-Ouest, of which Lt. Gindner is the moving spirit, has sent its first machine to Biarritz. Bordeaux was reached without a stop by Dupont, accompanied by Mechanic Alexandre.

Their aerodrome at Biarritz is called "Chambre d'Amour et la Négresse." The arrival has been planned for midday. Ten thousand leaflets will flutter to the ground announcing in true showman style the opening of the flying school, and imploring one to visit the Silver country and the Basque country at a price of 2.25 francs per kilometre by aerial taxi, or 1.25 francs the kilometre on the Goliath aerobus.

The Société T.A.S.O. have conceived the novel idea of fixing strapontins to the seats in the Goliath, thus increasing the accommodation by 6 to 20 persons.

The Compagnie Aerienne Francaise is charging 5 francs the kilometre for passenger flights. This Company has bought its machines at the liquidation of stocks at about £120 apiece.

The Bréguet firm have sent a 450-h.p. Renault-engined machine to the Amsterdam exhibition, fitted with five machine-guns.

The Caudron firm have also sent several machines.

La Maison Renault have just constructed a big twin-engined machine capable of carrying 20 persons.

Blériots are now constructing a new four-engined 1,200-h.p. machine with a 29 metre span and 150 metre supporting surface. It is designed to carry 28 passengers and fly 6 hours' non-stop.

A certain M. Schneeheli is busy experimenting with a new type of silencer on a F.50 at Villacoublay. It has already been passed by the Army.

From July 27th the postal aeroplane Nimes-Nice which used to arrive at the Californian aerodrome about midday will arrive at 9 in the morning.

After flying from Paris to Rennes and back, a voyage of 680 kms., M. Poulet left for Brussels, in order to take part in the Victory Fêtes there. The 370 kilometres was accomplished in 2 hrs. 47 min. After having taken photographs of the procession of the Compagnie Aérienne Française, he returned to Paris. He states that since July 14th the Le Rhône engine of his machine has done 3,000 kilometres. M. Poulet intends to attempt a flight from Paris to Melbourne (2,000 kms.), and hopes to start next month.
—F. T. N.

HOLLAND.

The E.L.T.A. Exhibition consists of the following 17 sections: (1) An historical group; (2) aeroplanes; (3) seaplanes; (4) engines; (5) motor-cars and cycles; (6) aeroplane building, with sepa-

rate parts and tools; (7) photographs, maps, and literature; (8) telegraphy and telephones; (9) orientation and lighting; (10) implements; (11) meteorology; (12) experimental aeroplanes; (13) medical; (14) clothing, equipment, and heating; (15) scientific; (16) military; and (17) naval. The exhibition was officially opened by M. Koenig, Minister for Public Works, after a speech of welcome by General Snyders, the ex-Commander-in-Chief of the Dutch Forces, and Chairman of the Committee of the exhibition.

On Aug. 2nd a Dutch naval seaplane, while trying to alight on the river, struck the roof of the Hillens machine-works, Serjt. Kroege, the mechanic, was killed, and Lieut. Bakker, the pilot, had his leg broken.

An F.5 flying boat fitted with two 350-h.p. Rolls-Royce Eagle engines, built by the Gosport Aircraft Co. for the Air Ministry, was successfully put through her trials on July 28th.

On July 30th the machine proceeded to the Amsterdam Exhibition, where it is being exhibited, with Lieut.-Colonel Ralph Hope Vere, A.E.C., as chief pilot. The others on board were Dr. Bisschop, the Legal Representative of the Dutch Government in England. Mr. M. H. Volk, the General Manager of the Gosport Aircraft Co., two other passengers, and a mechanic.

The flying-boat left Southampton at 2.50 p.m. and dropped a message at Brighton addressed to the Mayor of that town.

Amsterdam was reached in under five hours. It is a journey of about 340 nautical miles. Important Government mail was carried for the first time.

INDIA.

A detailed scheme for an inland aerial postal service in India is being considered by the Government of India, and shortly a mail service will be started between Bombay and Karachi.

A service will probably be instituted early next year. It will link up Delhi, Simla, Bombay, Calcutta, Karachi, Poona, Lahore, and Madras.

A number of private firms have offered to provide services between inland towns, but the Government has definitely decided on a State service.

A feature of the new service will be the speedy delivery of the English mail on its arrival in Bombay.

ITALY.

On Aug. 2nd a Caproni biplane, carrying some 14 persons in all, crashed near Verona. The machine was flying at a height of 5,000 ft., when it caught fire and fell. All the occupants were killed, including Capt. Luici Ridolfi, who was well known as a war aviator, and several newspaper correspondents. The aeroplane was making a trial flight from Milan to Venice, and carried five Italian journalists, the rest of her compliment being people from the Caproni works. Among the journalists were Signor Oreste Cipriani, one of the oldest members of the staff of the "Corriere della Sera," Professor Tancredi Zanghieri, who only recently became one of the leading editors of the "Secolo," Signor Bruni, of the "Sera," and Signor Bisi, of the illustrated publication, "Il Mondo," and all had been appointed to make the trip and to describe the journey to Venice.

NORWAY.

The following is from the Danish correspondent of THE AEROPLANE:—

Last year saw the formation of the first three Norwegian aircraft enterprises—first, the Nordisk Luftkraft A/S, which arranged the first Scandinavian aero exhibition in Christiania, 1918, and an emergency aerial mail by Lieut. Riiser-Larsen on a Thulin-built Morane monoplane, when the railway service was interrupted by embankment slip.

Secondly, the Norwegian Air Shipping Co., to which the public has been asked to subscribe in small shares, and of which Capt. Dehli, of the Navy, is technical director. So far nothing has been done, but the company will make its chief aim the establishment of national aerial lines, owing to the limits placed upon railway lines on account of the mountainous character of the country; and, further, will run a North Sea line to Great Britain, and, together with Swedish and Danish firms, a line to Gothenburg and Copenhagen.

The third enterprise is the Norwegian Aeroplane Works, Ltd., in Orsnes per Tonsberg, formed on June 4th, 1918, with a stock capital of towards £30,000. No aircraft have been turned out yet, but scale drawings are shown of a number of contemplated designs. Repairs of automobiles, motors, and boats are undertaken.

SOUTH AMERICA.

Lieut. Antonio Locatelli, the Italian pilot, left Buenos Aires on July 23rd to fly over the Andes on a machine fitted with a 220 h.p. S.P.A. engine. Owing to unfavourable weather he was obliged to land at Mendoza, which is 156 miles from Valparaiso (Chili).

He left Mendoza at 7.20 a.m. on July 30th, and crossing the Andes at 20,000 ft. arrived at Valparaiso at 9.25 a.m.

He arranged to leave for Santiago in the afternoon of the same day. General Diaz has referred to this pilot as Italy's Ace of Aces.

SWITZERLAND.

The Swiss aviator M. Handemann was killed on August 3rd while flying from Switzerland to Munich.

U.S.A.

A hurricane, accompanied by vivid lightning, wrecked most of the hangars and buildings on the Roosevelt Field, Long Island, on July 28th, where R.34 was moored on her arrival in America.

The storm destroyed three of the largest aeroplanes in America, a Caproni, a Handley Page, and a Martin bomber. The Handley Page weighed 11 tons, and was swept away and crashed at some distance, despite the efforts of 30 men to hold it down. The Martin bomber was going to fly across the United States from the Atlantic coast to the Pacific, starting on August 1st.

It is believed that the hangars were struck by lightning. A large rent was made in one of them, and as they were all of flimsy structure they collapsed very quickly.

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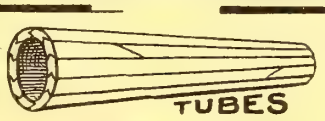
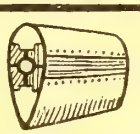
LONGERONS



TUBES

COMBINED METAL AND WOOD STRUTS



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AIRCRAFT FINANCE

CURRENT TOPICS.

The Whitehead Affair in Abeyance.

Having regard to the amount of capital involved, it is not surprising that the affairs of the Whitehead Aircraft (1917), Ltd., still excite quite a lot of attention. The further hearing of the petition presented by the New Pegamoid Co. for compulsory liquidation resulted in a decision being postponed until the next sittings of the Court. Mr. Gore-Browne, K.C., who appeared for the Whitehead Co., and also Mr. Whitehead, said that there was a chance—an extremely good chance—that a very large sum of money would be put in to pull the business together, a sum sufficient, after paying off all the creditors, to leave a large amount for the development of the business.

Prospective Purchasers.

Nothing was mentioned in the Court that would give a clue to the identity of the people who wish to secure control of the undertaking. In the City, however, certain names are being whispered, and further developments, towards the completion of affairs in the Courts are awaited with interest. Those who are pecuniarily concerned as shareholders should not be impatient.

The Labour Troubles.

The Stock Exchange, and indeed the whole of the financial world, is worried by the uncertainty of labour. The effect is aggravated by deficient working of the digestive organs consequent upon recent excessive borrowing. The result is a fall in prices and a feeling of discomfort.

The Handley Page Shares.

Aircraft and kindred shares are affected like everything else. An exception, however, is provided by Handley Page new participating preference shares, which are being picked up at about 16s. 6d. These were issued at 21s. in April, so that the original subscribers may be disappointed at the behaviour of the market. However, it is argued now that the company is developing its foreign trade and, allowing for the smaller Government business, is doing quite well at home.

Lower Prices Ruling.

The shares of the Aircraft Manufacturing Co. are not active. The first preference are quoted 16s. 6d. and the "B" 16s., and are not a very firm market. Peter Hooker preference are standing about 16s. 9d., and Armstrong, Whitworths at 35s. and Vickers at 35s. 6d. are being picked up by investors. Both seem to be attractive as a long shot by those people who are sufficiently confident in the immediate future. There has been a fall in English Electrics, which have an important and permanent interest in aircraft.

By Air, Limited.

One is impressed with the ingenuity shown in connection with some of the new ventures associated with aerial transport. Unfortunately little is usually heard about them beyond the original registration.

With a capital of £2,000 in £1 shares, of which 1,000 are preference shares, there has just been registered a venture entitled By Air, Limited. The object is to adopt an agreement with W. R. Johnson, T. T. Laker, J. W. Batchelor, and E. W. Saward, trading as the Aerial Transport Co., to establish, etc., services of aerial conveyances and aircraft of all kinds. It is apparently domiciled in Coventry.

A Swiss Project in Detail

More than the ordinary quantity of detail accompanies a report concerning an aerial project for linking up the chief cities and resorts in Switzerland. Hydroplanes are to be used principally, but aeroplanes will not be ignored. It is proposed to start with six stations—Geneva, Lausanne, Lucerne, Lugano, Thun or Interlaken, and Zurich—to which three machines with the requisite spare parts, will be allocated initially.

Capital and Estimated Earnings.

The capital is estimated at 1,500,000 francs (£60,000), the annual expenses at 1,000,000 francs (£40,000), and the receipts 1,200,000 francs (£48,000). The margin of profit, therefore, would be 200,000 francs (approximately £8,000). The calculation is based on 2½ hours' flight per day per machine, for not more than 100 days a year, the life of the machine being taken at two years with 500 hours of flight.

What it Represents.

Presumably the calculation of profit is allowed for after adequate provision for depreciation. If so, the specified amount would be equal to 13.3 per cent. on the capital, and the percentage of net profits to earnings would be 16.8. On paper it sounds all right, but it must be confessed that the information is inconclusive and incomplete. Anyway, it is not without interest, and on British standards the capitalisation seems to be quite moderate.

More Propaganda Needed.

By the way, why is it that one hears more of these foreign projects, some of which are embellished with more imaginative genius than sound sense, than British ventures? It is useful to know what is going on abroad. Possibly more propaganda work is called for in connection with domestic schemes, and propaganda more elaborate than cheap joy-rides designed to advertise any particular newspaper.

New Capital.

The new extensions for which S. Smith and Sons (Motor Accessories) need the additional capital comprise control of the M-L. Magneto Syndicate, and also the K.L.G. sparking plug. Another item of interest is that C. A. Vandervell and Co., whose shares were recently "introduced" to the Stock Exchange, will shortly issue £300,000 6½ per cent. debentures at £98, in order to cope with the growth of the business.

The Fiat and the Humber Cos.

Like everyone else the Fiat Co. is increasing its capital in order to develop business. The amount is to be doubled to 200 million lire. The Humber Co. now presents its accounts for the financial year to August 7th, 1918, the delay being ascribed to difficulties in valuation of stocks and inability to define Excess Profit Duty liability. The gross profit is £97,677 and the net £70,875, the latter comparing with £45,029 for the preceding 11 months. For the period under review dividends on the ordinary shares were resumed after a lapse of many years with a 6 per cent. payment.

NEW COMPANIES.

Great Northern Aerial Syndicate, Ltd. Private company. Registered June 12th. Capital, £10,000 in 5s. shares. To enter into an agreement with W. E. Cooke and to carry on the business of advisers, organisers, promoters, managers, accountants, secretaries, agents, etc., especially in the business of commercial aviation, manufacturers and designers of aircraft, proprietors of schools of aviation, etc. The first directors are:—C. Sutherland 2, Garston Old Road, Liverpool, advertising agent; C. H. Bullen, Lyndhurst, Halkyn Avenue, Liverpool, advertising agent; R. H. Taylor, Hill Place, Fishergate, Preston, gentleman; W. J. Todd, 17, Lawson Road, Seaforth, aero engineer; W. E. Cooke, 1, Vauxhall Road, Liverpool, leather merchant; E. G. Noakes, 30, Comeley Bank Road, Wallasey, advertising agent; L. E. Stephens, 50, Littledale Road, Wallasey, gentleman. Registered office: 25, Lord Street, Liverpool.

Handley Page Transport Co., Ltd. Private company. Registered June 14th. Capital, £200,000 in £1 shares, of which 100,000 are preference, entitled to a cumulative preferential dividend of 7 per cent. and two-fifths of the surplus profits available for dividends. Objects: To establish, maintain, manage and work lines and services of aerial conveyances and aircraft of all kinds and to carry on the business of carriers of mails, passengers, animals and goods by air, or otherwise, to enter into contracts with any person, firm or company, as to joint working, interchange of traffic, running powers or otherwise, to carry on the business of a transport company generally, and to acquire and provide aerodromes, air stations, flying grounds, flying schools, wireless telegraph stations, hangars, garages, sheds and other accommodation or erections in relation to aerial and other conveyances, to arrange competitions and trial tests for aviators, and to repair, hire, let on hire, ply for hire, and deal in all kinds of aircraft, etc. The subscribers (each with one share) are: F. Handley Page, 40, Claremont Road, Cricklewood, N.W.2, aeroplane manufacturer; T. Page, 40, Claremont Road, Cricklewood, N.W.2, aeroplane manufacturer. First directors: F. Handley Page and T. Page. Solicitors: Kimber, Bull and Co., 6, Old Jewry, E.C.

Aircraft Improvements Co., Ltd. Private company. Registered June 27th. Capital, £1,000 in £1 shares (50 founders). Agreement with Eric Neal and to carry on the business as aeronautical, marine and general engineers, manufacturers of and dealers in aircraft, aeroplanes, seaplanes, flying-boats, airships, observation balloons and appliances for aerial navigation, etc. The subscribers (each with one share) are:—E. Neal, 15, Elliott Road, Chiswick, W.4, aeronautical engineer. J. S. Cotman, 10, Coleman Street, E.C., C.A. Directors: E. Neal, J. S. Cotman, F. M. T. Lange and D. Gordan. Registered office: 10, Coleman Street, E.C.

AIRCRAFT IN PARLIAMENT

HOUSE OF LORDS.

As the result of an intense debate on July 30th, it was resolved in the Lords by 69 to 42 that a Select Committee should be appointed to examine the circumstances of the dismissal of Miss Violet Douglas-Pennant from the Women's Royal Air Force. The committee is to have the power to call witnesses, to take evidence upon oath, and to ask for the production of documents. This action has been taken by the Lords in defiance of the Government.

* * *

HOUSE OF COMMONS

The following written answer was given on July 28th :-

FLOOKBOROUGH AERODROME.

Dr. MACNAMARA, the Secretary of State to the Admiralty, replying to Mr. TYSON WILSON, said : The construction of a large aerodrome was started at Flookborough during the war, railway sidings were laid down and workmen's huts built, but it was discontinued owing to the shortage of steel.

The construction of this aerodrome cannot be continued now as it is not required. The building of the housing accommodation was proceeded with, and is now nearly finished.

Messrs. Vickers have been offered the option of taking over such work for the construction of the aerodrome as had been accomplished before the suspension.

* * *

The following written answers were given on July 29th :—

ROYAL AIR FORCE.—SUTTON AERODROME (DISCHARGES).

Mr. GEORGE THORNE asked the Under Secretary of State to the Air Ministry whether single women are being discharged from the Sutton Aerodrome, near Hornchurch, while married women whose husbands are in good positions are retained.

Major-Gen. SEELY : The inquiries in this case are not yet complete. I will communicate the result to the hon. Member at an early date.

GERMAN AIRSHIPS.

Lieut.-Col. MOORE-BRABAZON asked the Under Secretary of State to the Air Ministry how many German rigid airships will be allotted to this country under the terms of Peace; and whether the Air Ministry or the Admiralty will take the same over.

Major-Gen. SEELY : Under the Peace terms all German airships are to be handed over to the Allies, but the exact number to be allotted to this country has not yet been decided. The airships will be taken over in Germany by the Royal Air Force Section of the Inter-Allied Aeronautical Commission of Control, and their allotment as between the Admiralty and the Air Ministry will be determined by the decision made on the general question of responsibility for airships.

* * *

The following oral answers were given on July 31st :—

AIRSHIPS.

Captain WEDGWOOD BENN asked whether the Civil Aviation Department has under its control any airships; and, if not, what steps they take to carry out experiments, in view of the commercial development of this type of aircraft.

Major-Gen. SEELY : The Air Ministry has not at present any airships under its control. Valuable experience was gained by the Ministry from the flights of the R33 and R34, but these vessels have now been returned to the Admiralty

AIR SERVICES (UNIFIED CONTROL).

Lieut.-Col. MALONE and Mr. RAPER asked the Prime Minister, and Mr. JOYNSON-HICKS asked the First Lord of the Admiralty, whether and when the construction of airships was going to be handed over from the Admiralty to the Air Ministry.

Capt. W. BENN asked the Prime Minister whether the control of the airships could be transferred.

Capt. W. BENN and Lieut.-Col. MALONE asked the Prime Minister whether the Air Service will have unified control

Mr. BONAR LAW : It has been decided that the lighter-than-air ships shall be transferred to the Air Ministry, and arrangements to carry this into effect are now being made

Mr. RAPER : Will they be transferred immediately or only on completion ?

Mr. BONAR LAW : The principle has been decided upon; the details are being arranged between the two Departments.

Lieut.-Comdr. KENWORTHY : Will they be available for experiments in commercial work, or are they only for naval and military purposes ?

Mr. BONAR LAW : I could not be expected to answer that question. That will be for examination. One of the questions says : "Value for commercial purposes," but I was not aware of that.

Lieut.-Col. MALONE : Will they be transferred for operational purposes ?

Major-Gen. SEELY : I could not answer that off-hand. When these ships are employed for military purposes they will be under the command of appropriate military authorities, whether of the Navy or Army.

Mr. JOYNSON-HICKS : When arrangements are made will a statement be published here ?

Mr. BONAR LAW : We shall certainly make any announcement that we can. Whether it will be necessary to make it when the House is not sitting we will consider.

AIR DIVISION (NAVAL STAFF).

Mr. JOYNSON-HICKS asked the First Lord of the Admiralty whether an Air Department is in existence at the Admiralty; and, if so, for what purpose.

The FIRST LORD of the ADMIRALTY (Mr Long) : There is no Air Department at the Admiralty. There is an Air Division of the Naval Staff, which advises us in these matters.

Mr. LONG : All aircraft which work in conjunction with the Navy are under the control of the Admiralty for operations.

Lieut.-Col. MALONE asked the First Lord of the Admiralty whether the airships allotted for work with specific fleets are under the direct control of the Admiralty Air Department.

Mr. LONG : No, Sir. Any airships allotted for work with the Fleet are under the direct control of the commander-in-chief.

* * *

The following written answers were given on July 31st :—

AIR STATION, FELIXSTOWE (DISMISSALS).

Lieut.-Col. R. PEEL asked the Under Secretary of State to the Air Ministry whether he is aware that 176 civilian employees at the air station, Felixstowe, received a week's notice to leave on Saturday last without having had any previous intimation that their services were likely to be dispensed with; and whether, in view of the obvous hardship which must occur from displacement at such short notice, he will take steps to make some concession as to time so as to give the employees some reasonable chance of finding fresh employment.

Major-Gen. SEELY : The facts are as stated in the question. I deeply regret the hardship that is caused by the dismissal of civilian employees in this and similar cases, but the rapid reduction of the Royal Air Force to a peace basis renders such action unavoidable. Every effort will be made to give sufficient notice to enable men to find other employment, but such notice must in any case be short owing to the great reduction in working requiring to be done

GOVERNMENT POLICY

Mr. RAPER asked the Prime Minister whether the Government adheres to the declaration of policy, made by the Secretary of State for War on February 12th, that the integrity, the unity, and the independence of the Royal Air Force will be sedulously and carefully maintained.

Mr. BONAR LAW : The answer is in the affirmative.

MEERING v. THE GRAHAME-WHITE AVIATION CO., LTD.

On July 29th, Lords Justices Warrington, Duke and Atkin in the Court of Appeal, after an eight days' hearing, dismissed, on all issues but one, an appeal by the Grahame-White Aviation Co., against a verdict and judgment.

Mr. Meering was employed by the company last year and privately constructed an aeroplane of his own invention. The company charged him with stealing and receiving aeroplane parts and fittings. In the ensuing action Mr. F. C. Meering received £1,700 damages and costs for false imprisonment and malicious prosecution.

The part of the appeal which was allowed was that upon the issue of false imprisonment, and the damages for that issue were reduced from £250 to 1s. Mr. Meering's damages are, therefore, reduced from £1,700 to £1,450 and 1s.

A LIGHT SENTENCE.

At the Mansion House on July 31st, Douglas Newth, 24, lately a Lieutenant in the Royal Air Force, was charged with obtaining goods from City firms by means of worthless cheques. It was stated that the defendant had been doing secretarial work for a woman living in Tavistock Square, and was alleged to have stolen some blank cheques from her cheque-book. These he used in obtaining articles from Benetfink, Ltd., of Cheapside, and other firms. He represented himself in some cases as "Sir Robert Curzon" and in others as "Captain Wilson, Governor of Wormwood Scrubs Prison."

The defendant told the magistrate that he had served in the Army before and during the war and was twice severely wounded. He afterwards obtained a commission in the Royal Air Force and was twice smashed up. He was ill and starving when these matters occurred.

Sir John Baddeley passed sentence of four months' imprisonment in the second division on each of two charges, to run consecutively—eight months in all.

MANSLAUGHTER.

On July 29th the Poole Coroner held the adjourned inquest on the bodies of Mr. and Mrs. S. E. Jones, of Parkstone, who died under mysterious circumstances at Poole. They were picked up one dead and the other badly injured by two R.A.F. men and four civilians in a Government motor tender, on the night of the Peace festivities.

The driver of the car George Richard Woodhouse, and Hugh O'Neill his mate, both privates in the R.A.F., who are in custody on the charge of manslaughter, gave evidence.

Woodhouse said he should have taken the car back to the R.A.F. depot at Sandbanks, but thought they would have a run round and see what was doing as it was Peace Day. When they picked up the bodies of Mr. and Mrs. Jones it was light but raining. One was on each side of the road with more than room for the car between.

A civilian deposed to visiting various public-houses with the two R.A.F. men, but stated that all were sober. They did not see anyone in the road in front of the car.

A verdict of manslaughter against Woodhouse and O'Neill was returned.

NON-RIGID AIRSHIPS FOR SALE.

The Admiralty have for sale a number of non-rigid airships of the following types : Coastal, Coastal Star and S.S.Z. The airships will be sold complete with cars, engines, radiators, propellers, engine fittings, instruments, etc., but without wireless gear.

Forms of tender, giving particulars of the airships and facilities for inspection may be obtained from the Director of Contracts, Branch 10a, Room 81, West Block, Admiralty, S.W.1. The tenders for the airships will be received at the Admiralty up to 12 noon on August 12th.

Portable sheds, 170 ft. by 50 ft. by 56 ft. (to the crown of arch), suitable for S.S.Z. type airships are available for sale. Particulars of these sheds may be obtained from the Civil Engineer-in-Chief, Admiralty.

Silicol plants, which form part of the equipment of stations, are also available, and particulars may be obtained from the Director of Airship Production, 10, Smith Square, S.W.1.

NAVAL & MILITARY AERONAUTICS

GREAT BRITAIN.

FROM THE COURT CIRCULAR.

Buckingham Palace, July 24th.

The King, who was accompanied by the Prince Albert, held an Investiture for the Royal Air Force in the Quadrangle of the Palace at 11 o'clock this morning

His Majesty conferred decorations as follows :—

The Distinguished Flying Cross (contd.)

Lieut. Leo Baker, Lieut. Owen Baldwin, Lieut. Bernard Belcher, Lieut. John Bell, Lieut. Cecil Bridgland, Lieut. Harold Briggs, Lieut. Frederick Britnell, Capt. Frank Broome, Lieut. Colin Brown, Lieut. Lee Roy Brown, Lieut. Eldon Burn

Lieut. Austin Chadwick, Lieut Sidney Chamberlain, Lieut Joel Chrispin, Lieut. Percy Clayson, Lieut. Herbert Cockman, Capt. Douglas Colyer, Lieut. Alfred Corker, Lieut. Charles Coulson, Lieut. James Croden, Lieut. Alan Crosthwaite

Lieut. Douglas Davies, Lieut. Norman Dougall, Lieut. John Drake, Lieut. Goran Duncan

Lieut. William Eastaugh, Lieut. Cyril Eilen, Capt. Harold Ellison, Lieut. Charles Frank.

Lieut. William Gray, Lieut Victor Groom, Lieut. Thomas Gordon.

Lieut. Leslie Hamilton, Lieut. Herbert Hampton, Lieut. Ernest Hardcastle, Lieut. Norman Harben, Lieut Geoffrey Hett, Lieut George Hicks, Lieut. Sydney Highwood, Lieut. George Hobson, Lieut. John Holland, Lieut. John Hoogterp, Lieut. Gordon Hyams.

Lieut. Arthur Jarvis, Lieut Lawrence Jessop, Lieut. William Jones.

Lieut. Frank Loly, Lieut. Harry Longbottom.

Lieut. Eric MacDonald, Lieut. John MacLennan, Capt. Charles Maud, Lieut. Matthew McConville, Lieut. John McDonald, Lieut. Robert McLaughlin, Lieut. William Miller.

Lieut. Wilfred Nuttall.

Lieut. James O'Connell, Lieut. Harry Oldham.

Lieut. William Palk, Lieut. Cyril Parry, Lieut. Lawrence Pendred.

Capt. Alexander Rankin, Lieut. Norman Roberts, Lieut. Thomas Rose, Lieut. Horace Russell.

Lieut. Harold Searson, Lieut. Richard Shaw

Lieut. Charles Sims, Lieut. Arthur Stevenson

Lieut. Louis Packenham-Walsh.

Sec. Lieut. Gordon Ballantyne, Sec. Lieut. Alfred Barter, Sec. Lieut. John Blandford, Sec. Lieut. Percy Boulton.

Sec. Lieut. Reginald Creamer.

Sec. Lieut. Edward Dew.

Sec. Lieut. Gower Elias.

Sec. Lieut. James Gascoyne, Sec Lieut Robert Gordon.

Sec. Lieut. Charles Haigh, Sec. Lieut. Thomas Harries, Sec. Lieut. George Hart.

Lieut. Robert Jamison.

Lieut. James McDonald, Sec. Lieut. Conrad Moth.

Sec. Lieut. William Owens.

Sec. Lieut. William Patey, Sec. Lieut Harley Phillips, Sec. Lieut Hartley Pullan

Lieut. Hervey Rhodes, Sec Lieut. Albert Robinson.

Sec. Lieut. Godfrey Sellers, and Sec Lieut. Edward Simpson

The Air Force Cross.—Major-Gen. Sir William Brancker, Co. Arthur Bigsworth, Major Philip Babington, Lieut.-Col. Henry Busteed, Lieut.-Col. John Fletcher, Lieut.-Col. Francis McClean.

Major William Acland.

Major Reginald Carr, Major Robert Chalmers, Major the Hon. Roger Coke, Major John Coleman, Major Geoffrey Cox.

Major Horace Dean.

Capt. Thomas Elmhurst.

Major Charles Freeman.

Major Frank Garratt.

Major Arthur Harris, Major Roderick Hill

Capt. Montague Jennings.

Capt. Harold Kerby.

Capt. Ivo Little.

Capt. Forster Maynard, Major Geoffrey Mitchell.

Capt. John Orton.

Major Humphrey Raikes.

Capt. Douglas Stewart.

Capt. Robert Aitken, Lieut. William Algie.

Capt. Gilbert Barrett, Capt. Seymour Benson, Capt. Godfrey Bremridge, Lieut. Paul Bulman.

Capt. Edgar Carpenter, Lieut. Henry Clarke, Capt. Brian Clayton, Capt. Ralph Cochrane, Major Arthur Cooper, Capt. Roger Corfield.

Capt. Charles Dalison, Lieut. Desmond De Burgh, Capt Archibald Dickie, Lieut. Noel Dixon.

Capt. Joseph Fall, Capt. Albert Fanstone, Capt. Matthew Frew.

Capt. Edward Galley, Capt. Charles Geach, Capt. Percy Gethin, Major Albert Godfrey, Major Samuel Greer

Capt. Stafford Harris, Capt. Henry Horsfield.

Capt. Ignatius Kelly, Capt. Walter Kemp, Capt. James Kerr.

Capt. John Leach, Capt. Prilip Le Gallas.

Capt. Percy Maitland, Capt Duncan McGregor, Capt. George Meager, Capt. Edward Morgan, Capt. Francis Musson

Capt. Malcolm Nares, Capt. William Nicholson, Capt. Jack Noakes.

Capt. Henry Owen.

Lieut. Albert Peace.

Capt. Cecil Rea, Capt. Alan Riley, Capt. Frank Rose.

Capt. Robert Saundby, Capt. Charles Stocks, Capt. Ronald Sugden.

Lieut. Cyril Adamson, Lieut. Alfred Alexander.

Lieut. the Hon. Alan Boyle, Lieut. Robert Burrows.

Lieut. Morris Carver, Lieut Charles Channing, Lieut. Leslie Chivers, Lieut. Stanley Cowell.

Lieut. Stanley Dreschfeld.

Lieut. Reignald Edwards, Lieut. Hugh Francis.

Lieut. Harold Game, Lieut Ernest Garner

Capt. Edward Haigh, Lieut Henry Hamer, Lieut. Robert Hartley.

Capt. Archibald Lutyens.

Lieut. Gilbert Martingell, Lieut. Mervyn Mossop

Lieut. William Oulton, Capt John Oliver

Lieut. Francis Pelly, Lieut. George Powell.

Lieut. William Rope, Lieut. Wilfred Rutledge

Lieut. Leonard Brown.

Sec. Lieut. Edward Hall.

Lieut. Arthur Power, and

Sec. Lieut. Bertram Scovell

Buckingham Palace, July 31st.

The King held an Investiture in the Quadrangle of the Palace at 12 o'clock this morning.

The following were severally introduced into the presence of His Majesty, when The King invested them with the Insignia of the respective Divisions of the Orders into which they have been admitted :—

The Distinguished Service Order.—Lieut.-Col Richard Williams, Aust. F.C. (also received the Insignia of an Officer of the Most Excellent Order of the British Empire, Military Division).

The Most Excellent Order of the British Empire.—Officer.—Military Division.—Mary, Mrs. Edwards, W.R.A.F., Winifred, Mrs. Powell, W.R.A.F., Lieut.-Col. Charles Edmonds, R.A.F., Lieut.-Col. John Hawkins, R.A.F., Major Arthur Struben, R.A.F., Major John Thornely, R.A.F., and Capt. William Budgen, R.A.F.

Members.—Military Division.—Capt. David Manwell, Aust. F.C., Lieut. Percival McBain, Aust. F.C., Capt. Arthur Allen, late R.A.F., Capt. Henry Smith, R.A.F., and Lieut. John Clift, R.A.F.

His Majesty then conferred decorations as follows :—

The Distinguished Service Cross.—Capt. Guy Smith, R.A.F

The Military Cross.—Lieut. William Warden, R.A.F.

Mrs. Horn had the honour of being received by the King, when His Majesty handed to her as "Next-of-Kin" the Albert Medal awarded to her husband, the late Driver Alfred Horn, Royal Army Service Corps, under the following circumstances :—

On June 30th, 1918, a Corporal of the Royal Air Force, who had been lowered by a rope into a crater caused by a bomb which had been dropped by a hostile aeroplane, was overcome by carbon monoxide gas, which had accumulated in large quantities in the crater. Endeavours were made to haul him out, but his head became caught, and Private Johnson volunteered to descend and readjust the rope, which he did successfully, and the Corporal was rescued, but Johnson was himself overcome. Driver Horn at once put on his respirator and lowered himself to the rescue, but was likewise overcome. Sergeant Brooks then volunteered to attempt to rescue both men, but was also overcome by the gas; fortunately, he was hauled out. At this stage Brigadier-General Burt refused to permit anyone else to descend, but did so himself, and succeeded in dragging one of the unconscious men some way towards the rope; he, however, became unconscious, and had to be pulled out. There can be no doubt that all knew the risk they were running, and willingly incurred it in the hope of saving life.

Buckingham Palace, August 2nd.

The King held an Investiture in the Quadrangle of the Palace at 11 o'clock this morning.

The following were severally introduced into the presence of The King, when His Majesty invested them with the Insignia of the respective Divisions of the Orders into which they have been admitted :—

The Most Honourable Order of the Bath.—Companion.—Military Division.—Brigadier-General Francis Festing, R.A.F.

The Most Distinguished Order of Saint Michael and Saint George.—Companions.—Colonel Frederick Halahan, R.A.F.; Colonel Charles Samson, R.A.F. (also received the Air Force Cross); Lieut.-Colonel Ulick Bourke, R.A.F.; Lieut.-Colonel Robert Bradley, R.A.F.; Lieut.-Colonel Albert Fletcher, R.A.F.; Lieut.-Colonel Cecil Fraser, R.A.F. (also received the Insignia of an Officer of the Most Excellent Oorder of the British Empire, Military Division); Lieut.-Colonel Thomas Higgins, R.A.F.

The Most Excellent Order of the British Empire.—Officer.—Military Division.—Major Geoffrey Read, late R.A.F.

The King then conferred decorations as follows :—

The Military Cross and Bar and the Distinguished Flying Cross.—Capt. David Stewart, R.A.F.

The Military Cross and Bar and the Air Force Cross.—Major Walter Scott, R.A.F.

The Military Cross and the Distinguished Flying Cross.—Lieut.-Colonel Harold Blackburn, R.A.F., and Capt Norman MacMillan, R.A.F.

The Military Cross and the Air Force Cross.—Major Oliver Stewart, R.A.F.

The Military Cross.—Capt. Harold Hamersley, R.A.F., Capt Gilbert McPherson, R.A.F.; Capt. Kenneth Montgomery, R.A.F.; Lieut. Croker Barrington, R.A.F.; Lieut. Eric Birkbeck (North Staffordshire R., attd. R.A.F.).

The Distinguished Flying Cross.—Major George Sansom, R.A.F.; Capt. Claver Bessett, R.A.F.; Capt. Clarence Williamson-Jones, Capt. Geoffrey Siedle, R.A.F.; Captain Charles Snow, R.A.F.; Captain Walter Southey, R.A.F.; Captain Richard Stephenson, R.A.F.; Capt. John Storey, R.A.F.; Capt. Theodore Studd, R.A.F.; Capt. John Todd, R.A.F.; Capt. Godfrey Thomas, R.A.F.; Capt. Stanley Turner, R.A.F.; Capt. Charles Veitch, R.A.F.; Capt. James Walker, R.A.F.; Capt. John Walmsley, R.A.F.; Capt. Leslie Warren, R.A.F.; Capt. Joseph White, R.A.F.; Capt. Arthur Williams, R.A.F.; Capt. Robert Williams, R.A.F.; Capt. Archibald Yuille, R.A.F.; Lieut. Harold St. John, R.A.F.; Lieut. John Shearer, R.A.F.; Lieut. Denys Stuart-Shepherd, R.A.F.; Lieutenant William Sidebottom, R.A.F.; Lieutenant Harold Skinner, R.A.F.; Lieutenant Harold Smith, R.A.F.; Lieut. William Staton, R.A.F.; Lieut. Stephen Stafford, R.A.F.; Lieut. John Stronach, R.A.F.; Lieut. Hedworth Tait, R.A.F.; Lieut. Bryant Taylor, R.A.F.; Lieut. George Thomson, R.A.F.; Lieut. Joseph Todd, R.A.F.; Lieut. Edward Unmack, R.A.F.; Lieut. Christoffel Venter, R.A.F.; Lieut. William Walker, R.A.F.; Lieut. Wilfred Ward, R.A.F.; Lieut. Edward Weakly, R.A.F.; Lieut. David Weston, R.A.F.; Lieut. Clifford White, R.A.F.; Lieut Basil Wilcox, R.A.F.; Lieut. Frederick Williams, R.A.F.; Lieut. Eric Willis, R.A.F.; Lieut. Basil Worthington, R.A.F.; Sec. Lieut Alfred Tutte, R.A.F.; and Sec. Lieut. John Young, R.A.F

The Air Force Cross.—Lieut.-Colonel Harold Watkins, R.A.F.; Lieut.-Colonel Hugh Williamson, R.A.F.; Major Frederick Sandford, R.A.F.; Major Frederick Sowrey, R.A.F.; Major John Sowrey, R.A.F.; Major William Sowrey, R.A.F.; Major Benjamin Travers, R.A.F.; Capt Trevor

Salt, R.A.F.; Captain Victor Scriven, R.A.F.; Captain Duncan Stewart, R.A.F.; Captain Charles Sturt, R.A.F.; Captain Robert Tailyour, R.A.F.; Captain William Tait, R.A.F.; Captain Alfred Taylor, R.A.F.; Captain Malcolm Taylor, R.A.F.; Captain George Thom, R.A.F.; Capt. Cyril Truran, R.A.F.; Capt. George Turnbull, R.A.F.; Capt. Creswell Turner, R.A.F.; Capt. Stanley Vincent, R.A.F.; Capt. Robert Usher, R.A.F.; Capt. Frederick Walker, R.A.F.; Capt. Lloyd Whitworth, R.A.F.; Capt. Percival Wickens, R.A.F.; Capt. Clifford Wilcock, R.A.F.; Capt. Thomas Williams, R.A.F.; Capt. James Wilson, R.A.F.; Capt. Frank Woods, R.A.F.; Capt. Felix Wollard, R.A.F.; Capt. James Wright, R.A.F.; Lieut. John Hirst, R.A.F.; Lieut. Frederick Shepard, R.A.F.; Lieut. Francis Smith, R.A.F.; Lieut. William Taylor, R.A.F.; Lieut. Collingwood Thompson, R.A.F.; Lieut. Algernon Townend, R.A.F.; Lieut. John Tratman, R.A.F.; Lieut. Harold Ward, R.A.F., Lieut. Weldon Watts, R.A.F.; Lieut. Francis Way, R.A.F.; Lieut. William Westcott, R.A.F.; Lieut. Stephen Wilkinson, R.A.F.; Lieut. James Williamson, R.A.F.; Lieut. Arthur Wray, R.A.F., and Sec. Lieut Cowan Stephenson, R.A.F

The following had the honour of being received by His Majesty, when The King handed to her, as "Next-of-Kin," the decoration won by her husband in the War :—

THE ALBERT MEDAL.—Mrs. Johnson. Awarded to her husband, the late Private Arthur Johnson, R.A.S.C.

On June 30th, 1918, a Corporal of the Royal Air Force, who had been lowered by a rope into a crater caused by a bomb which had been dropped by a hostile aeroplane, was overcome by carbon monoxide gas, which had accumulated in large quantities in the crater. Endeavours were made to haul him out, but his head became caught, and Private Johnson volunteered to descend and readjust the rope, which he did successfully, and the Corporal was rescued, but Johnson was himself overcome. Driver Horn at once put on his respirator and lowered himself to the rescue, but was likewise overcome. Sergeant Brooks then volunteered to attempt to rescue both men, but was also overcome by gas; fortunately, he was hauled out. At this stage Brigadier-General Burt refused to permit anyone else to descend, but did so himself, and succeeded in dragging one of the unconscious men some way towards the rope; he, however, became unconscious and had to be pulled out. There can be no doubt that all knew the risk that they were running, and willingly incurred it in the hope of saving life.

NAVAL.

ADMIRALTY, July 25th.

Ch. Art. Eng. to be Eng. Lt. (Capt., R.A.F.) :—F. H. Williams, Jan. 18th.

* * *

The following concerning the recent visit of H.M.A. R. 34 to Germany is from the Danish correspondent of THE AEROPLANE :—

The flight of R.34, which was visible over most parts of Denmark, acted quite as a stimulant, being especially spectacular at Copenhagen, where the airship stopped over the British Fleet at the harbour and lowered a cable, whereupon the commanders communicated by 'phone for some time on the observations made by the airship in crossing the German North Sea and Baltic coasts.

* * *

On July 30th H.M.A. R.34 left the Naval Airship Station at Pulham, Norfolk, for the station at East Fortune, Scotland, and on her way to the latter place contrived to pay a visit to London. The ship arrived about 7 p.m. and voyaged about overhead for some little time. R.34 has been undergoing overhaul at Pulham since her arrival there after her Atlantic flight.

R.34 arrived at East Fortune at 6.5 a.m. on July 31st.

* * *

On July 28th the British Naval F.5 flying-boat N.4044 (Major Galpin in command), left Christiania for Copenhagen at 11 a.m.

Up to this point all accounts agree, but after that, there is a pleasing variety in the wording of them. Some say that the flying-boat arrived at Copenhagen at 2.25 p.m. the same day, and others that she arrived at 2.25 p.m. the following day, one of her engines having broken down en route.

Had it been war-time, one would have felt inclined to suggest that she had descended on her way to "confer about targets," which would have explained the discrepancy in the two statements.

* * *

At an inquest at Cromer on July 31st on the body of Serjt. Charles H. Lewry, R.A.F., of Gosport, no fresh evidence was forthcoming as to the cause of the accident to H.M.A. "N.S.11."

An officer of the R.A.F. said all that was known officially was that the cause was fire, the origin of which was a mystery. Lewry was second coxswain. He was believed to be steering the airship when the fire occurred. If he were he would be in the forepart of the car, and it was possible that the latter was broken when it reached the water and released his body, as well as two seats which would be near him for the use of the pilot, and were found among the wreckage washed up. It was probable that the body of the car broke down by the two heavy engines sinking with the remainder of the crew imprisoned inside.

A witness from the Pulham Aerodrome said when the airship "N.S.3" was lost in the sea some time ago five of the crew were rescued. They were able to escape from the car on to the floating envelope, but in that case there was no fire such as occurred in the wreck of the "N.S.11."

The Coroner recorded a verdict of "Found dead on the beach after being washed ashore from the wrecked airship."

* * *

It is understood that the big triplane flying-boat, known as the "Felixstowe Fury," designed by Lieut.-Col. J. C. Porte, C.M.G., R.A.F., will shortly fly to Egypt. The newspaper, Nationaltidende," of Copenhagen, states that Capt. Scott, R.A.F., the pilot of F.5, 4044, at present at Copenhagen, will make one of the crew.

MILITARY.

WAR OFFICE, July 28th.

REGULAR FORCES.—ROYAL ARMY CHAPLAINS DEPARTMENT.—Temp. Chaplains to the Forces, 4th Class, relinquish their commns. :—The Revs. J. L. Thomas, M.C., on transfer to the R.A.F., June 12th.

INFANTRY.—23RD BN. LOND. R.—Sec. Lt. F. C. Woodman (attd. R.A.F.) is/cashiered, Jan. 1st.

WAR OFFICE, July 29th.

REGULAR FORCES.—INFANTRY.—North'd Fus.—Lt. H. A. Fordham (attd. R.A.F.) resigns his commn., July 30th.

R.W.R.—Lt. H. R. S. Birkin (attd. R.A.F.) resigns his commn., July 30th.

Wilts. R.—Capt. C. H. E. Moore to be Maj., Jan. 28th, 1918; Lt. C. W. M. Whitlock (attd. R.A.F.) resigns his commn., July 30th; Sec. Lt. J. Carney retires, receiving gratuity, July 30th

WAR OFFICE, July 30th.

REGULAR FORCES.—Mil. Wing.—Flying Officer (Obsr.).—Temp. Sec. Lt. R. J. Slade, A. Cyclist Corps, and to be transferred to R.F.C., Gen. List, Oct. 26th, 1915.

INFANTRY.—Durh. L.I.—Lt. S. H. Long, D.S.O., M.C. (attd. R.A.F.), resigns his commn., July 31st.

OVERSEAS FORCES.—Canada.—Nova Scotia R.—Temp. Capt. (actg. Lt.-Col.) G. C. St. P. de Dombasle, O.B.E., ceases to be secd. for duty with the R.A.F., Feb. 27th, and is secd. for duty with the C.A.F., Feb. 28th (substituted for "Gazette" notification No. 31333, May 9th); Temp. Capt. D. Owen ceases to be secd. for duty with the R.A.F., May 31st.

Eastern Ontario R.—The following temp. Lts. cease to be secd. for duty with the R.A.F.—H. R. Kincaid, M.C., July 3rd; S. B. Plummer July 9th.

2nd Cent. Ontario R.—Temp. Lt. E. O. Houghton ceases to be secd. for duty with the R.A.F., July 10th

Western Ontario R.—Temp. Lt. F. Cave-Browne-Cave ceases to be secd. for duty with the R.A.F., and relinquishes commn. in the O.M.F.C., July 14th.

Manitoba R.—Temp. Lt. W. H. Kilby ceases to be secd. for duty with the R.A.F., July 9th.

Saskatchewan R.—The following cease to be secd. for duty with the R.A.F. :—Temp. Capt. (actg. Maj.) R. W. Bruce, July 14th; Temp. Lt. A. H. Bill, May 31st.

British Columbia R.—The following cease to be secd. for duty with the R.A.F. :—Temp. Maj (actg. Lt.-Col.) R. Bell-Irving, O.B.E., April 9th; Temp. Lt. (actg. Capt.) G. Thompson, July 8th, 1918.

E. Ont. R.—Temp. Lt. G. L. Shepherd ceases to be secd. for duty with R.A.F., July 9th.

Can. Mach. Gun Corps.—Temp. Lt. H. C. Young, D.F.C., ceases to be secd. for duty with the R.A.F., July 14th.

Can. Army Pay Corps.—Temp. Capt. P. E. Bishop ceases to be secd. for duty with the R.A.F., July 14th

WAR OFFICE, July 31st.

REGULAR FORCES.—R.A.S.C.—Lt. T. M. Draper, from R.A.F., to be temp. Lt., June 13th.

CASUALTY LIST.

Reported August 5th.

PREVIOUSLY REPORTED MISSING, NOW REPORTED KILLED.—Tucker, Sec. Lt. D. C., R.F.C.
Webb, Capt. N. W., M.C., R.F.C.

FORCES OF CANADA.—ACCIDENTALLY KILLED.—Annis, Lt. W. F., Cent. Ont. Regt., attd. R.A.F.
Munro, Lt. J. W., N.S. Regt., attd. R.A.F.

DIED.—Ferguson, Lt. J. F., Rly Troops, attd. R.A.F.
Price, Lt. J. W., Art., attd. R.A.F.

* * *

The War Office announces that the British War Medal Riband may now be worn by all ranks who are entitled to the award of the medal, and that in each case a preliminary issue of two inches of the riband will be made.

Soldiers discharged from the Royal Flying Corps before April 1st, 1918, should apply to the Royal Air Force Record Office at Blandford on the official postcard (F.S. Form 758), obtainable at any post office.

* * *

A message from Peshawar giving further details of the fighting in the Khyber on July 18th says :—

After the Afridis had captured a hill overlooking Fort Maude, and while we were still shelling it preparatory to a counter-attack, they sent by helio a Hindustani message reading : "This is to show you what we can do. Now we are going to retire."

They then retired to Fort Chora, in the Bazar Valley, but there were caught by an aeroplane sent to bomb the fort, and it is believed that 50 Afridis were killed by a single bomb.

* * *

It is stated from that somewhat unreliable source a newspaper, and a Russian one at that, that British aeroplanes bombed the forts at Kronstadt on July 28th. Heavy smoke was seen coming from the forts but no explosion was heard. The forts fired upon the aircraft.

AIR FORCE.

FROM THE "LONDON GAZETTE."

AIR MINISTRY, July 15th.

CONFERRED BY THE KING OF ITALY.

CAVALIERE OF THE ORDER OF THE CROWN OF ITALY.

Sec. Lt. V. Lowe.

SILVER MEDAL FOR MILITARY VALOUR.

Capt. (actg. Maj.) A. B. Shearer, Capt. H. F. Delarue, D.F.C., Capt. H. L. Nunn, D.S.C., D.F.C.

BRONZE MEDAL FOR MILITARY VALOUR.

Lt. S. J. Chamberlain, D.F.C.
Sec. Lt. J. McDonald, D.F.C.

THE CROCE DI GUERRA.

Lt. A. C. Getley.
Capt. (actg. Maj.) A. B. Shearer.

AWARDED THE LIBYAN MEDAL.

For services rendered in connection with the Italian Forces at Misurata :—

Capt. S. E. Ball, D.F.C.
Lt. L. de V. Chisman, Lt. (actg. Capt.) C. Chrimes.
Sec. Lt. J. A. Munn.
Capt. R. J. F. Sulivan.
208273 Serjt. K. E. Dawson (Eastbourne).
232635 A./M.1 G. F. Florant (Fulham, S.W.).

204444 Serjt. H. W. Groombridge (Notting Hill, W.).
210629 A./M.1 F. R. Heckford (Ongar, Essex).
234864 A./M.1 P. Kelly (Glasgow).
208592 Serjt. A. F. Millier (Forest Gate, S.E.); 211578 A./M.1 H. Singleton (Garstang).

CONFERRED BY THE KING OF THE HELLENES

GREEK MEDAL OF MILITARY MERIT.

Sec. Lt. J. W. Hoskings, M.B.E.
Capt. H. G. Harrison, Sec. Lt. G. J. Stroud, M.B.E.

CROSS OF OFFICER, ROYAL HELLENIC ORDER OF THE REDEEMER.

Maj. F. W. Gamwell, Maj. J. Weston.

CHEVALIER OF THE ROYAL ORDER, GEORGE I.

Lt. S. W. Briggs.
Lt. T. F. Clarke
Lt. R. W. Kerr
Lt. C. H. A. Willett.

CONFERRED BY THE KING OF ROUMANIA

STAR OF ROUMANIA (OFFICIER).

Maj. J. P. C. Cooper, O.B.E., M.C. (10th Bde.).

STAR OF ROUMANIA (CHEVALIER).

Lt. (actg. Capt.) C. C. A. Pelham (France).
Sec. Lt. (Hon. Capt.) (actg. Capt.) H. W. Stockdale, D.F.C. (101st Squadron).

CROWN OF ROUMANIA (CHEVALIER)

Lt. F. H. Knobel (10th (A.) Wing, 40th Squadron).

ORDER OF MICHAEL THE BRAVE, 3RD CLASS.

Lt. J. A. Parkinson (201st Squadron).
Lt. L. H. Ray (91st (A.) Wing, 19th Squadron).

CROIX DE VIRTUTE MILITARA, 2ND CLASS.

222516 Serjt. C. H. O. Aliwork (10th (A.) Wing, 98th Squadron); 27032 A./M., 1st Class, H. A. Lockington (5th Balloon Wing); 77088 A./M., 1st Class, J. Melia (19th Balloon Section); Aus/740 Ch. Master Mech. A. Taylor (3rd Squadron, Aust. Flying Corps) (France).

... MEDIALLE BARBATIE SI CREDINTA (1ST CLASS).

2547 Ch. M./Mech W. E. Bennett (84th Squadron), 49532 S./Maj. G. Dixon (France); 200599 S./Maj. S. P. Finch (10th (A.) Wing, 203rd Squadron); 16667 Ldg. A./C. F. Murphy (5th Balloon Wing).

MEDAILLE BAREATIE SI CREDINTA (3RD CLASS).

5 S./Maj. W. E. Moore (9th Squadron); 42833 A./M., 1st Class, A. E. Seed (1st Balloon Wing); 18011 1st A.M. A. S. Wilson (France).

CONFERRED BY THE SULTAN OF EGYPT.

THE ORDER OF THE NILE, 3RD CLASS.

Lt.-Col. (actg. Brig.-Gen.) P. L. W. Herbert, C.M.G., C.B.E. (Notts and Derby R.).
Lt.-Col. C. E. Risk, D.S.O. (R.M.L.I.).

THE ORDER OF THE NILE, 4TH CLASS.

Capt. (actg. Maj.) F. G. Brown, O.B.E.
Capt. W. H. Dolphin.
Maj. W. D. Long, O.B.E.
Maj. (actg. Lt.-Col.) S. S. Nevill, O.B.E.

CONFERRED BY THE EMPEROR OF JAPAN

4TH CLASS ORDER OF THE RISING SUN.

Capt. (actg. Maj.) G. de L. Wooldridge, O.B.E.

NOTE.—The "Acting Ranks" indicated against names in this "Gazette" have been relinquished in the great majority of cases since the commencement of the printing, and in many cases the Officers and other ranks have been demobilised.

CORRECTIONS.

The following are the correct descriptions of Officers whose names appeared in the "Gazettes" indicated in connection with the grant of decorations or Mentions in Dispatches:—

Lt.-Col. Sir H. Fowler, K.B.E. ("Gazette" No. 31297, April 15th); Maj. W. D. Long, O.B.E. ("Gazette" No. 31098, Jan. 1st), Capt. L. P. Lander, M.B.E. ("Gazette" No. 31098, Jan. 1st); Capt. J. H. Cooke, M.B.E., M.B. (R.A.M.C., Egypt) ("Gazette No. 31098, Jan. 1st); Lt.-Col. N. J. Roche, O.B.E. ("Gazette" No. 31378, June 3rd); Sec. Lt. (actg. Maj.) A. R. Fulton, M.B.E. ("Gazette" No. 31378, June 3rd); Capt. W. Hayward, M.B.E., No. 4 Group ("Gazette" 31378 June 3rd); Capt. (actg. Maj.) P. P. C. Penberthy (Shrops. L.I.). This officer's name appeared in the list of awards of the fifth grade of the Military Division, British Empire Order, in the "London Gazette," June 3rd (No. 31378), instead of in the list of appointments to the fourth grade (O.B.E.), and the correction is hereby authorised. Lt.-Col. W. S. Fetherstonhaugh (Can For. Corps, attd. R.A.F.) (France). The announcement of the award of the 4th grade, British Empire Order, in "Gazette" No. 31378 of June 3rd, is cancelled, this Officer having been awarded a higher grade. Col the Rev. R. V. Hanson, O.B.E. (Dep. Chapl.-in-Chief, R.A.F.). The announcement published in "Gazette" No. 31378 June 3rd (award of O.B.E.) is cancelled, this award having been also published in "Gazette" No. 31377 of same date. Lt. C. W. Seymour-Hall (mentioned in Dispatches, "Gazette" No. 31378, June 3rd); 91975 Serjt.-Obsr. L. H. Rowe, D.F.M. ("Gazette" No. 31378, June 3rd); Lt. (actg. Capt.) G. B. Irving, D.F.C. (19th Squadron, R.A.F., attd. 10th (Army) Wing) (France) (D.F. Cross gazetted Aug. 3rd, 1918) (deceased)

Capt. C. B. Belt, M.B.E., M.C., D.C.M. (S. Staff R.) ("Gazette" 31378, June 3rd); Deputy Adm. Mrs. F. Day, M.B.E. (W.R.A.F.) ("Gazette" 31378, June 3rd); Maj. (actg. Lt.-Col.) A. Levick, O.B.E. (former service in C. Gds.) ("Gazette" 31378, June 3rd); Capt. W. J. Cooper, M.B.E. (Aust. Flying Corps, Recording Offr.) (France) ("Gazette" 31378, June 3rd); Lt. P. A. McBain, M.B.E. (Aust. F. Corps) (Palestine) ("Gazette" 31378, June 3rd); Lt. (actg. Capt.) D. W. Grinnell-Milne, D.F.C. (R. Fus.) (56th Squadron) (France) ("Gazette" 31378, June 3rd, Bar to D.F. Cross); No. 8398 Serjt.-Maj. G. Gilman (53rd Squadron) (France) (the announcement of award of Meritorious Service Medal in "Gazette" No. 31008, Jan. 1st, is cancelled, this award having been already published in "Gazette" No. 30722, June 3rd, 1918); No. Aus./124 Flt. Clk. J. H. Rogers (Aust. F. Corps) awarded the Meritorious Service Medal in "Gazette" No. 30624, April 11th, 1918, for services in connection with the capture of Jerusalem; the second announcement of this reward, which appeared in "Gazette" No. 31378, June 3rd, is accordingly cancelled; Maj. H. G. Atkinson, O.B.E., R.A.F., awarded the O.B.E., in "Gazette" No. 31000, Jan. 1st; the second announcement in "Gazette" No. 31098 of the same date is accordingly cancelled.

AIR MINISTRY, July 29th

R.A.F.—The following temp. appointments are made at the Air Ministry:—Staff Officers, 3rd Class.—(Air.)—Capt. V. A. Watson, A.M., July 1st. (Q.).—Sec. Lt. F. A. Holmes, July 21st, from (S.O.2).

The following temp. appointments are made:—Staff Officer, 1st Class.—(Air.)—Lt.-Col. R. P. Mills, M.C., July 26th. Staff Officers, 3rd Class.—(P.)—Capt. F. L. J. Shirley, M.C., April 27th; Lt. C. H. Tancred, May 27th, vice Lt. J. C. Watson.

FLYING BRANCH.—Maj. R. J. Bone, D.S.O., to be actg. Lt.-Col. while empld. as Lt.-Col. (A. and S.), July 11th

Maj. (actg. Lt.-Col.) E. R. C. Nanson, D.S.C., A.F.C., to be Maj. (S.), from Group Comdr., and to relinquish actg. rank of Lt.-Col., July 16th.

Capt. K. Collishaw, D.S.O., D.S.C., D.F.C., to be actg. Maj. while empld. as Maj. (A.), June 13th.

Lt. W. Dancy to be graded for purposes of pay and allowances as Capt. while empld. as Capt. (A.), May 1st.

Sec. Lts. to be Lts.:—E. K. W. Denton, P. J. Dowell, April 2nd, 1918; J. P. Jones, April 5th, 1918; A. M. Diamant, May 13th, 1918; E. M. Bates, May 17th, 1918, (Hon. Capt.) H. J. Bullock, May 25th, 1918; (Hon. Capt.) J. L. Wilmot, May 26th, 1918; G. Robinson, May 27th, 1918; H. J. Clark, May 31st, 1918; G. M. Ashmore, June 8th, 1918; J. B. Edwards, July 5th, 1918; T. L. Lovell, July 16th, 1918; B. P. Springett, July 17th, 1918; J. Montgomery, August 9th, 1918; H. R. Gunner, Aug. 16th, 1918; V. C. Hemsley, V. R. W. Owens, Sept. 1st, 1918; H. J. Russell, Sept. 13th, 1918; (Hon. Capt.) J. L. McLennan, M.C., T. Large, Sept. 23rd, 1918; E. O. Rutherford, Oct. 3rd, 1918; T. I. Phillips, Oct. 14th, 1918; S. Tweedie, Oct. 16th, 1918; W. F. Robertson, Oct. 20th, 1918; J. R. Bartlett, M.C., Oct. 23rd, 1918; F. E. L. Elliot, C. H. Harwood, G. S. Scott, J. Cafferkey, Oct. 26th, 1918; R. J. Read, A. G. L. Sidwell, Nov. 1st, 1918; (Hon. Capt.) A. W. Bloy, Nov. 7th, 1918; G. R. Bradley, Nov. 10th, 1918; F. L. Wheeldon, D.S.O., Nov. 15th, 1918; R. Boyle, Nov. 26th, 1918; A. Hill, R. O. Goddard, Nov. 30th, 1918; E. Bower, P. G. Clarabut, D. A. Hughes, J. H. Weatherill, Dec. 27th, 1918; C. P. King, Jan. 16th; D. C. Anderson, H. E. Ford, Jan. 19th; L. G. Cunningham, Jan. 23rd; W. J. Goddard, W. J. Porter, D. Young, Feb. 1st; S. Jones, C. S. P. Wallace, Feb. 16th; E. Littlejohn, Feb. 22nd; H. R. Wright, Feb. 26th; J. M. Barlow, J. D. Ford, A. F. Harris, L. F. Hodges, S. H. Spencer, March 1st; C. V. A. Bucknall, March 12th; N. T. North, March 13th; S. A. Dismore, March 23rd; G. A. W. Garland, March 24th; T. R. Adair, J. Atkinson, J. H. Mainwaring, C. Morries, G. H. Simister, F. J. Tilley, C. B. Wilson, March 26th; V. G. Hinds, H. G. Jackson, March 27th; J. Stewart, April 1st; G. D. Wigley, April 7th; P. Bushell, H. Goodwin, B. Reunert, April 11th; W. Rowley-Redwood, April 12th; S. Braby, F. J. Hunt, R. Pyne, April 25th; G. D. Green, April 29th; H. V. Alder, J. F. Blick, C. H. Brazier, V. Harmer, H. Hutchinson, J. W. Kembery, R. F. Saunders, R. W. Silk,, W. Tinsley, May 1st; H. B. Harmsworth, L. Lovatt, A. Shepherd, May 4th; B. H. Matthews, May 7th; A. Beedie, E. A. C. Britton, W. B. Crouch, R. Henderson, C. N. James, W. S. Jenkins, D.F.C., W. H. Jordan, A. D. Kiernander, H. W. Matthews, T. H. Mercer, F. R. Oddy, T. G. Reed, J. W. Sole, A. G. B. Whittaker, L. A. Williamson, May 8th; E. Grayson, May 13th; R. C. Creamer, E. S. Farrand, J. F. Higgins, F. J. Letzer, O. H. P. Lloyd, W. Marsden, G. F. Shreve, J. M. Walker, F. L. Wraight, A. Wroot, May 17th; H. E. B. Holden, May 22nd; W. R. Christian, F. W. Osman, W. Thornton, May 23rd; W. V. Pegden, May 24th; W. Campbell, May 27th; G. W. Armstrong, L. B. Duggan, J. C. Fitzmaurice, J. Glover, C. A. Morris, H. L. Page, J. B. Sanders, S. P. Scott, May 28th; W. J. Cairns, C. C. A. Lepan, H. L. Lomberg, G. L. Nicholson, H. S. Sandford, May 30th; J. Marsden, June 2nd; F. Davison, T. C. Owen, G. Pattinson, R. A. Pearce, D. L. Walker, June 6th; A. Grimshaw, June 8th; J. F. McNamara, E. T. Treglown, June 13th; L. A. S. Harris, T. M. Robertson, R. Walker, June 18th; M. B. Lewis, June 19th; H. P. Crabb, W. Kinghorn, H. Woodcock, June 20th; R. V. Curtis, June 22nd; A. V. Street, June 30th.

Sec. Lt. (Hon. Lt.) E. H. Colman to be Sec. Lt. (Hon. Lt.) (A.), from (T.), Jan. 2nd.

S. L. Cannon (Sec. Lt., Bedford R.) is granted a temp. commn. as Sec. Lt. (A. and S.), May 16th, 1918 (substituted for notification in "Gazette," June 21st, 1918).

C. H. Brown (Lt., King's L'pool R.) is granted a temp. commn. as Sec. Lt. (O.), Oct. 16th, 1918, and to be Hon. Lt.

The following relinquish their commns. on ceasing to be empld.:—Lt. S. J. Lee (Lt., Sask. R.), May 19th; Lt. H. A. D. Mackay (Lt., Hants. R.), May 30th; Sec. Lt. (Hon. Lt.) L. R. McKenna (Lt., E. Ont. R.), July 3rd (substituted for notification in "Gazette," May 13th); Capt. R. Hilton, M.C., D.F.C. (Capt., R.G.A.), July 7th; Sec. Lt. (Hon. Capt.) O. Greening (Capt., Can. Engineers), Lt. W. Henderson (Lt., Gordon Highrs.), July 8th; Lt. D. J. G. Webb (Lt., D.C.L.I.), July 10th; Sec. Lt. (Hon. Lt.) A. C. Pollard, M.C. (Lt., Brit. Columbia R.), July 15th; Lt. J. H. Wensley (Lt., Sask. R.), July 20th.

Lt. (actg. Capt.) D. H. D. Bickers is temp. transferred to unempld. list, Jan. 20th.

Transferred to unempld. list:—Sec. Lt. A. Ussher, Jan. 20th; Lt. J. W. Trusler, Lt. (actg. Capt.) J. V. Turner, Feb. 27th; Lt. J. E. Tanner, Feb. 28th; Lt. N. E. Williams, D.F.C., March 1st; Lt. H. Vick, March 12th; Lt. R. C. E. Vernede, March 31st; Capt. N. D. Hall, Lt. W. A. Hunter, Lt. C. L. Hurst, Lt. W. D. Matheson, M.C., Lt. S. W. Taylor, M.C., A.F.C., Sec. Lt. C. W. Treleaven, April 1st; Sec. Lt. R. Hughes, April 2nd; Sec. Lt. P. Hughes, Sec. Lt. H. C. Steele, April 8th; Sec. Lt. W. H. E. Labatt, April 9th; Sec. Lt. G. W. Wills, April 10th; Lt. S. Humphries, Sec. Lt. (Hon. Lt.) A. B. Seale (Ches. R.), April 11th; Sec. Lt. G. A. Hunter, April 12th; Sec. Lt. L. S. Campbell, Sec. Lt. P. L. Teasdale, Sec. Lt. W. B. Thomson, April 13th; Lt. S. K. F. P. Humphrey, Lt. W. J. Hutchinson, Lt. H. A. Parry, April 14th; Sec. Lt. C. L. Hudson, Sec. Lt. L. L. Stanton, Sec. Lt. J. Vokey, Sec. Lt. H. Williams, April 15th; Sec. Lt. (Hon. Lt.) A. L. Wimhurst, April 16th; Lt. C. B. Henderson, Sec. Lt. A. W. Hughes, April 17th; Sec. Lt. B. Hutchinson, April 18th; Lt. F. M. Bradfield, Lt. R. H. Roantree, Sec. Lt. H. O. Wilshire, April 19th; Lt. V. U. Downard, Lt. A. V. Speight (substituted for notification in "Gazette," July 18th); Sec. Lt. M. Van Coller, April 20th; Sec. Lt. A. Waller, April 23rd; Sec. Lt. (Hon. Lt.) P. G. Hutson, Capt. G. A. Thompson, Sec. Lt. J. D. Thomson, April 24th; Lt. K. F. Hunt, April 25th; Lt. A. R. Hudson, Sec. Lt. E. A. Marchant, April 26th; Sec. Lt. G. T. Williams, April 29th; Sec. Lt. T. N. Enright, Sec. Lt. T. E. Williams, April 30th; Capt. G. F. Hughes, Lt. W. C. Sidaway, May 1st; Capt. R. M. Hughes, Sec. Lt. F. Stanley, Lt. C. F. Uwins, May 2nd; Sec. Lt. J. C. Humphreys, May 5th; Sec. Lt. W. Marsden, Sec. Lt. H. A. Thompson, Sec. Lt. A. J. Snetsinger, May 6th; Sec. Lt. C. B. Windsor, May 8th; Sec. Lt. A. E. H. Sinclair, Sec. Lt. W. R. Thomson, Sec. Lt. H. R. Young, May 9th; Lt. A. J. Stopford, Sec. Lt. G. H. Wilson, May 13th; Sec. Lt. W. L. Williams, May 14th; Sec. Lt. W. H. Williams, Sec. Lt. W. F. Wilson, May 15th; Lt. W. E. Hicks-Ussher, Sec. Lt. J. B. Weir, Sec. Lt. J. S. Wilson, May 18th; Sec. Lt. R. W. Symmons, Sec. Lt. C. H. Wood, May 19th; Lt. H. E. Freeman-Smith, Capt. R. T. C. Hoidge, Sec. Lt. L. J. Hunter, Lt. C. L. Huskins, Lt. E. I. Salter, Sec. Lt. A. A. Schulman, Lt. A. T. Simons, Sec. Lt. C. M. W. Smallbone, Sec. Lt. H. W. Smith, Lt. R. R. Spafford, Sec. Lt. G. W. Stubbs, Lt. J. E. Sydie, Second Lieutenant A. Talbot, Second Lieutenant A. H. Thompson, Lieutenant J. C. Uhlman, Second Lieutenant T. D. Vezina, Second Lt. J. R. Wilkinson, Sec. Lt. J. C. Williams, Lt. F. L. Yeomans, May 20th; Lt. R. W. Young, May 21st; Sec. Lt. G. V. McNaughton, May 22nd; Sec. Lt. P. R. Hurley, Sec. Lt. W. R. Sisson, Lt. J. D. Smith, Lt. J. A. Stewart, D.F.C., Lt. A. C. Thornton, Lt. E. G. A. Wilton, Lt. V. M. Yeates, May 23rd; Sec. Lt. R. S. Simpson, Sec. Lt. (Hon. Lt.) H. B. K. Trollope, May 24th; Maj. T. Maxwell-Scott, M.C., Sec. Lt. D. G. B. Theunissen, May 25th; Sec. Lt. P. J. Theron,, Sec. Lt. C. W. Travers, Capt. J. H. Vickers, May 26th; Lt. F. L. Collison (substituted for notification in "Gazette," July 1st); Lt. G. T. Verrall, Sec. Lt. L. P. Vigurs, May 28th; Sec. Lt. D. V. Tandy, Sec. Lt. H. L. Williams, Lt. E. H. Wingfield, May 29th; Sec. Lt. W. J. Chenery, Lt. J. F. C. De Vomecourt,

Lt. W. C. Venmore, May 30th; Lt. A. S Turner, June 1st; Lt. H. E. Goody, Lt. (Hon. Capt.) A. B. Wright, June 2nd; Lt. J. Hutcheson, Lt. C. J. McGrane, Sec. Lt. C. Wilson, Sec. Lt. N. B. D W. Wood, June 3rd, Sec. Lt. F. J. Wilcock, Lt. E. G. Wilkinson, Lt. K. G. Withers, June 4th; Lt. M. A. S. Vaile, June 5th; Lt. W. H. Martin, Lt. E. T. Smith, Maj. R. M. S. Veal, June 6th; Lt. L. S. Worthing, Lt. G. Wrapson, June 7th; Lt. W. F. Woods (London R., T.F.), June 9th (substituted for notification in "Gazette," July 18th); Lt. D. K. Winton, Sec. Lt. W. R. Wright, June 10th; Lt. G. G. Wilby, Lt. J. R. S. Young, D.F.C., June 12th; Sec. Lt. F. J. Taylor, Lt. H. G Tinney, Lt. R Viall, Lt. V. Voss, Lt. J. S. Wood, Sec. Lt. J. L. H. Wright, June 13th; Lt. F. A. Hunter, Sec. Lt. W. Hutchings, Sec. Lt. G. F. Sheard, Sec. Lt. A. T. Sleed, Lt. C E. Thompson, Lt. C. W. Tolson, Sec. Lt. L F. Toucher, Sec. Lt. F. C. Wilton, D.F.C., Sec. Lt. T. G. Woodley, June 14th; Sec. Lt. E. E. Whitelock, June 15th (substituted for notification in "Gazette," July 18th); Sec. Lt. C. P. Smith, Sec. Lt. H. D. Travers, Sec. Lt. G. W. Wollaston, June 16th; Sec. Lt. G. A. Willcox, June 17th; Capt. S. King-Smith, June 18th; Capt. L. F. Hursthouse, Sec. Lt. C. J. S. Tainton, June 19th; Sec. Lt. T. F. Sanderson, June 20th; Lt A. L. Russell Lt. D. C. S. Williams, June 21st; Capt. H. G. Salmond, Lt. J. Seabrook, A.F.C., June 22nd, Sec. Lt. G. V. Straker, Sec. Lt. L. M. Williams, June 23rd; Sec. Lt. T. V. Towns, Sec. Lt. S. Tweedie, Sec. Lt. K. L. Vernon, June 24th; Sec. Lt. H. P. Woodman, Sec. Lt. A. H. Wooster, June 25th; Lt. C. G. Kich, Lt. R. N. Smith, June 26th; Lt. E. P. M Shaw, June 28th; Lt. J. Sangster, Lt. D. W. Saunders, Sec. Lt. R. L. Scharff, Lt. G. T. Scott, Sec. Lt. J. Sproston, Sec. Lt. W. N. Stanley, Sec. Lt. A. E. Stephenson, Lt. R. E. Taylor, Sec. Lt. L. Thompson, Capt. A. M. Tidey, Sec. Lt. J. B. Tiffin, Sec. Lt. R. O. Trentowsky, Sec. Lt. J. L. Trotman, Sec. Lt. E. A. Turner, Lt. E B. Young, June 29th; Sec. Lt. E. F. V. Chard, Lt. E. A. Simson, A.F.C. (R.F.A.), Sec. Lt. J. H. Wharmby, July 1st; Capt. J. E. L. Hunter. D.S.C., D.F.C., Capt. R. N. Montagu-Stuart-Wortley, Lt. G. S. Swain, July 2nd; Sec. Lt. J. C. Gleave, Capt. A. Lang, Sec Lt. W. McCullagh, Lt. (Hon. Capt.) D. M. Stewart (R. Scots. R., T.F.), Lt. R. J. Thompson, Lt. V. Wigg, Lt. (Hon. Capt.) J. L. Williamson, Lt. J. P. Wilson, July 3rd; Lt. K. H. Smith, Lt. E. J. Stephens, July 4th; Lt. J. Coates, July 5th; Capt. C. F. Latimer, Sec. Lt. A. D. Page, Lt. J. W. A. Woodey, July 6th; Lt. W. Aitcheson, Lt. D. Shanks, Sec. Lt. A. E Tomkins, Sec. Lt. (Hon. Lt.) H. C. H. Townend, Lt. A. G. Walwyn, July 7th; Lt. C. D. Farquharson, Lt. M. C. Hayter, Lt.-Col. F. C. Shelmerdine, Lt. E. T. Simpson, July 8th; Capt. E. R. Barker, D.S.C., Sec. Lt J. Harston, Sec. Lt. G. Norrish, Sec. Lt. J. S. Smith, July 9th; Lt. A. M. Backstrom. Sec. Lt. S. Campan, Sec. Lt. R. S. Donkin, Lt. H. J. Duncan, M.C , Lt. P. F. O. Frith, Lt. H. C. Hunter, Sec. Lt. G. R. Porteous, Sec. Lt. H. G. Schoppe, Sec. Lt. R. W. Simpson, Sec. Lt. A. Smedley, Sec. Lt. C. S Van-Der-Poel, Lt. F. S. S. Wates, Sec. Lt. A. H. R. Youngleson, July 10th; Lt. W. Adamson, Maj. H. A. Buss, O.B.E., D.S.C., Sec. Lt. T. Herdman, Sec. Lt. C. J. G. Hunter, Sec. Lt. A. R. McFarlan, Lt. W. E. Wood, July 11th; Sec. Lt K. W. Akers, Sec. Lt. P. E. Appleby, Sec. Lt. H. J. Armstrong, Sec. Lt. R. H. Balfour, Sec. Lt. J. B. Ballantyne, Sec. Lt. C. W. C. Barber, Lt. C. J. Bayly, Sec. Lt. R. C. Blanchard, Sec. Lt. H. E. Bourke, Sec. Lt. R. P. Bourne, Sec Lt N. C. Boyles, Sec. Lt. S. MacG. Brown, Sec. Lt. J B. Browning, Sec. Lt. H. P. Brummell, Sec. Lt. G. T. Burton, Lt. C. R. Campbell, Lt. C. G. Catto, Sec. Lt. S. Chandler, Lt. L. R. Charron, Sec. Lt. H. L. Christie, Sec. Lt A. H. Coles, Sec. Lt. G. T. Collinson, Sec. Lt. H. E. Cooper, Sec. Lt. (Hon Capt.) A. W. Craig, Sec. Lt. W. B. Crealock, Sec. Lt. J. T. K. Crossfield, Sec. Lt. I. L. Cullen, Sec. Lt. J. V. Dallin, Lt. R. T. Eyre, Sec. Lt. H. Floyd, Lt. H. C. Foley, Sec. Lt. P. A. Freeman, Sec. Lt. G. W. French, Sec. Lt. H. H. Gilbert, Sec. Lt. H. B. Gilmour, Sec. Lt. S. J. Goodfellow, Lt J. D. Guild, D.F.C., Sec. Lt. J. R. Guthridge, Lt. C. J. Hall, Sec. Lt. E. St. C. Hammett, Sec. Lt. W. S. Hammond, Sec. Lt L. P. Harlow, Sec Lt. L. F. Hawley, Lt. M. R. Helliwell, Sec. Lt. J. P. Henderson, Sec. Lt. W. R. Henderson, Sec. Lt J. J. Heney, Sec. Lt R. T. Henley, Lt A. L. Huber, Sec. Lt. C. B. Humphrey, Sec. Lt. E. L. Humphreys, Sec Lt E. S. Hunt, Sec. Lt. N. E. Lashbrook, Sec. Lt. W. M. Laughton, Sec. Lt. A. D. MacPherson, Lt. J. J. Magill, Lt E F. Marchand, Sec. Lt. R G. Mathieson, Lt. F. R. Ross, Lt. L. A Rees, Lt. R. R Richardson, A.F.C., Lt. J. Robertson, Sec. Lt. E. K. Sargent, Lt. G. M. Saunders, Lt. G. W. Schermerhorn, Sec. Lt. S. R. Seaman, Sec. Lt. A. W. Shaw, Sec. Lt. H. F Skelton, Sec. Lt. H. R. Skilling, Sec. Lt. C. O. Smith, Sec. Lt. E. G. Smith, Lt. J. H. Smith, Lt. W. T. Smith, Sec. Lt. E. A. Spence, Sec. Lt. F. G. Stafford, Lt. R. E. Stewart, Sec. Lt. L. H. Stiles, Lt. R. J. Stone, Lt. W. H. Taylor, Capt. G. A. Thompson, Sec. Lt G. O Thompson, Lt. J. Tompkins, Sec. Lt. C. H. Tripp, Sec. Lt. T. A. Valles, Lt. A. W. Vanderburg, Sec. Lt. H. Vigne, Capt. F. P. L. Washington, Lt. G. A. Wightman (substituted for notification in "Gazette," July 18th), Sec. Lt. J. F. Wilcox, Sec. Lt. K. B. Wilkinson, Sec. Lt. E. W. Williams, Sec. Lt. H. H. Williamson, Sec. Lt. N. C. Wiseman, Lt. J. S. Wood, Lt. A. Woods. Sec. Lt. C. J. Wright, Sec. Lt. H. G. Yerg, July 12th; Sec Lt G. T. Burrill, Sec. Lt. W. M. Brewer, Sec. Lt. W. R. S. Henderson, Sec Lt. C. J. Johnson, Lt. C. Mackenzie, Lt. (Hon. Capt.) H. P Valintine, Lt. G. J. Windsor, July 13th; Sec. Lt. A. A. Moir, Lt F. St. J. North, Sec. Lt. W. F. Stevens, July 14th; Capt. J. S. Barnes, Maj. R. W. Heath, Lt.-Col. A. T. Watson, Lt. W. Whittaker, July 16th; Sec. Lt. M. McDonough, Lt. M. C. Mcgregor, D.F.C., Sec. Lt. V. Sveinson, July 17th; Capt. K. G. Boyd, A.F.C., Capt. H. B. Brenton, Sec. Lt. C. R. B. Clarke, Sec. Lt. H. B. Scott. Lt. D. K. Sworder, July 18th: Maj. K. R. Binning, M.C., Capt. R. Souray, July 19th; Sec. Lt. J. F. Wood, July 21st; Sec. Lt. E. E. A. Mills. Sec. Lt. H. L. White, July 22nd; Sec. Lt. B. F. Bunker, Lt. R. O. Schallaire, Capt. F. H. Wallers, July 23rd; Sec. Lt. H. J. Muir, July 24th; Sec. Lt. S. H. Cooper, Sec. Lt. C. B. Creasey, Lt. W K. McClashan, July 25th; Lt. G. W. Morey, July 28th; Lt. G. K. Chatham, Lt. G. T May, July 29th.

The following Lts. relinquish their commns on account of ill-health and are permitted to retain their rank :—W. F. Hiam (contracted on active service), April 7th (substituted for notification in "Gazette," Jan. 10th); G. M. Duncan (contracted on active service), June 12th; K. B. Preston (caused by wounds), July 16th; G. H Nicholson (contracted on active service), July 18th.

The following Lts. resign their commns. and are permitted to retain their rank :—H. R. S. Birkin (Lt., R. W. R.), C. W. M. Whitlock (Lt., Wilts. R.), July 30th.

The following Sec. Lts. relinquish their commns. on account of ill-health and are permitted to retain their rank :—S J. Bolitho, June 15th (substituted for notification in "Gazette," July 1st); W. L. Vennell, July 12th (substituted for notification in "Gazette," April 11th); F. E. King (contracted on active service), T. V. J. Nicholas, July 18th.

The rank of Lt. W. G. Millar is as now described, and not "Sec. Lt.," as stated in "Gazette," May 30th.

The name of Lt. C. W E. Browse is as now described, and not "C. W. Browne," as stated in "Gazette," July 1st.

The notification in "Gazette," Feb. 28th, concerning Lt. J. E. G. Mosby, D.S.O., is cancelled.

The notification in "Gazette," April 1st, concerning Sec. Lt. J. MacD. Mackinnon, is cancelled.

The notification in "Gazette," April 4th, concerning Sec. Lt. A. R. A. Millar, is cancelled.

The notification in "Gazette," April 4th, concerning Sec. Lt. L. F. Rowsell, is cancelled.

The notification in "Gazette," April 8th, concerning Sec. Lt. R. R. Parker, is cancelled.

The notification in "Gazette," April 11th, concerning Sec. Lt. R. S. Payne, is cancelled.

The notification in "Gazette," April 29th, concerning Sec. Lt. D. Morford, is cancelled.

The notification in "Gazette," June 6th, concerning Sec. Lt. A. A. Moir, is cancelled.

The notification in "Gazette," June 24th, concerning Maj. F. E. Sandford, A.F.C., is cancelled.

The notification in "Gazette," July 8th, concerning Lt. H. R. Owen, is cancelled

ADMINISTRATIVE BRANCH.—Maj. R. B. B. Colmore, O.B.E., to be Maj. from (S.O.), May 12th.

Capt. J. A. M. Lang, O.B.E., to be Capt., from (S.O.), May 15th.

Lt. S. J. Stocks to be Lt., from (S.O.), May 18th.

Sec. Lt. (Hon. Capt.) R. Alston to be Sec. Lt. (Hon. Capt.), from (T.), and to be graded for purpose of pay and allowances as Capt. whilst empld. as P.T.O., May 1st.

Sec. Lts. to be Lts. :—A. G. Buxton, F. W. Day (Hon. Capt.) W. C. Green, M.C., J. W. Harling, G. H. Heys, S. W. Lewis, April 2nd; S. F. R. Hulbert, April 17th, 1918; G. E. Blake, June 15th, 1918; J. B. Martin, Sept. 17th, 1918; H. T. Evans, Oct. 10th, 1918; T. Whitaker, Oct. 13th, 1918; T. Gill, Oct. 15th, 1918; W. Lee, Nov. 9th, 1918; A. E. Holton, Nov. 30th, 1918; G. Olivei, Jan. 31st; G. Waugh, Feb. 2nd; S. R. Payne, Feb. 28th; S. Sprenger, March 1st; J. Peil, March 2nd; H. T. H. Copeland, March 4th; R. R. Trout, March 7th; H. G. Hooker, A. H. Redfern, March 26th; J. A. Elliott, April 11th; H. J. Payne, April 18th; E. N. Allott, April 25th; G. Dolley, May 8th; K. Drago, May 11th; R. J. Bright, E. A. Burridge, May 16th; (Hon. Capt.) D. R. Thomas, H. West, May 17th; H. Cooper, M.C., G. H. Blake, D.C.M., May 21st; A. J. Somers, June 3rd; G. R. La Cecilia, June 5th.

Sec. Lt. W. J. Collins to be graded for purposes of pay and allowances as Lt. whilst empld. as Lt., May 1st.

Sec. Lt. L. E. Pocock to be Sec. Lt., from (A.), April 17th.

The following Sec. Lts. (late Gen. List, R.F.C., on prob.) are confirmed in rank as Sec. Lts. :—W. Lee, Nov. 8th, 1918; Sec. Lt. P. A. Stallard, March 4th (substituted for notification in "Gazette," June 17th); R. W Hyde, June 11th.

Sec. Lt. H. T. Robinson is confirmed in his rank as Sec. Lt., Feb. 20th.

The following relinquish their commns. on ceasing to be empld. :—Lt. H. Hemingway (Lt., Midd'x R.), Feb. 17th; Sec. Lt. L. J. Scott (R.A.O.C.), May 6th; Lt. R. H. S. Waley (Lt., R.F.A.), May 24th; Lt. R. C. Joynson-Hicks (Lt., R.W. Surr. R.), May 30th; Lt. J. P. Sheridan (Lt., L.N. Lancs. R.), July 2nd; Maj. R. M. R. Lamb, D.S.O. (Maj., North'd Fus.), July 4th; Lt. T. G. Beale (Lt., Dn. Gds.); Lt. R. T. Robbins (Lt., Linc. R.), July 9th.

Transferred to unempld. list :—Sec Lt. J. MacD Mackinnon, Sec. Lt. R. R. Parker, Feb. 27th; Sec. Lt. G. Williams, March 12th; Sec. Lt. A. R. A. Millar, Sec Lt L. F. Rowsell, March 21st; Sec. Lt. R. E. York, April 1st; Lt. (Hon. Capt.) F. E. Wilshere, April 5th; Lt. T. R. Price, April 7th; Sec. Lt. H. A. Hughes, April 13th; Lt. N. M. Hoskins, April 15th; Sec. Lt. B. Hurdus, April 17th; Lt. (actg. Capt.) F. J. Wood, April 18th; Sec. Lt. Le R. H. Holmes April 19th, Sec. Lt. V. A. Frankish, April 20th; Sec. Lt. S. S. McLeod, Lt. I. Vane-Hunt, Sec Lt. S. Urwin, April 24th; Sec. Lt. R. J. Hunt, April 26th. Lt. V. Mercer-Smith, May 3rd; Lt. J. E Pike, Lt. C. R. Young, May 6th; Sec. Lt. C. G. Furniss-Williams, May 9th; Sec. Lt. H. G. C. Verge, May 29th; Sec. Lt. J. Sidebotham, May 29th; Lt. N. Smith (K.O.Y.L.I.), May 30th; Lt. F. C. Wild, June 1st; Sec. Lt. H. F. Workman, June 6th: Sec. Lt. J. C. L. Vigne, Sec. Lt. C. S. Wingate, June 13th; Capt. J. R. M. Tweddell, June 14th; Lt E. F. Wright, June 16th; Sec Lt. H. R. Owen, June 26th; Lt. R. C. Vaughan, June 28th; Sec. Lt. E. W. Thomson, June 29th; Lt. A. S. Clarke, Maj H. A. Moore, C.B.E., M.C., July 1st; Sec. Lt. F. R. Beaudry, Sec. Lt. J. Robinson, July 10th; Lt. A. H. Clegg, July 11th; Sec. Lt. A. Challins, Lt L. K. Devitt, Sec. Lt. W. W. Edward, Capt. E. P. Leigh-Bennett, Sec. Lt. O. Voelker, July 12th; Lt. A. Reardon, July 14th; Capt. J. L. Parsons, July 15th; Maj. W. S. Whitelaw, July 16th; Sec. Lt. C. Thompson, July 23rd.

The following Lts. relinquish their commns. on account of ill-health and are permitted to retain their rank :—J. R. Maloney (caused by wounds), Jan. 11th (substituted for notification in "Gazette," Jan. 10th); C. G. Merryweather, June 12th; J. T. Andrew, July 14th.

Sec Lt W. H. Dibben relinquishes his commn. on account of ill-health and is permitted to retain his rank, July 16th

Sec. Lt. B. J. Crewe (Oxf. and Bucks. L.I.) relinquishes his commn. on account of ill-health contracted on active service, July 23rd

Sec. Lt. N. F. Hoxie is dismissed the Service for absence without leave, Jan. 26th.

The initials of Sec. Lt. T. L. Price are as now described, and not "T. R," as stated in "Gazette," May 13th.

The notification in "Gazette," April 29th, concerning Capt. (Hon Maj.) (actg. Lt.-Col.) H. B. Nutting, is cancelled.

The notification in "Gazette," May 2nd, concerning Sec Lt. (Hon. Lt.), P. R Cook, is cancelled.

The notification in "Gazette," May 30th, concerning Lt. A. R. Porter, is cancelled.

The notification in "Gazette," July 11th, concerning Lt. D. Miller is cancelled.

TECHNICAL BRANCH.—Lt. C. E. A. Moore to be actg. Capt while empld as Capt., Grade (A.), from Aug. 27th, 1918, to April 30th (substituted for notification in "Gazette," Oct. 11th, 1918).

Lt. H. Cooke-Smith to be graded for purposes of pay and allowances as Capt. whilst empld. as Capt., Grade (A.), May 1st.

Lt. F. J. Cooke to be graded for purposes of pay and allowances as Capt. while empld. as Capt., Grade (B), from May 1st to June 20th.

Lt. G. W. M. Whitton relinquishes the grading for purposes of pay and allowances of Capt., July 18th

Sec. Lt. B. Cheeseman to be graded for pay and allowances as Lt. while empld. as Lt., Grade (A), May 1st.

Sec. Lts. to be Lts. :—H. St. C. Roy, M.C., April 2nd, 1918; D. Barron, June 12th, 1918; P. H. Morrish, Nov 9th, 1918; E. S. Baker, Jan. 27th; A. G. Ridgon, Feb. 28th; N. B. Hemsley, M.B.E., March 17th; N. F. Burch, April 9th; O. N. H. Watson, A. H. Scaife, April 23rd; W. E. Townsend, April 24th; H. Davis, May 1st; F. C. Lyne, May 3rd; C. G. Whitmore, May 4th; G. H. J. Stein, May 26th; J. G. Peacock, June 6th; R. P. Graham, without pay and allces. prior to July 16th, 1918; L. A. Sturrock, without pay and allces. prior to June 16th, 1918; (Hon. Capt.) C. Shears, without pay and allowances prior to July 1st, 1918; H. H. Williams, without pay and allowances prior to Dec 6th, 1918, April 2nd, 1918; C. B. Dick-Cleland, April 5th, 1918, without pay and allowances prior to Sept. 18th, 1918; G. E. Bower, April 6th, 1918, without pay and allowances prior to June 1st, 1913; E. G. A. Jones, May 26th, 1918, without pay and allowances prior to Aug. 1st, 1918; J. Bullock, June 14th, 1918, without pay and allowances prior to July 1st, 1918.

Sec. Lts. to be Lts. without pay and allowances of that rank :—D. D. Cormack, M.C., W. E. Cowie, E. H. Bramwell, H. V Bevis J. H. Ferguson, M.B.E., F. H. Jefferis, C. L. Labhart, H. D. Patterson. J. J. Page, M. R. Preece H. S. Royffe, E. L. Rhodes (Hon. Maj.) A. H. W. Saunders-Knox-Gore, April 2nd, S. K. D'A. Ferrars, April 5th, 1918; J. O. Cooper, April 12th, 1918; A. H. Varian, June 2nd, 1918; C. B. Hudson, Sept. 10th, 1918; E. C. Ponking, Sept 14th, 1918; W. H. Hoile Jan. 12th;

J. D. Graham, Jan. 16th; J. E. Kingham, Jan. 27th; G. S. Crowther, Feb. 4th; F. W. G. Ticehurst, Feb 12th; W. J Harries, Feb. 24th; H. J. Kibble, Feb. 28th; L. F. W. Stone, March 1st; R. H. Nicol, March 6th; A. Bolton, March 8th; W. J. Cleasby, March 12th; M. J. Curtis, T. H. Maltby, March 21st; W. Massey, March 24th; J McKeown, April 8th; A. R. Conder, C. H. Greenhouse, H. B. Long, G. Spurgin, April 19th; B. Freeman, April 23rd; M L. Lobbin, April 25th; N. D. Bryce, April 30th; G. C. Kemp, May 1st; E A Gater, May 3rd; F. A. Bracher, May 11th; W. A. Mansfield, A E Fallon, May 12th; W. E. Critchley, G. Johnson, J. A. Leonard,, A. Ward, May 13th; H. W. Raylis, C. W. Bertley, H. J. Dann, E. T. W. Nockold, H. G. Smith, B P. K. Walsh, May 16th; A. L. Flaws, E. M. Ling, C. Mansfield, E. V. Soloman, May 26th; F. Simpson, A. C. Tinkler, F. C. Worton, May 28th; A. B. West, A. Wilkins, June 1st; A. V. Baker, H. Berridge, W. F. Chauncey, H S. Given, V. S. Lord, W. R. Tuddenham, L. H. Vernon, June 3rd; H. Barnes-Moss, June 8th; W. R. Day, J. E. C. Hammond, June 10th; E. Whitmore, June 12th; E L. Hocking, June 15th; A. M. R. Nicholson, June 18th; C. Rapley, June 21st, A. H. Knight, June 27th; F. S. Hetherington, F. W. Martyn, June 28th.

Sec. Lt. A. W. Whistlecroft to be Sec. Lt., Grade (A.), from (Ad.), Dec. 1st, 1918 (substituted for notification in "Gazette," Feb. 4th).

Sec. Lt. (Hon. Lt.) F. McGuffie to be Sec. Lt. (Hon. Lt.), from (S.O.), March 5th.

Sec. Lt. (Hon. Capt.) W. C. Green, M.C., to be Sec. Lt. (Hon. Capt.), Grade (B), from (Ad.), July 1st.

Sec. Lt. F. A. Osborn to be Sec. Lt., Grade (B), from (Ad.), June 3rd.

Sec. Lt. S. E. White to be Sec. Lt., from (unempld. list), July 14th, with precedence next below Sec. Lt. J. S. Viner.

Lt.-Col. Lord A. R. Innes-Ker, D.S.O. (Capt., R.H. Gds.), relinquishes his comm. on ceasing to be empld.

Transferred to unempld. list:—Sec. Lt. J. Young, April 8th; Lt. E. C Hucklebridge, April 9th; Sec. Lt. H. N McLeven-Roberts, April 10th; Lt. (Hon. Capt.) C. A. Hudson, Lt G. V. Udale, April 16th; Lt. J. W. Thomson, April 19th; Lt. R. G Hughff, May 1st; Capt. E. C. Hugh, May 9th; Capt. J. Young, May 17th; Lt. D R. Snider, May 20th; Lt.-Col. W. A. Bristow, May 22nd; Capt. C R Fleming-Williams, May 28th; Maj. G. K. Field, May 30th; Lt. D. W. Sedgwick, June 1st; Lt. A. N. Meier, June 7th; Sec. Lt. E. R. Wood, June 16th; Sec. Lt. W. Padoon, June 1st; Capt. L. Y. Stott, June 19th; Sec. Lt. R. Wylie, July 1st; Sec. Lt. W. Vaughan, July 2nd; Lt. A. C. Blackmore, July 3rd, Lt. P. N. Shoue, July 4th; Sec. Lt. K. B. Voss, July 7th; Lt. C. J. Hewens, Lt. J. Witt-Man, July 8th; Lt. T. B. Hardy, July 9th; Lt. C. H. Mendham, July 10th; Sec. Lt. A. W. Hatfield, Lt. E. C. Hubbard, July 11th; Lt. R. J. Anderson, Sec. Lt. G. Clark, Sec. Lt. M. H. B Heigham, Sec. Lt. T. E. Winckworth, Sec. Lt. R. P. Wilmot, July 12th; Lt. F. Cain, July 13th; Sec. Lt. A. Shires, July 16th; Sec. Lt. F. T. Sanford, July 23rd; Sec. Lt. L. E. Currey, Capt. N. F. W. Paul, July 28th.

Lt. (Hon Capt.) C. S Willmott relinquishes his commn on account of ill-health, and is permitted to retain the rank of Capt., June 10th (substituted for notification in "Gazette," June 27th).

Sec. Lt. F. Boult relinquishes his commn. on account of ill-health and is permitted to retain his rank, May 14th.

The notification in "Gazette," July 22nd, concerning Sec. Lt. S. King-Smith, is cancelled.

Medical Branch.—Maj E M. W. Hearn (Lt.-Comdr., R.N.) relinquishes his commn. on ceasing to be empld., May 30th.

Transferred to unempld. list:—Lt. L. C. Broughton-Head, May 14th; Lt. C. H. Vernon, May 29th; Capt. N. R. Williamson, June 10th.

The rank of Lt.-Col. H. Pritchard is as now described, and not Maj. as stated in "Gazette," July 4th.

Dental Branch.—Lt. P. J. Prond is transferred to unempld. list, July 14th.

Memoranda.—Lt. J. W. Harling to be Hon. Capt., Sept. 1st, 1918.

Sec. Lts. to be Lts.—H. K. Fairbrother, Sept. 9th, 1918; A. E. Hale, March 16th; H. F. Webb, March 21st.

The following Cadets are granted hon. commns. as Sec. Lts.:—117198 J. Innes, Dec. 27th, 1918; 160111 R W. R. Cartwright, Dec 30th, 1918; 100452 M. G. Cole-Hamilton, 48308 R. G. Lindsay, 23909 R. G Leyden, 22778 R. W. Rae, 120508 A. Sandilands, Jan. 3rd; 110589 F. Burrell, 128824 G. R. Chappel, 137068 A. S R. Pratt, 137098 H. Rollins, 47978 H. L. Wightman, Jan. 4th; 404903 M. Ratcliffe, Jan. 8th; 23187 E Rice, Jan. 11th; 137065 C. H. Preece, Jan. 13th; 128029 G. S. McDonald, 52676 W. Sugden, Jan. 15th; M/151159 B. B. Clarkson, 137468 H. C. Tapping, Jan. 16th; 49308 W. F. Ward, Jan 17th; 515057 H. William Lloyd, Jan. 20th; 128802 O. Anderson, 14002 T. Johnson, 137024 M. E. Nalty, 30603 G. I. Kanyor, Jan. 21st; 175034 H. Allchin, 355342 C. W. Blogden, 128388 R. S. H. Houseman, 126723 W. H. Leng, Jan. 22nd; 280272 W. Foster, 17636 S. Shepherd, 14403 C T. Sweatland, Jan. 23rd; 110140 S. Hulbert, Jan. 24th; 65435 H. Haigh, Jan. 25th; 22669 W. H. Lomax, 176291 J. T. F. Wyllie, Jan. 28th; 5688 J Carter, Jan. 29th; 137114 M. Shutte, Jan. 30th; 401085 J. M. Deas, 352035 J M Walker, Jan. 31st; 9946 J. Killoran, Feb. 5th; 217469 S. Joseph, Feb 8th; 240278 A. Thompson, Feb. 10th; 128113 S. H. Thomas, Feb. 11th, 176632 D. W. Anderson, 137127 R. C. Bird, 137673 C. F. Brouncker, 134527 T. W. Campbell, 16551 J. Campbell, 180111 T. J. Carpenter, 110159 F E. Carter, 175337 W. L. David, 180025 C. I. Darlington, 40683 C. Fryer, 9752 H. K. Fletcher, 330534 J. M. Fyfe, 117300 T. R. Garden, 767444 B. E. Goodwin, 137406 H. Harvey, 170630 W. Hersee, 180137 G. G. Hall, 1807 E. L. Hobbs, 176338 J. A. Hewitt, 492296 H. W. Knott, 93346 G. S. Linaker, 137012 G. H. Mardon, 29130 L. C. McQuibban, 179451 R H. Massey, 117809 D. McGhee, 128889 J. E. McCann, 117578 E. Mortimer, 176266 J. E. Nicholson, 178902 A. F. Parsons, 179070 C. N. Pugh, 110461 M. Parkins, 219443 F. F. Pembrey, 137501 L. J. Richardson, 176270 L. C Richards, 176126 C. E. Smith, 28123 D. A. Spicer, 178833 S. L. R. Scott, 176139 C. W. L. Trusk, 10498 F. G. V. Vincent, 480257 C. M. Webster, 137513 J. Wilkes, 88658 A. J. M. Williams, 64 A. M. Woodward, 15552 A. B. Wilson, Feb. 13th; 204237 W. P. J. Flannery, 215369 A. M. Locke, Feb. 15th; 175191 S. B Henderson, 233162 A. E. Moffatt, Feb. 17th; 215360 E. V. C. Bolton, 180110 W. E. Cressey, Feb. 18th; 59680 B. E. Baxter, 76680 B. E. Hobbs, Feb 20th; 163803 C. N. Brooker, 92927 F. R. Douglas, 89941 J. C. Robinson, 110012 S. J. Whitfield, 185687 E. Wilson, Feb. 21st; 137123 G. R. Auchterlonie, 137151 J. Brooker, 476279 B. Broadhead, 31341 C. Dowling, 20415 C. G. Furber, 70750 G. E. Gudgin, 464035 J. J. Hickman, 7228 F. H. Hughes, 117535 H. Humphreys, 28019 A. L. Irving, 204187 C. R Lucato, 16568 F. R. Milne, 110386 H. A. McMillan, 117808 J. Moffatt, F1406 W. Naylor, 137033 R. Norris, 203577 R. F. Oakley, 137879 R. Phillips, 133707 E. Preece, 176379 W Semple, 175621 J. A. Saward, 30877 H. R. H. Scallan, 128698 A. Smith, 110756 C. N. Tonley, 238048 D. Wray, Feb. 22nd; 117616 T. M. Brown, Feb. 23rd; 16743 H. Lea, Feb. 25th; 52595 J. M Gerrard, Feb. 27th, 180154 H. S Marriott, Feb. 28th; 110233 W. G. B. Bristow, March 1st; 96510 W. Griffiths, 107602 C. Law, March 3rd; 201951 R. D. Clements, March 4th; 154859 D. McCalder, March 14th; 204581 S. C. Knight, March 15th; 13/58408 W. J. Burgon, 10584 J. G. Gregson, 5302 H. H. W. Pope March 17th; 36760 G. S. U. Alexander, 763610 L. Brown, 5/06510 J. Fairbairn, 204001 W. R. Simpson, March 18th; 23191 C. B. Armit, March 21st; 766203 J. C. Tibbles, March 22nd; 220027 Langman, March 28th; 170565 H. Allen, 96438 J. Graham, 112088 W. Hodgkinson, 180603 H. Longley, 100640 R. C. Plumb, April 11th; 556875 B Lillywhite, May 27th; 18070 F. Hillyard, June 13th; M2/054150 P. C. Lowman, June 14th.

Temp. Hon. Lt. G. A. Hopper relinquishes his commn. on ceasing to be empld., July 16th.

Transferred to unempld. list:—Capt. C W. Wise, M.C., from (S.O.), May 6th; Maj. E. F. Hutchinson, from (S.O.), May 9th; Capt. H. A. Fordham (Lt., Northumberland Fus.) resigns his commn. and is granted the rank of Maj., July 30th.

The notification in "Gazette," July 8th, concerning Maj. H. A. Moore, C.B.E., M.C., is cancelled.

The notification in "Gazette," July 8th, concerning 522564 Cdt. E. B. Saunders, is cancelled.

The notification in "Gazette," July 18th, concerning Lt. J E. Pike, is cancelled.

Air Ministry, August 1st.

R.A.F.—The attention of the officers named in this "Gazette" is directed to the Air Ministry Weekly Order, now in course of issue, relating to the grant of permanent commns. and to the new rates and conditions of pay and other emoluments.

The following are granted permanent commns. in the R.A.F. in the ranks stated, Aug. 1st:—

Major-Generals.

Sir H. M. Trenchard, K.C.B., D.S.O.
Sir G. M. Paine, K.C.B., M.V.O.
Sir J. M. Salmond, K.C.B., C.M.G., C.V.O., D.S.O
J. F. A. Higgins, C.B., D.S.O., A.F.C.
E. L. Ellington, C.B., C.M.G.
Sir W. G. H. Salmond, K.C.M.G., C.B., D.S.O.

Colonels.

A. V. Vyvyan, C.B., D.S.O.; P. W. Game, C.B., D.S.O., O. Swann, C.B., C.B.E.; F. R. Scarlett, C.B., D.S.O.; C. L. Lambe, C.B., C.M.G., D.S.O.; J. M. Steel, C.M.G., C.B.E.; C. A. H. Longcroft, C.M.G., D.S.O., A.F.C.; T. I. Webb-Bowen, C.B., C.M.G.; L. E. O. Charlton, C.B., C.M.G., D.S.O.; D. le G. Pitcher, C.M.G., D.S.O.; R. M. Groves, C.B., D.S.O., A.F.C.; E. A. D. Masterman, C.M.G., C.B.E., A.F.C.; J. H W. Becke, C.M.G., D.S.O.; E. L. Gerrard, C.M.G., D.S.O., H. P. Smyth-Osbourne, C.M.G.; F. C. Halahan, C.M.G., D.S.O., M.V.O.; P. R. C Groves, C.M.G., D.S.O.

Lieutenant-Colonels.

C. R. Samson, C.M.G., D.S.O., A.F.C.; R. H. Clark-Hall, D.S.O.; T. C. R. Higgins, C.M.G.; A. M. Longmore, D.S.O.; R. M. Bonham-Carter, O.B.E.; P. L. W. Herbert, C.M.G.; J. G. Hearson, C.B., D.S.O.; E. R. Ludlow-Hewitt, C.M.G., D.S.O., M.C.; U. J. D. Bourke, C.M.G.; C. L. N. Newall, C.M.G., A.M.; A. E. Borton, C.M.G., D.S.O., A.F.C.; A. Fletcher, C.M.G., C.B.E., M.C.; R. Gordon, C.M.G., D.S.O.; C R. J. Randall, C.B.E.; A. G. Board, C.M.G., D.S.O.; F. V. Holt, C.M.G., D.S.O.; K. G. Brooke, C.M.G.; P. B. Joubert de la Ferté, C.M.G., D.S.O.; W. R. Freeman, D.S.O., M.C.; N. D. K. MacEwen, C.M.G., D.S.O.; P. H. L. Playfair, M.C.; R. P. Mills, M.C.; I. T. Courtney, O.B.E.; G. B. Hynes, D.S.O.; Hon. J D. Boyle, D.S.O.; P. K. Wise, C.M.G., D.S.O.; W. F. MacNee, D.S.O., D.F.C.; A. B. Burdett, D.S.O.; W. G. S. Mitchell, D.S.O., M.C.; H le M. Brock, D.S.O.; G. F. Pretyman, D.S.O., O.B.E. E. F. Briggs, D.S.O., C E. Risk, D.S.O.; C. L. Courtney, C.B.E., D.S.O.; C. E. H. Rathborne, D.S.O.; A. W. Bigsworth, C.M.G., D.S.O.; R. P. Ross, D.S.O.; S. A. Hebden, G. I. Carmichael, D.S.O.; J. A. Chamier, C.M.G., D.S.O., O.B.E.; L. W. B. Rees, V.C., M.C., A.F.C.; C. R. S. Bradley, O.B.E.; N. J. Gill, C.B.E., M.C.; H. A. Williamson, C.M.G.; D. A. Oliver, D.S.O.; F. W. Bowhill, D.S.O.; E. D. M. Robertson, D.F.C.; J. T. Cull, D.S.O.; H. M. Cave-Browne-Cave, D.S.O., D.F.C.; A. L. Godman, C.M.G., D.S.O.; A. J. L. Scott, M.C., A.F.C.; A. V. Bettington, C.M.G.; J. H. A. Landon, D.S.O.; R. A. Cooper, D.S.O.; R. G. Cherry, M.C.; J. C. Halahan, C.B.E.; A E Cairnes, D.S.O.; C. D. Breese, A.F.C.; R. G. D. Small, C S. Burnett, D.S.O.; N. Goldsmith J. B. Bowen, O.B.E.; W. H. C. Mansfield, D.S.O.; A. H. Measures, O.B.E.; M. Spicer, R. G. Blomfield, D.S.O.; S. Grant-Dalton, D.S.O.; C G. S. Gould; P. F. M. Fellowes, D.S.O.; W. H. Primrose, D.F.C.; C F. Kilner, D.S.O.; H. R. Busteed, O.B.E., A.F.C.; I. G. V. Fowler, A.F.C.; M. G. Christie, C.M.G., D.S.O., M.C.; H. Blackburn, J. Mead, M.C.; R. C. M. Pink, G. C. St. P. de Dombasle, O.B.E.; R. A. Bradley, C.M.G.

Majors.

L. A. Strange, D.S.O., M.C., D.F.C. (A.); A S. Barratt, C.M.G., M.C. (A.); J. R. Smyth-Pigott, D.S.O. (A.); D. L. Allen (S.O.); J W. Cruikshank, O.B.E. (T.); H. A. Van Ryneveld, D.S.O., M.C. (A.); A. Shekleton, D.S.O. (A.); E. L. Gossage, D.S.O., M.C. (S.O.); J. E. A. Baldwin, D.S.O. (A.); C. H. K. Edmonds, D.S.O., O.B.E. (A.); G. R. Bromet, D.S.O., O.B.E. (S.O.); F. E. T. Hewlett, D.S.O., O.B.E. (A. and S.); R. E. C. Peirse, D.S.O., A.F.C. (A. and S.); A. C. Winter, O.B.E. (S.O.); J. T. Babington, D.S.O. (A. and S.); E. Osmond, C.B.E. (A. and S.); W. D. S. Sanday, D.S.O., M.C. (A.); R. B. Ward (A. and S.); R. F. W. Stapleton Cotton (T.); E. L. Conran, M.C. (A.); G. Blatherwick (Ad.); L. L. Greig, M.V.O. (Ad.); A. H. S. Steele-Perkins, O.B.E. (S.O.); T. G. Hetherington, C.B.E. (S.O.); R. H. Howell (S.O.); A. B. Gaskell, D.S.C. (S.); R. L. G. Marix, D.S.O. (S.); T. O'B. Hubbard, M.C., A.F.C. (A.); E. R. C. Nanson, D.S.C., A.F.C. (S.); F. K. Haskins, D.S.C (A.); A. ap. Ellis (S.O.).

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(To be continued.)

PAY IN THE ROYAL AIR FORCE FOR WARRANT OFFICERS, NON-COMMISSIONED OFFICERS AND AIRMEN OF THE ROYAL AIR FORCE.

1. The rates of pay and pension for the ranks of the Royal Air Force below commissioned rank have been under review and the standard rates now authorised are as shown in the accompanying statements.

2. The rates of pay will come into force on the 1st August, for all men not dispensed before that date, in substitution for existing rates and bonus, but in any case where the present rates of pay together with Army of Occupation bonus are more beneficial than the new standard rates a vested right to the old rates will be allowed as follows:—

(a) Men on regular engagements may draw their present rates plus bonus, if more beneficial than the new rates, up to the 31st March, 1920. This will include men now serving who may without a breach in their service, re-engage or sign regular engagements.

(b) *New enlistments.*
All men enlisting on or after 1st August, 1919, whether with previous service or not, will come on the new rates of pay forthwith.

(c) *Men serving for Occupation Period.*
These men, if not on regular engagements, retain the old rates plus bonus until discharge, if more favourable.

3. Rates of pay for the Medical and Schoolmaster Branches will be subsequently announced.

4. Badges for good conduct will be granted, under regulations to be promulgated, after 3, 8 and 13 years' service. Each badge will carry pay of 3d. a day up to a maximum of 9d

5. The present rates of separation allowance will be continued under existing conditions as to entitlement until 31st December, 1919, when the rates and conditions of issue will be again reviewed. This will not, of course, affect the position of men serving for the Period of Occupation or those who have extended their service for 2, 3, or 4 years with reserved rights to this allowance.

6. A further announcement will be made as to allowance (other than separation allowance).

7. Further details as to rates and the conditions of their issue will be published in Regulations in due course.

ROYAL AIR FORCE (OTHER RANKS).

The rates of pay proposed are as follows:—

TECHNICAL.—GROUP I.

Sergeant-Major, Class I., 14s. rising by 1s. a day a year to 18s.

	s. d.	Over 3 years. s. d.	Over 6 years. s. d.
Sergeant-Major, Class II. ...	13 0		
Flight-Sergeant	11 6	12 0	12 6
Sergeant	9 6	10 0	10 6
Corporal	7 9	8 0	8 6
Leading Aircraftman	5 6	5 10	6 2
Aircraftman I.	4 6	4 10	
Aircraftman II.	4 0		
Boy	1 6		

Applicable to the following trades and occupations:—
Blacksmith.
Carpenter (boat builder).
Carpenter (motor body builder).
Carpenter (propeller maker).
Carpenter (rigger).
Coppersmith (1).
Draughtsman (normally boys only).
Electricians (compass setter and repairer).
Fitters and subsidiary combined trades.
Fitter (aero engine)
Fitter (general).
Fitter (M.T.).
Fitter (constructional).
Fitter (drivers: petrol, steam)
Fitter (motor boat).
Fitter (armourers).
Fitter (motor boat coxswain))
Fitter (millwright).
Fitter (jig and tool maker).
Instrument maker and camera repairer.
Moulders.
Pattern maker.
Turner (2).
Wireless operator (mechanic).
(1) Not to be promoted beyond Sergeant unless qualified as both Coppersmith and Tinsmith
(2) Not to be promoted beyond the rank of Flight-Sergeant unless qualified both as Machinist and Turner.

All boys (trained in the Service) will be advanced to leading aircraftsman on satisfactory completion of training.

TECHNICAL.—GROUP II.

Sergeant-Major, Class I., 12s. 6d., rising by 6d. a day a year to 15s.

	s. d.	Over 3 years. s. d.	Over 6 years. s. d.
Sergeant-Major, Class II. ...	11 6		
Flight-Sergeant	10 0	10 6	11 0
Sergeant	8 6	9 0	9 6
Corporal	6 8	7 0	7 4
Leading Aircraftman	5 2	5 6	5 10
Aircraftman I.	4 6	4 9	
Aircraftman II.	3 9		
Boy	1 6		

Applicable to the following trades and occupations:—
Acetylene welder.
Balloon basket maker.
Camera repairer.
Electrician.
Machinist.
Carpenter.
Coach painter.
Photographer
Rigger (aero).
Rigger (airship).
Sheet metal worker.
Tinsmith.
Wireless operator.

TECHNICAL.—GROUP III.

Sergeant-Major, Class I., 11s. rising by 6d a day a year to 15s.

	s. d	Over 3 years. s. d.	Over 6 years s d.
Sergeant-Major, Class II. ...	10 0		
Flight-Sergeant	8 6	9 0	9 6
Sergeant	7 0	7 6	8 0
Corporal	5 10	6 2	6 6
Leading Aircraftman	4 6	4 10	5 2
Aircraftman I.	4 0	4 4	
Aircraftman II.	3 6		
Boy	1 6		

Applicable to the following trades and occupations:—
Driver (Petrol) (3).
Motor-boat coxswain.
Driver (steam).
Driver (winch).
Motor cyclist (1).
Cook and butcher.
Shoemaker (so long as present conditions of free repair continue).
Tailor (so long as present conditions of free repair continue)
Musician (permanent bands only)
Hydrogen worker.
Vulcaniser.
Motor-boat crew (2).
Stoker (not to be promoted beyond Corporal).
Fabric worker.
Upholsterer.
(1) Not to be promoted beyond Corporal unless qualified as driver (M.T.).
(2) See under Non-substantive Pay, etc., as to hard lying money.
(3) Not to be promoted beyond Sergeant unless qualified as fitter.

ADMINISTRATIVE.—GROUP IV.

Sergeant-Major, Class I., 11s. by 6d. a day a year to 15s.

	s. d.	Over 3 years. s. d.	Over 6 years. s. d.
Sergeant-Major, Class II.....	10 0	9 0	9 6
Flight-Sergeant	8 6	7 6	8 0
Sergeant	7 0	6 2	6 6
Corporal	5 10	4 10	5 2
Leading Aircraftman	4 6	4 4	
Aircraftman I.	4 0		
Aircraftman II.	3 6		
Boy	1 6		

Applicable to the following occupations:—
Clerk (general).
Clerk (pay).
Clerk (stores).
Clerk (Q).
Meteorologist.

NON-TECHNICAL.—GROUP V.

	s. d.	Over 3 years. s. d.	Over 6 years. s d.
Sergeant-Major, Class I.	10 0		
Sergeant-Major, Class II. ...	9 0		
Flight-Sergeant	8 0	8 6	9 0
Sergeant	6 6	7 0	7 6
Corporal	5 0	5 4	5 8
Leading Aircraftman	4 0	4 4	4 8
Aircraftman I.	3 4	3 8	
Aircraftman II.	3 0		
Boy	1 6		

Applicable to the following trades and occupations:—
Aircraft hand (batman, G., P.T.I., G I.).
See under "Non-substantive pay," etc., as to addition to substantive pay for the performance of specific duties

NON-SUBSTANTIVE RATES OF PAY, ETC.

Gunnery Instructor.—1s.
Physical Training Instructor, 1st Class.—1s
Physical Training Instructor, 2nd Class.—8d.
Aerial Gunner.—6d.
Interpreter.—Naval rates (1s. per hour with a maximum of 5s. a day; days of employment only).
Schoolmaster (to men not of Schoolmaster Branch).—3d.; days of employment only.
Crew pay.—Coxswain, 4s.; other members of crew 2s. a day continuously whilst borne on the establishment of a squadron for service in aircraft.
Hard lying money.—To be paid at Naval rates and under Naval conditions to the Marine Branch of Royal Air Force.
In addition to crew pay of 2s. per day whilst employed on the authorised establishment of a squadron.

GOOD CONDUCT PAY.

As for the Army.

PENSIONS.

1. The minimum qualifying period will be 24 years from the date of attestation at the age of 16½ years.

2. The numbers allowed from time to time to re-engage for pension will be determined by the requirements of the Service and will in any case be restricted to men who have reach N.C.O. rank.

3. The pension will be granted on the basis of a daily rate for each complete year of service in each rank, with proportionate amounts for completed months. The daily rate will be uniform for all branches.

The daily rate for ranks other than Warrant Officers is as follows:—
Aircraftman, 1½d

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ON TEMPORARY COMMISSIONS.

At last the first list of Permanent Commissions in the Royal Air Force has appeared in the "London Gazette." One says "at last" not in any spirit of reproach to those in authority, for one knows that the Personnel Department of the R.A.F. has done its best to hasten matters, but merely because now at last the period of suspense is over for some lucky individuals.

Those who are in the Permanent Commissions List know the best, but unfortunately those who have only been gazetted to Temporary Commissions do not yet know the worst. Nor can they know it for some years to come, for so long as they hold Temporary Commissions so long have they a chance of winning Permanent Commissions. For which reason it is to the holders of Temporary Commissions, and to those to whom Temporary Commissions have been offered, that this article is primarily addressed. Elsewhere in this paper will be found the conditions of service of Permanent and Temporary Officers, and of the Special Reserve.

The Stock Objection.

On all sides and from all sorts of people, when one is discussing Temporary Commissions one meets with one stock objection which runs, with minor variations, thuswise:—

"Supposing a fellow left school at the age of 18 or so, he is now about 23, and if he takes a Temporary Commission for four years he will find himself out of a job at 27 years of age without any knowledge of anything except flying. It is quite bad enough for him to start in now at 23 to learn a profession or to get a job. But what chance has he at 27? What a fool a man would be to take a Temporary Commission!"

Now, on the face of it that looks like an unanswerable argument. But is it? Not a bit of it.

The Answer.

Whether a man is a failure or not depends to a small extent on luck, to a greater extent on his own ability, but still more largely on his faith in himself and in his job. If he is made of the right stuff he will be a success. If he is not he will be a failure at anything.

Suppose for example a young pilot is in the Permanent Commission List to-day. Does that ensure his success in the world? Certainly not!

He may be a first-class pilot, and a very decent man all round, but if he has no administrative ability he can never become a Flight Commander, and he must retire at 30 or thereabouts as a lieutenant. And then he will be worse off than if he had had a Temporary Commission and had left the R.A.F. at 27.

Supposing he has some administrative ability and becomes a Flight Commander, but cannot handle men, then he cannot be promoted to command a squadron, and so he has to retire at 35. In which case he is in a still worse position. Again, if he becomes a Squadron Commander, but has not the ability to command a Wing, then he has to retire at 40. And, be it remembered, the competition for the few Wing commands which there will be in the R.A.F. on its reduced peace establishment will be very keen, so that only exceptionally good men can ever hope to become Wing Commanders.

Thus unless a man has very great faith in himself and does actually possess very considerable ability he cannot hope to be a success even with a Permanent Commission.

The Chances for the Temporary Officer.

On the other hand the man who only has a Temporary Commission to-day has in fact plenty of chances of success. In the first place, none of the Cadets from the promised "R.A.F. Sandhurst" can possibly qualify for commissions before 1923. Consequently all the Permanent Commissions which must be given during 1920, '21, and '22 must of necessity be filled from the Temporary List.

Furthermore, the present Permanent List is admittedly only a partial list. The exact number of Permanent Commissions cannot be fixed until (*a*) the League of Nations fixes the limiting size of the flying services of the world, until (*b*) the British Treasury fixes the limiting sum to be spent on the R.A.F. (which will certainly be smaller than the size allowed by the League of Nations), and until (*c*) the Air Ministry decides whether to spend that money on such material for the benefit of a big Volunteer personnel or on less material and a greater Permanent personnel.

Naturally therefore the present Permanent List is only an irreducible nucleus for the Permanent List which will be published after the Permanent Establishment of the R.A.F. is fixed. Therefore it seems that a goodly proportion of those now on the Temporary List will be placed on the Permanent List during the next twelve months or so.

Surely therefore it is worth the while of any man who has faith in himself to remain in the R.A.F. with a Temporary Commission until at least that next List is published. For all he knows he may only have missed being in the present List by a fluke, or because his immediate C.O. did not recommend him strongly enough, or because the C.O. who recommended him strongly is regarded by those still higher on the scale as being a man of doubtful judgment.

If he remains he may in the next year or so fall in with a first-class C.O. who recognises his merits and who may give him a chance of distinguishing himself. Then he will be fairly sure of a Permanent Commission in the next List.

Failing that, if he has the pluck to remain, he may himself so improve as he grows older that from being merely a very good pilot and a youngster of average intelligence at 23, he may be a very brilliant young administrator at 26, and so may be entreated to take a Permanent Commission and promotion. One knows plenty of men who have changed quite suddenly from being merely average to being very good during those critical years between 23 and 25. And *vice versa*.

At the Worst.

And even at the worst what happens? A Temporary officer is thrown out on a cold world in 1923 at the age of somewhere between 27 and 30. Is he half as badly placed as the man who is thrown out of the Army to-day at 40 or 45 to go and look for a job when nobody wants any men because Capital will not trust Labour and Labour will not trust Capital and so all enterprise and industry is at a standstill?

By 1923 either the country will be properly at work again or else the country will be bankrupt. In the first case he will have been well paid and well housed all through the difficult period before us. In the second he will be no worse off than he would be to-day.

Also, very many of the world's most successful men have made their success at a job for which they were not intended. In one's own small way one has had a modicum of success, at any rate one is not grumbling at the unkindness of Fate, yet one never did any editing till one was nearly 35 years of age, and one never wrote for publication until one was over 30. (One can hear one's enemies saying:—"Anyone can tell that by the way The Aeroplane is run.") At 29 one had not the slightest notion of ever making a living out of writing, and at 17 one's sole idea was to go into the Army—a misfortune from which the Army was saved merely by a financial accident. So one has no sympathy with the man who funks having to change his job at 27.

Faith in Aeronautics.

Still less has one any sympathy whatever with a man who has gone into one of the Flying Services because he is really interested in aeronautics and who funks leaving the R.A.F. in 1923. By that time the Aircraft Industry should be well round the corner after the coming slump and the resultant salutary weeding-out of weaklings, and any man who leaves the R.A.F. then will do so full of the latest aeronautical knowledge, with a growing industry waiting eagerly to give him a job.

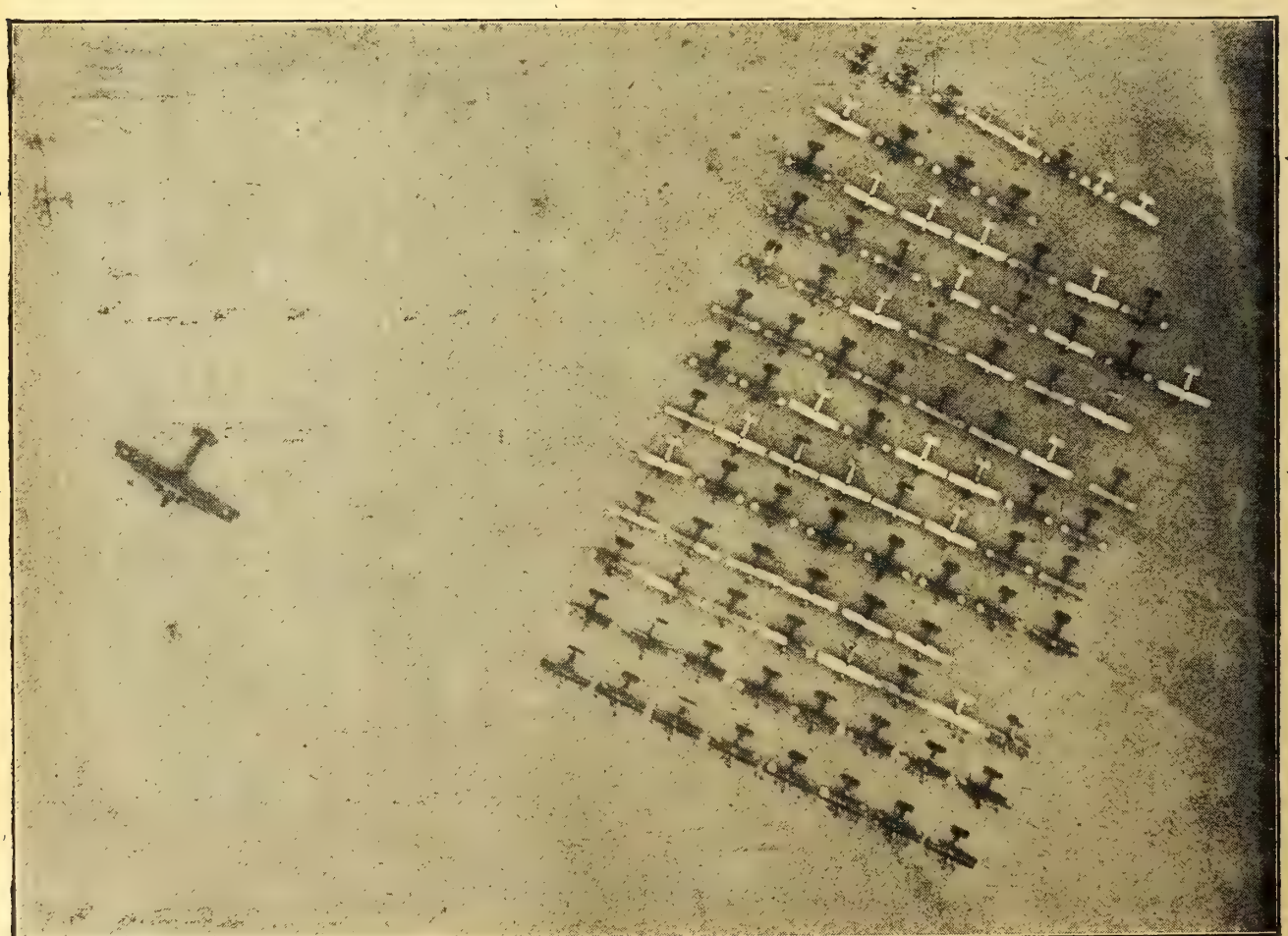
If a man has neither faith in the R.A.F., nor faith in the future of aeronautics, nor faith in himself, the sooner he quits all connection with aircraft the better for himself and for aeronautics.

The man who has faith in aeronautics, but not much in the R.A.F. and only a little in himself, had better hang onto his Temporary Commission if he can get it, and use it as a stepping-stone to a job in the Aircraft Industry after the slump.

But the man who has faith in the R.A.F. and in aeronautics and in himself had better grab at his Temporary Commission, and install himself firmly in the R.A.F. with a fixed resolve that in the course of the next four years he is going to convince those in authority that they made a mistake in not giving him a Permanent Commission at once, but that he is quite willing to forgive them for their initial error so long as they recognise it by giving him rapid promotion.

Such a man is on the right way to become in due course Chief of the Air Staff after the present illustrious holder of that office has accomplished his great task of building a Third Service which is fit to serve the King. May it be many years before General Trenchard leaves his post as the head of the Royal Air Force, but when he does it would be fit and proper that he should be followed by one who has risen to that proud position from being merely an Officer on the Temporary List.

If all those who have had the good fortune to be selected for Temporary Commissions were to make it their aim in life to become some day Chief of the Air Staff, and were to order their conduct accordingly, then in a very few years the Royal Air Force would become worthy of its name.—C. G. G.



AN R.A.F. REVIEW HELD AT HELIOPOLIS, CAIRO, ON DEC. 23rd, 1918.—The Photograph shows Machines from all parts of Egypt, lined up, awaiting inspection by General Allenby.

Corporal, 2d.
Sergeant, 2½d.
Flight-Sergeant, 3d.

4. WARRANT OFFICERS.—The scale for warrant officers will remain as at present, namely :—
For each completed year prior to warrant rank—£3.
For each year as warrant officer :—
(a) If retired as warrant officer, Class II.—£4.
(b) If retired as warrant officer, Class I.—£5.
The above scale is subject to maximum rates as follows :—
Warrant officers, Class II.—£120.
Warrant officers, Class I.—£150.

5. All men discharged to pension will thereupon become members of the R.A.F. Reserve.

6. If after 24 years' service a man continue to serve, he will draw the pay of his rank and his time will count for increased pension

7. COMMUTATION.—Commutation of pension will be allowed *where it would be a distinct and permanent advantage to the pensioner*, always provided that a minimum of 2s. a day is left uncommuted.

THE NEW RANK TITLES IN THE R.A.F.

The Secretary of the Air Ministry made the following announcement on August 4th :—

His Majesty the King has been pleased to assume the title of Chief of the Royal Air Force.

His Majesty, on the advice of the Secretary of State for War and Air, has approved of new titles for the commissioned ranks of the Royal Air Force. These are set out below with their corresponding ranks in the Army and the Navy :—

Air Force	Navy	Army
Marshal of the Air	Admiral of the Fleet	Field-Marshal
Air Chief-Marshal	Admiral	General
Air Marshal	Vice-Admiral	Lieut.-General
Air Vice-Marshal	Rear-Admiral	Major-General
Air Commodore	Commodore	Brig.-General
Group Captain	Captain	Colonel
Wing Commander	Commander	Lieut.-Colonel
Squadron Leader	Lieut.-Commander	Major
Flight Lieutenant	Lieutenant	Captain
Flying Officer (or Observer)	Sub-Lieutenant	Lieutenant
Pilot Officer	Midshipman	Sec. Lieutenant

The object which has been held in view is to preserve and emphasise the principle of the independence and integrity of the Royal Air Force as a separate Service among the fighting Services of the Crown. Hitherto the titles borne by officers of the Royal Air Force have been exclusively military in character, and as such they are not suited to a Service which has not only to serve the special services of the Army, but also those of the Navy, and in addition has a strategic and tactical sphere of action independent of the other two fighting Services.

It is, of course, not easy to command unanimous agreement on matters of nomenclature, but very long and careful consideration has been given to the choice of the titles now approved and many interesting alternative suggestions have been rejected.

The scheme is framed on the principle (a) that the ranks should as far as possible correspond to actual functions; (b) that the ranks should as far as possible correspond to equivalent status in the three Services; and (c) that there should be no repetitions in titles apart from the prefixes in the higher ranks. A distinction is preserved between the regimental officers and officers of General rank. Officers of General rank in the Royal Air Force are "Air Officers," and the expression "Air Officer" corresponds to the expression "General Officer" in the Army or "Flag Officer" in the Navy.

The new titles will come into force on Monday, August 4th.

A ROYAL AIR FORCE CADET COLLEGE.

The Air Ministry makes the following announcement :—

1. A Royal Air Force Cadet College for the training of the permanently commissioned officers of the Royal Air Force will be opened in February next.

The number of Cadets to be admitted on the opening of the College will be 55. Admission will be by competitive examination.

The examination for admission will be held by the Civil Service Commissioners, and will be the examination now in force for admission to the Royal Military Academy, Royal Military College, and Cadetships in the Royal Navy. (Special entry.)

2. Candidates may compete for one or more of the above colleges and cadetships alternatively at the same examination. The subjects in the case of the R.A.F. Cadet College will be as follows :—

OBLIGATORY.—1. English; 2. English History and Geography; 3. Mathematics A (elementary); 4. One of the following languages —French, German, Italian, Spanish, Russian, Arabic, Hindustani.

OPTIONAL.—1. Latin; 2. Greek; 3. Any one of the seven languages mentioned above other than that taken as an obligatory subject; 4. Mathematics B (intermediate); 5. Mathematics C (higher); 6. Science (Physics and Chemistry); 7. Elementary engineering.

All obligatory subjects must be taken up and not more than three of the optional subjects. Each subject will carry 2,000 marks.

In addition candidates may take up freehand drawing, to which 400 marks will be allotted.

The syllabus in each subject will be that now in force for the other Colleges and cadetships mentioned above. Candidates will be required to qualify, i.e., to obtain not less than 33 per cent. of the total marks alloted in each of the obligatory subjects.

Provided a candidate qualifies, the total of marks gained in all the subjects taken up will determine his place on the list.

The examination will be held in November.

3. Candidates must have attained the age of 17½ and must not have attained the age of 19 on January 1st, 1920, to be eligible to compete.

4. Candidates will be required to pass a medical examination which will be conducted at or about the time of the competitive examination.

5. The course at the College will last two years. During the second year of the course Cadets will be taught to fly.

6. The Regulations governing the entry of King's Cadets, Honorary King's Cadets, and candidates specially nominated by the Air Council will be similar to those now in force in the case of the Royal Military Academy and the Royal Military College.

7. Detailed regulations for admission and for the course at the College will be issued shortly, and will include full information as regards fees and allowances.

8. The Air Council has fully considered the alternative of admission by nomination combined with a qualifying literary examination, but has decided to adopt for the present the system now in force for the entry of Cadets to the Royal Military and Royal Military College in order to secure an early entry and to make the training of the future officers of the Royal Air Force to commence at the earliest possible moment. This decision does not prejudice future modifications in the system of entry designed to substitute nomination for a competitive examination, should experience show such a course to be desirable.

* * *

Recruiting is being started by the Royal Air Force to obtain 15,000 men, of whom 12,000 are required to be skilled workmen. Ex-Service men who have served in the Air Services are especially wanted. Men between the ages of 18 and 26 are eligible, but men will be accepted over 26 if they are skilled. The term of service is four years.

GERMANY.

The Berlin "Post" publishes a letter which Herr Erzberger sent in September, 1914, to General von Falkenhayn, who was at that time War Minister. The latter recommends a flame-thrower, which Herr Erzberger thought might be used successfully from airships against England, and saying that in his view all humanitarian considerations and scruples relative to the violation of international law must be entirely set aside.

CZECHO-SLOVAKIA.

The Czecho-Slovak Premier, M. Tusar, has addressed a Note to Bela Kun protesting, among other things, against the bombing of the town of Csaba (near Arad in Old Hungary), and accusing Hungary of violating the neutral zone, and thus failing to observe the Armistice conditions.

RUSSIA.

OFFICIAL COMMUNIQUES (BOLSHEVIK).

JULY 31st.—In the Gulf of Finland an enemy aeroplane has dropped bombs in the region of Kronstadt.

* * *

It is reported that a number of aeroplanes has arrived at Helsingfors for the Russian North-West Army.

NORWAY.

The following is from the Danish correspondent of THE AEROPLANE :—

From the middle of July to August 20th a number of air manœuvres is taking place over the southern part of Norway, in which 20 Army pilots partake with scouts and patrol aircraft. Beside military manœuvres the Army aeroplanes will carry out long passenger overland flights as trials, before the inauguration of regular air services.

Being the last of the three Scandinavian countries to enter upon aviation activities, Norway leads at present, which fact it owes chiefly to its good connections with England, wherefrom it has during the years of war been successful in drawing equipment, even if not of the very latest active service mounts.

As has been the case, too, in Sweden and Norway, like even the Allied warfaring countries, Henry and Maurice Farman biplanes made the chief composition of both the Army and the Naval Flying Services both before and while expanding early in the war.

The chief naval air station is by the Royal Dock yard in Horten, and other stations are along the coasts of the North Sea and Skager Rak, like Christiansand, while the main Army flying ground is at Lillestrom, near Christiania.

The respective Government factories are at each of the two centres, under the command of Captain Dehli (Navy), and Captain Sem-Jacobsen (Army), the same officers commanding formerly the flying services. Colonel Gruner is now chief of the Army Corps.

The Army factory has built both Henry and Maurice Farman Longhorn and "Horace" Farman models, for which the Frederiksstad Mechanical Works produced 130 h.p. Renault motors,

while of advanced types monocoque scouts with snow-skites [*sic*] for winter flying, equipped with 150 h.p. Hispano-Suiza engines, that were fetched early from Spain, and a two-seater patrol biplane of British influenced outlines and powered by a R.A.F. motor, have been produced. B.E. and Avro biplanes have further been acquired in England.

The Navy long stuck to a twin-float Farman type pusher biplane with F.E. tail fin fashion, equipped first with Curtiss motors, and next with some 170 h.p. Sunbeam engines, obtained from England. Various Naval flying officers, like Lieuts. Lützow-Holm and Rüser-Lassen were allowed to undergo a war instruction course at a British Naval flying school, and some 130 h.p. Clerget-engined Sopwith "Baby" seaplanes were acquired.

Nielsen and Winther, in Copenhagen, built a tractor school seaplane for the Norwegian Naval Air Service, equipped with a 100 h.p. Swedish-built Scania-Vabis Mercédes motor.

PERSONAL NOTICES.

NAVAL.

Death.

WHITE.—Major Evelyn Neville Lewis White, R.A.F. (Lieut.-Commander, R.N., retired), who died on July 29th at Trethevy, Tintagel, Cornwall, was the only son of Brig.-General W. L. White, C.B., C.M.G., and Mrs. Lewis White, of 10, Castle Street, Farnham, Surrey. He was 30 years of age.

Engagement.

SMYTH-PIGOTT—FEILDING.—The engagement is announced of Lieut.-Col. Ruscombe Smyth-Pigott, D.S.O., R.A.F. (late R.N.A.S.), youngest son of the late Hugh Cecil Smyth-Pigott and Mrs. Smyth-Pigott, of Brockley Hall, Somerset, and Lady Clare Feilding, daughter of the Earl and Countess of Denbigh.

Marriage.

SHARROD—LANDER.—On July 30th, at the Parish Church, Wellington, Salop, Surgeon-Lieut. Arthur R. Sharrod, R.N., attd. R.A.F., son of the late Mr. F. H. and Mrs. Sharrod, formerly of Cherrington Manor, was married to Gwendoline Lander, younger daughter of Mr. and Mrs. J. V. T. Lander, "Sunnycroft," Wellington.

MILITARY.

Death.

DEVONSHIRE.—Lieut. Feray Vulliamy Devonshire, 7th Hussars, attached R.A.F., who was killed on the Afghan Frontier on July 20th, was the only son of Robert and Henrietta Devonshire, of Heston, Middlesex, and Maadi, near Cairo. He was 28 years of age.

TUCKER.—Sec. Lieut. Donald C. Tucker, R.F.C., who was reported missing on March 24th, 1918, is now officially reported killed in action on that date. He was the youngest son of Frank J. Tucker and Mrs. Tucker, Durley Park House, Keynsham, Somerset, and was 19 years of age.

Engagements.

BLAKE—SHORE.—An engagement is announced between Lieut. George Godfrey Leigh Blake, D.F.C., D.C.M., R.A.F., elder son of the late Rev. G. L. Blake, R.N., and Mrs. Blake, of 19, Redcliffe Square, S.W., and Vera Henrietta Louise, third surviving daughter of Charles R. Shore, Esq., and Mrs. Shore, of Barngates, Binfield, Berks.

LLOYD—MEADOWS.—An engagement has been announced between Captain Hugh Pughe Lloyd, M.C., D.F.C., Croix de Guerre, R.A.F., second son of Mr. and Mrs. L. T. Lloyd, of Alfrick, Worcester, and Kathleen, youngest daughter of Major R. T. Meadows, D.S.O., and Mrs. Meadows, Dunheved, Saltash, Cornwall.

MAUDUIT—BROOKSBANK.—The marriage arranged between Captain R. F. S. Mauduit, M.C., R.A.F., and Irene Helen Brooksbank will take place at Middleton-on-the-Wolds, East Yorkshire, on August 7th, at half-past two o'clock.

MITTON—DE BELABRE.—The engagement is announced of Capt. Mitton, Lincolnshire Regt. and R.A.F., only son of Mr. and Mrs. W. H. Mitton, of Sunnyside, Sleaford, and Daphne Yseult, daughter of Baron de Belabre, French Consul, Newcastle-on-Tyne, and great-granddaughter of Admiral Sir John West, G.C.B.

Marriage.

PORTAL—WELBY.—The marriage took place on July 22nd, at Denton, Grantham, of Major C. F. A. Portal, D.S.O., M.C., R.A.F., son of Mr. E. R. Portal, formerly Master of the Craven Hounds, of Eddington House, Hungerford, and Miss Joan Margaret Welby, third and youngest daughter of Sir Charles Glynne Welby and Lady Maria Welby, of Denton Manor. The service, which was choral, was conducted by the Rev. Lord Manners Hervey, rector of Horringer, Suffolk, and the Rev. B. W. Keymer, O.B.E., R.A.F.

Births.

CORDING.—On July 15th, at 109, Winnock Road, Colchester, wife of Capt. Lewis E. Cording, M.C., M.M., R.A.F., of a son.

DISNEY.—On July 26th, at the residence of her parents, 68, Cadogan Square, S.W., the wife of Major Gervase Disney, Essex Regt. and R.A.F., of a daughter.

PRATT.—On July 20th, at The Meads, Hemingford Abbots, Hunts, to Grace Marian, wife of Capt. G. Brian Pratt, R.A. and R.A.F.—a son.

ROCKINGHAM GILL.—On July 21st, to Christina (*née* Court Treatt) and Captain Rockingham Gill, R.G.A. and R.A.F., a son.

AIR FORCE.

Deaths.

CAIN, GAMMIE, and GRIFFITHS.—An accident occurred on July 18th, at Hendon Aerodrome, in which three aviators lost their lives. Lieut. Cain, R.A.F., accompanied by Corporal Gammie, R.A.F., and Air Mechanic Griffiths, R.A.F., had just ascended in a new machine, which was being taken to another aerodrome, when, in making a turn, it suddenly nose-dived, and on reaching the ground burst into flame.

All three occupants were burned to death before they could be rescued.

At the inquest at Hendon on July 21st, Major Mounsey, R.A.F., identified the bodies, and said that he gave Lieut. Cain permission to ascend. The machine was new, and had just been overhauled.

The Coroner (Dr. Cohen): If the machine was in perfect order, to what do you ascribe the accident.

Witness: To misjudgement of the pilot. The best pilots are liable to make an error of judgment. Lieut. Cain was a fine pilot and had won the Distinguished Flying Cross in Italy.

Corpl. Wright, R.A.F., said that the machine was examined before the flight, when the engine and rigging were found to be in perfect order.

Lieut. F. E. Hills, R.A.F., said that he saw the machine leave the ground. "I next saw them about 150 ft. up. The machine was turning gently, until it nose-dived and fell to the earth. I ran up, but it was too late to give any assistance. The three men were burned to death almost instantaneously."

Lieut. Shaw, of the Aircraft Manufacturing Company, said that he flew the machine three times before handing it over to the Royal Air Force, and it was in perfect order.

The Coroner said that the margin of error in flying was not very great. It was evident that there had been some error of judgment. Errors of judgment in flying, however slight, very often had terrible results.

The jury returned a verdict of "Accidental death."

HERBERT, BIZIOU, and HIELEY.—At the inquest at Farnborough on July 16th a verdict of accidental death was returned on the bodies of Lieutenants Herbert and Biziou and Air Mechanic Charles Hieley, who were killed on July 14th, when an Avro biplane and an S.E.5 collided. The coroner stated that he had dispensed with a jury as he was convinced that prior to the ascent the machines were in perfect flying condition.

Thomas Smith, a workman at Farnborough Court, said he noticed the two machines in the air. One was coming in a north-easterly direction, and the other in a south-easterly.

They were 300 ft. or 400 ft. high, and approached each other in V formation. Both rushed nose to nose on each other, twisted about, and then crashed to the earth, one 200 yards from the other. There was no mist, and he thought that the pilots could have seen each other.

Major Hills, R.A.F., said that the visibility might have been termed poor on that afternoon, but it was not at all dangerous. In France hundreds of machines had worked in the air under much worse conditions.

The Military had already held an inquiry, and were satisfied that the disaster had been entirely accidental. He was convinced that no stunting had taken place.

Engagement.

FRANKISH—WHITEHEAD.—The engagement is announced of Captain J. R. Frankish, M.B.E., R.A.F., eldest son of the late Mr. and Mrs. W. J. Frankish, of Kinnington House, Lincolnshire, and Dorothy Edith, elder daughter of Jeffry Whitehead and Mrs. Whitehead, of Croydon, Surrey.

Marriage.

BROWN—KENNEDY.—On July 28th, at the Chapel Royal, Savoy, Lieut. Sir Arthur Whitten Brown, K.B.E., R.A.F., only son of Mr. and Mrs. A. G. Brown, of Manchester, and Marguerite Kathleen, elder daughter of Major and Mrs. D. H. Kennedy, of Ealing, by the Rev. Hugh Chapman.

Births.

ACLAND.—On July 24th, at 11, Courtfield Gardens, the wife of W. H. D. Acland (late Major, R.A.F.), of Barnes Wood, Welwyn, of a daughter.

KIDDY.—On July 24th, at "Welbeck Lodge," North Finchley, to Dorothy (née Kynoch), wife of Captain M. G. Kiddy, late R.A.F., a daughter.

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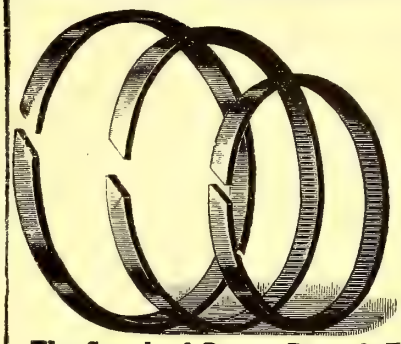

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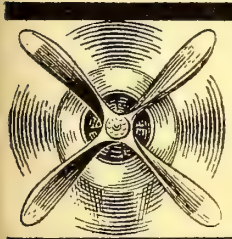

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THE AEROPLANE

Edited by C. Gurney

WEDNESDAY, AUG. 13, 1919.

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ON THE BEGINNING OF INTERNATIONAL AVIATION.

SOME IMPRESSIONS FROM AMSTERDAM.

In the days of one's youth one was taught that Holland was the flattest country in the world and that the Hollanders, or Dutch as we wrongly call them, were a great commercial people. It seemed peculiarly apposite then that Holland should have the distinction of being the first country to encourage International commercial flying by holding an exhibition of aircraft as soon as possible after the outbreak of Peace. The Hollanders are a singularly pleasing people with a fund of quiet humour, so they will forgive me for pointing out the irony of the situation in view of the fact that they possess that very beautiful monument of irony, the Palace of Peace at The Hague.

Holland is perfectly flat, so flat that when at the very beginning of the war one suggested bombing Essen from Antwerp by flying over the south-east corner of Holland an Anglo-Dutch friend remarked, "But you cannot do that! You would have to fly over the Dutch Alps. Some of them are as much as thirty metres high!" Yet despite the flatness of Holland it is probably the worst country in the world over which to fly on a land-going aeroplane.

In passing through Holland one sees vast expanses of magnificent grass land, apparently ready-made aerodromes. But as one comes close to them one finds them cut into small rectangular patches by little ditches. In fact, one doubts whether anywhere in western Holland there is a piece of ground 200 yards square without a dyke.

A Hint to Designers.

Here then is the first impression, for the benefit of any constructor who thinks of building big land-going machines for use in the Low Countries. All such machines must be fitted with wide flat skids at least twelve feet long, so that if the machine has to make a forced landing it may be able to slide across the small dykes.

Even a better way would be to make the lower longerons of the machine so that they could act as skids—as in fact the longerons of the F.K.26 B.A.T. are already—and then fit a retractable under-carriage more or less of the Martin type. Then there could be no chance of a machine turning over on its nose or wiping off its under-carriage if forced to land in one of these dyke-infested fields, or in boggy ground. The performance of the Handley Page on its first arrival at Amsterdam was a case in point—but that affair will be described in due course.

The Seaplane's Country.

On the other hand Holland is the ideal country for seaplanes. The pilots who have flown over it from England say that if one flies at 2,000 feet one is always within gliding distance of one of the great canals, and that it would be possible to bring a seaplane down safely on any of them. On many of them a flying-boat of the largest type could alight with perfect ease.

Now the Hollander, like most successful business men, is a man who knows the value of time. His trains are good, but they are not up to aeroplane speed by a good deal, and so it should be possible to do quite good business in Holland with seaplanes. One suggests, therefore, that if an enterprising seaplane firm started a seaplane hire service in Holland it would pay well in time.

Lost Opportunities.

One does not suggest for a moment that a firm has only got to open a shop in Amsterdam and sell seaplanes across the counter, but one does believe firmly that a seaplane "joyride" business would pay its way, and that from it would grow a regular business. First of all it would develop into hiring seaplanes to commercial men, and later this again would develop into a sale-and-maintenance business on quite a big scale.

TO BELIEVERS IN AIRSHIPS.

Those who believe in the future of airships will do well to order at once a copy of THE AEROPLANE for next week (dated Aug. 20th). That issue will be a Special Airship Number and will be devoted to describing the use, construction and design of airships. It will also contain a description and specification of practically every type of airship at present in use in the world.

Great assistance has been given in compiling this Special Number by Vickers, Ltd., Sir Wm. Armstrong, Whitworth and Co., Ltd., Wm. Beardmore and Sons, Ltd., Short Bros., Ltd., and Airships, Ltd. The technical department of each of these great firms has contributed an article of great interest, each on an entirely different phase of the subject.

Authorities on airships in various countries have kindly furnished figures concerning their national ships. Altogether, the Special Airship Number of THE AEROPLANE will contain more information about airships than has been collected within the covers of one publication since the first Airship Number of THE AEROPLANE was published in 1916.

As newsagents are not, as a rule, interested in aeronautics, those who want to make sure of securing a copy of the Airship Number are advised to order it in advance from "The Aeroplane" Publishing Dept., 61, Carey Street, W.C.2. The price is 9d. post free.

As usual we are losing our opportunities. Here is the first International Aeronautical Exhibition since the war, and there is not a single seaplane on view or in use, except a couple of machines built in Holland from parts of German machines fished out of the North Sea, and one F.5 flying-boat, built by the Gosport Co., flown to Amsterdam, not flown during the show for reasons which will be explained later, and moored out in Het Ij where it cannot be seen except from passing boats and where it cannot be inspected at all.

That apparently is our typically British way of getting business. One hardly knows whether it is the fault of the Air Ministry or of the Society of British Aircraft Constructors or of the individual aircraft firms. Probably the fault is divisible among all of them in variable degrees.

To Whom the Blame?

The individual seaplane firms are certainly to blame for not following the obviously sensible policy of being first in the first of the world's open markets since the war. But one cannot be sure of how much hindrance has been put in the way of the Trade by the Air Ministry, so perhaps the fault is not altogether that of the individual firm.

The S.B.A.C. is certainly to blame for not encouraging the Trade to exhibit at Amsterdam. Of course one can quite understand that the S.B.A.C. wants its own first show in London to be the greatest thing that ever happened. But even if that show is to occupy the whole of the Crystal Palace, or if Hyde Park is to be covered with marquees for the occasion, that will not bring to London the actual individual buyers who would buy seaplanes at their own doors if the machines were brought there, and if they had the practical value of the seaplane demonstrated by a successful joy-ride service. The policy, or lack of policy (whichever it may be) of the S.B.A.C. is short-sighted and small-minded. One had hoped for better things from a combination of men who were so successful in war-time. But peace is ever a more serious test of ability than is war.

The Air Ministry's Part.

Just what the Air Ministry has done to help British industry in this market is precisely nothing. One hears that the Ministry may perhaps send a high official to Holland to "talk pretty" to those Hollanders who are becoming so keenly interested in aeronautics. But what the Ministry is *going* to do matters rather less than what it *has* done. And anyhow we have had more than enough pretty talk from the Civil Aviation Department. In fact most of us are becoming rather nauseated by it. And in any case we want something done.

So far the Ministry has kindly permitted the Gosport Aviation Co. to fly a boat to Amsterdam—as already stated. And that seems to be the net amount of help given.

It is true that the boat is some day to become the property of the R.A.F., and so it is desirable that it should not be worn out before it is delivered. But it seems purely imbecile to forbid the Gosport Co. from flying it at all during its visit to Holland. Considering that the R.A.F. has some dozens of boats sitting in sheds at Felixstowe, minus wings, rusting and drying to death (a boat hull must be kept in water or it becomes dangerous), it is fairly futile to talk such a lot about helping aviation and then do nothing to help.

If the Air Ministry had had any common sense at all, it would have started a regular flying-boat service between Harwich and Amsterdam, via Ijmuiden, for the benefit of those concerned with the Exhibition, and any others who might care to pay the price to use it.

A Great Chance.

There is no more objection to the R.A.F. running a flying-boat service than there is to the State running the railways, and, badly organised as the R.A.F. may be, it could not possibly make as big a mess of such a service as the State has made of the railway and telephone services since it took them over. In fact the flying-boat people have done such good work in the past that they would probably run a line to Holland extremely well.

One has been told by one of the ablest of our seaplane officers that the R.A.F. flying-boats have flown more than a million (1,000,000) miles without a fatal incident, and this despite the fact that by far the greater part of this flying was done in time of war, when people flew in weather in which they would not have flown in peace-time. Surely such a record should encourage the Air Ministry to start a regular service to Holland at once.

We hear a lot about "blazing the trail" for Civil Aviation, and we hear of silly voyages to India and Central Africa, which cost thousands of pounds and merely demonstrate that an aeroplane is slower than a camel, and yet the Air Ministry lacks the common gumption to blaze the trail by opening an experimental service which is not only bound to be a technical success, but might with very little luck pay its way.

A Paying Proposition.

The fare from London to Amsterdam is roughly six pounds. With all incidentals thrown in there is not much change out of ten pounds. And the journey takes twenty-four hours, the Zeeland boats being skilfully timed so that one has to spend an uncomfortable night on board at the price of a super-Ritz for accommodation. Besides which there is all the annoyance and fatigue of the passport formalities on the quays at Folkestone and Flushing.

Anybody who wanted to go to or from Amsterdam in a hurry would gladly pay £15 or £20 for a flight across the North Sea and a quick railway journey between London and Harwich.

Let the much-advertised Civil Aviation Department of the Air Ministry work it out and see whether it could not make enough out of fares at that rate to pay at least for petrol and wear-and-tear of boats and engines. If it could do so it would be more than justified in running the service, for it would then provide its pilots and mechanics with plenty of practice at no more cost than that of their pay and maintenance, it would confer a benefit on the business community, and it would do a very great deal to develop Civil Aviation.

But of course it would be asking far too much of the Civil Aviation Department to expect it to wrestle with the Air Ministry as a whole to achieve three such desirable objects. The only object of the Department so far seems to be to provide restful places for incompetent officials and to talk without acting. Its motto might well be *"Verba non res."*

A Brilliant Act.

Another brilliant act of the Air Ministry was forbidding the Boulton & Paul "Bourges" biplane from going to Amsterdam, where its fine performance and magnificent workmanship would have materially enhanced the reputation of British aircraft on the Continent. Just what right the Air Ministry had to exercise its predilection for Prussianism one cannot quite understand.

One is told on quite good authority—though not by anyone concerned with the B. & P. firm (this explanation is necessary in view of possible official reprisals)—that the Air Ministry has neither paid for, bought, nor even ordered the "Bourges" which it was proposed to send to Amsterdam. Also, it was designed by Mr. J. D. North and not by the Technical Department, whom none would suspect of doing anything so intelligent, so that there is not even the excuse that it is a machine of Government design, so what earthly or aeronautical reason can there be for prohibiting its exhibition?

G R

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When such things happen one can understand the belief held by many people that the Air Ministry is trying to play the old game of the Department of Military Aeronautics when it tried to make aircraft design a Government monopoly and tried to make aeroplane production the job of a few "tame" or "favoured" firms. Personally one ascribes all the Air Ministry's actions up to the present merely to congenital imbecility. In this instance it is probably inspired by a foolish idea that it is really protecting the safety of the Empire by preventing undesirable aliens from seeing our newest designs.

A Simple Lesson.

One commends to the Air Ministry the saying of a great American manufacturer some 25 years ago. One happened to be showing him round a certain big British factory, the head of which was more enlightened than his contemporaries and did not believe in the usual British policy of silly secrecy. Being very young, one remarked to the American that he was highly privileged to be allowed to see over our excellent works. The American replied quite simply that he always made a point of showing his rivals all his latest productions, because they talked about them and so gave him the best possible advertisement, and if they saw anything in his works worth copying, and managed to copy it in time to compete with him, that merely showed that his ideas were out of date and it was time for him to think and act more quickly.

Not only the Air Ministry but the Aircraft Industry might well profit by that simple lesson. By showing the World our best we increase the World's respect for us. And if other nations can produce machines as good before we have produced something better it is proof positive that we are not progressing as we should.

An Imbecile Policy.

Perhaps the most imbecile of all the imbecile things which we have done in connection with the Amsterdam Show was to bring pressure to bear on the Hollanders to prevent the Germans from showing aeroplanes there. Such action on our part must have seemed an obvious confession of weakness.

Surely if our machines are better than those of the Germans we have every reason to profit by putting the two side by side. As a matter of fact we should have scored immensely by having German machines there. The Royal Netherlands Flying Corps had several Hun aeroplanes, and there were three Fokkers, evidently built in Germany, but they could not in the least compete with their "opposite number" the Bantam Bat. And the bigger Hun machines would have compared equally badly in the eyes of a Hollander with Aircos, H.Ps., and Vickerses.

None knows what is good work and what is not so well as does the Hollander, whose own work in everything he touches is a marvel of finish and craftsmanship. We have lost yet another opportunity by thus barring German machines, besides giving the World an impression of our small-minded meanness to a beaten foe.

Perhaps some more imaginative person than oneself can give some reasonable explanation of why Hun machines were boycotted. For oneself one fails entirely to imagine why a neutral country should thus become partisan *after the war*.

An Extraordinary Official.

Before closing these few kind remarks on the Air Ministry one would like to refer to one Government official who deserves a paragraph to himself. One does not know his name, nor his rank, but he is a Customs official at Hounslow, and one is told that he is doing everything in his power to help Civil Aviation by doing his job courteously and efficiently. He is said to simplify formalities and to explain difficulties most pleasingly. And he is even reported to have wished aerial travellers good luck on their journey. One hopes that this testimonial will not damage his career under the Air Ministry, but he is so unusual that one feels that he deserves notice. Perhaps, though, he is a real Custom-House officer, in which case he is perhaps not so exceptional and may be able to continue his career of usefulness. Would that there were more like him.

On the whole we have lost some fine opportunities at Amsterdam, but none which we cannot regain if we act at once. There is, however, no such chance. Having thus emphasised our defects in large print, according to custom, one now proposes, for the benefit of those who are not already bored with the subject, to set forth in smaller print some of the really good things which British Aircraft have done at the Amsterdam Aero Show.

AT THE AMSTERDAM AERO SHOW.

The Amsterdam Show is known all over Holland as the Elta. The letters stand for Eerste Luchtvaart Tentoonstellings Amsterdam, otherwise First Airtravel Exhibition, Amsterdam. Never has one seen an exhibition so well advertised, and never has one seen a whole country so interested in an exhibition. The word Elta is about as familiar in Holland to-day as the words Kaas or Bier. Truly, the Amsterdammer is a fine commercial man, and well worth cultivating.

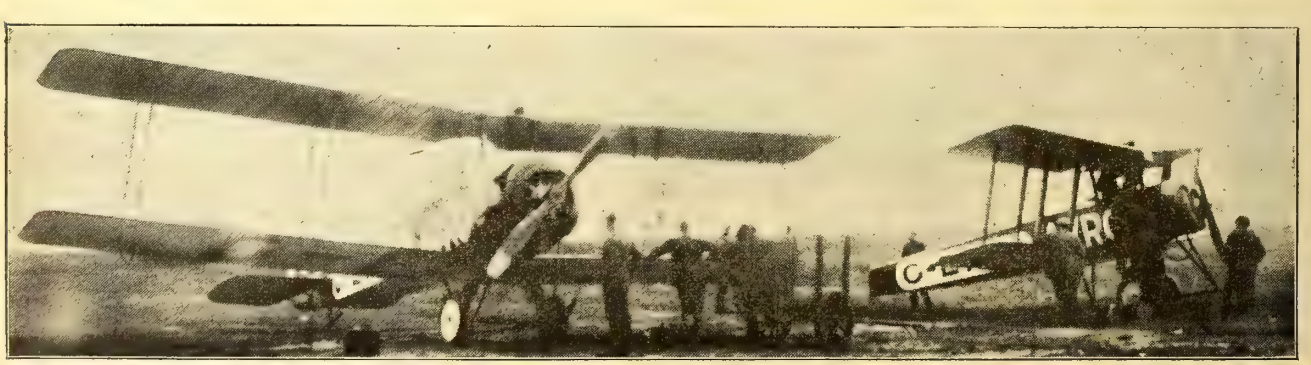
Holland to-day is probably the richest country in the world per head of population, thanks to the war, and now in time of peace, Holland is growing still richer, as the *entrepot* between England and Germany. Holland is at present making England pay for Van Tromp's ships sunk some hundreds of years ago, and in making Germany pay for the Batavia Liners sunk a year or two or three ago.

The method is quite simple. Everything is charged in things that look like francs on a bill, and become florins (commonly called gelder) in practice. One thinks in tuppences and pays in two-shilling pieces. As one remarked at the beginning of this article, the Hollanders are a great commercial people.

Owing to this plan everything in Holland costs exactly twice what it costs in London to-day, which is to say that it costs just four times the pre-war price. And so the Hollands merchant does well.

Against this predatory habit one sets the fact that the Hollander is one of the best fellows in the world. He is most hospitable, he is wonderfully good-tempered, and he is good to behold. So is she, especially the last.

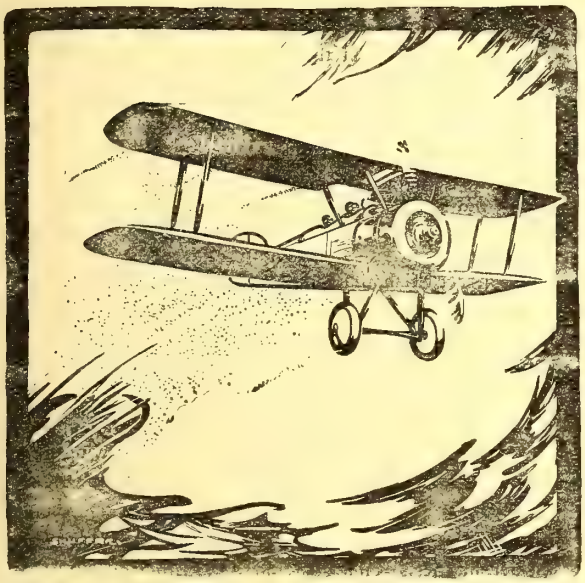
Amsterdam is what London might be if it had a County Council which possessed civic pride instead of a passion for



ON THE WAY TO THE ELTA.—The two first Avros replenishing at Evère in Belgium.

CIVIL FLYING

WITH



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politics, and if it were planted on the site of Venice. That is to say, it is the cleanest city in the world, full of the most beautiful buildings, and it lives on its canals. It is the handsomest city one has seen.

The people look like advertisements for somebody's health-salts, though how they retain their complexions and figures along with their appetites is one of the Wonders of the World. Presumably, their energy absorbs the vast amount of fuel they consume, and keeps them fit. Surely the Hollander must be the healthiest person in the world, as well as one of the best.

The most astonishing thing about the Amsterdammer is that he looks so English. One can walk all over the place without seeing anyone who "looks foreign," as we should say in England. The Hollander dresses well but not stylishly, and one might fancy oneself in Manchester (minus its dirt and its poor) if one glanced at an Amsterdam crowd, but one would never think oneself in Piccadilly.

The Hollander being what he is, as mentioned herebefore, it was natural that the Elta should be a success, for it interests the business man, and the sportsman equally. And so Holland goes to the Elta in its thousands.

At the Elta Aerodrome.

One arrived in Amsterdam too late for the "Oopeningsplechtigheid" (or opening ceremony)—a lovely word that. Anyhow, one was told that the "opening splash" did not signify much, because the real ceremony was being kept for Captain Sir John Alcock, K.B.E., D.S.C., who was the distinguished guest of the Elta Committee on Sunday. And certainly Sir John got a reception. It is demonstrably true that it was far better organised officially and spontaneously bigger than that which he received in London. You see there was no preliminary anti-climax nor ill-judged newspaper booming to spoil the effect. The Netherlands newspapers merely announced that the man who had flown the Atlantic was coming to Amsterdam at a certain hour, and the people flocked in their tens of thousands to greet him.

A Dutch welcome is really rather a terrifying proceeding, for it involves lunches and banquets and healths innumerable. And Dutch hospitality is of the most lavish kind. After about three days of it one could see the British guests swelling visibly, and after five days one gallant lieutenant-colonel, R.A.F., said that on the next morning he had to be led by the hand along the corridor of his hotel because he was so stodged with food that he could not see out of his eyes. Which expressed very well what all of the visitors felt.

On arrival at the Elta aerodrome, Sir John Alcock, Captain Acland, of Vickers, Ltd., and all the other British visitors were entertained to lunch by the Elta committee, with General Snyders in the chair. Next to the magnificence of the lunch the most striking thing was the fact that all the speeches—which were interlarded between the courses—were delivered in excellent English. The upper class Hollander seems to speak English, French, and German with as much fluency as his own expressive tongue—which probably explains Holland's success in business.

In the evening everybody was entertained to dinner by the Nethmy—which stands for Nederlands-Englisch-Technich-Handels-Maatschapij—which is the Dutch Vickers Co., and that was as fine an affair as the lunch. Next day everybody who had been there looked like it. After that there were private or business entertainments of one sort or other every day.

Flying to Holland.

The Elta aerodrome itself was vile, considered as an aerodrome surface, but it is excellently situated, dead flat, free from obstructions all round, and of a size adequate for the biggest machines. In reality it is a splendid testimony to the energy of the Hollanders, for a few weeks ago it was just a stretch of bog, thinly covered with sand and patches of skinny-looking grass here and there. By the time the Elta opened it was quite serviceable for light and medium machines, but the big ones such as the H.P.'s and Vimy's bogged up to the axles every time they landed, until the pilots learned to know the hard spots by name. When the surface has been properly doctored it should be one of the best and most important of the famous aerodromes of the world.

At the beginning of the show Herr Fokker had the flying all to himself. German machines were barred from the show, it is true, but Herr Fokker, who became a naturalised German during the war, is now de-naturalised and is again a Nederlander, so of course he is entitled to show. On account of his skill as a pilot and of the fame of his machines in the war, and of his nationality, he was naturally the popular hero till the British machines began to arrive, and then he took a back seat several rows behind.

The First Arrival.

The first British machine to arrive by air, so far as one could gather, was a four-engined Handley Page, piloted by Major Douglas. By good luck it bogged without overturning, and was thereafter towed into one of the two big exhibition halls. Getting it into the hall necessitated pulling down telegraph wires, kiosks, offices, triumphal pillars, and eventually almost the whole front of the hall. And even when it was got inside it was only possible to open one wing, for it then extended the full width of the hall. However, it was better to show it with one wing folded, as an example of ingenious design.

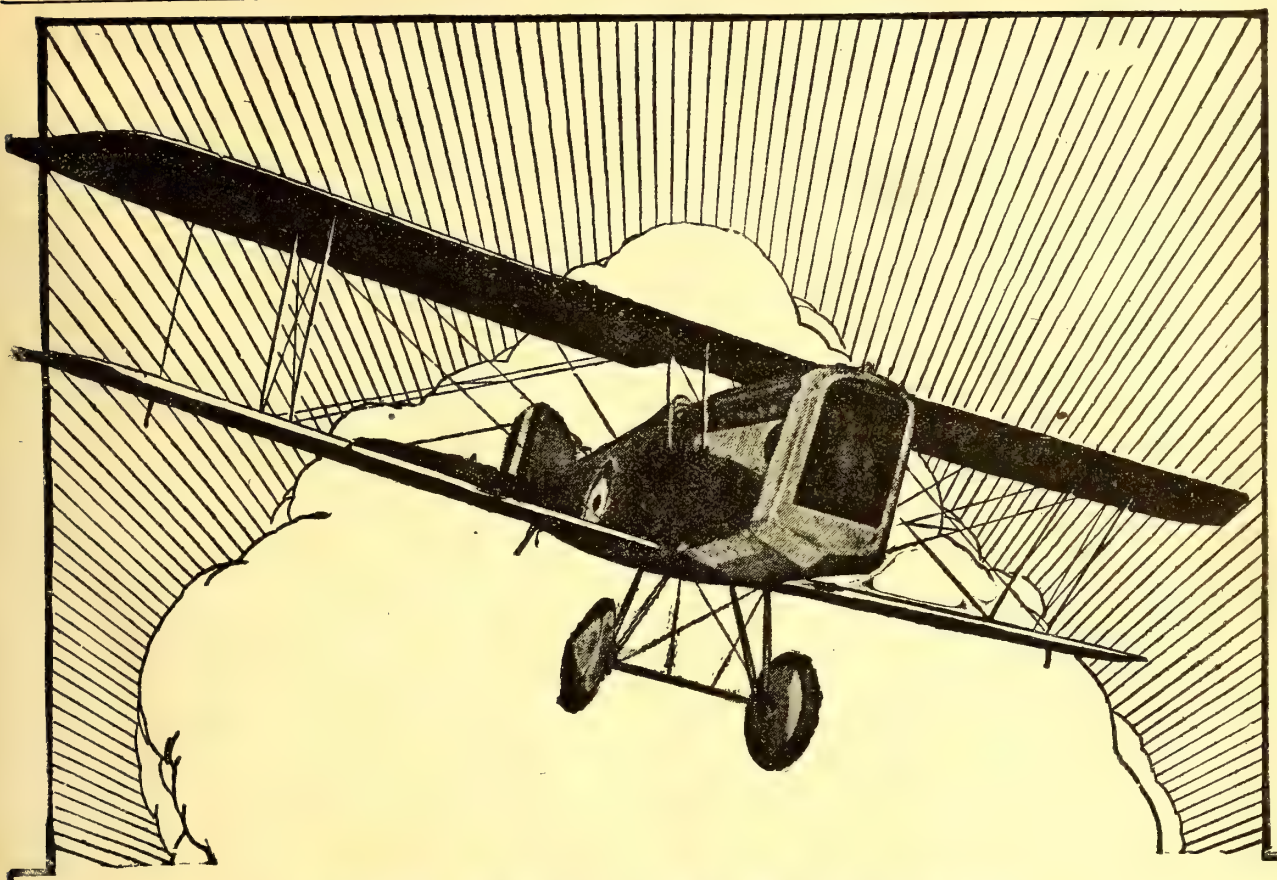
A Fine Performance.

The next arrival was a Gosport flying-boat, which put up one of the most striking performances in the brief history of commercial aeronautics. This boat, an F.5, with Rolls-Royce engines, is an Air Ministry order, so, though the Ministry has not paid for it, the boat is under official control. By some wonderful effort of intelligence the Ministry allowed the firm to fly the boat to Amsterdam, but absolutely and utterly forbade the firm to fly it while there, except when it is flown away again.

Which, of course, is so useful as a means of demonstrating the usefulness of British aircraft. It would be like a cautious Hollander or any other business man to buy a boat which he was not allowed to try. The buyer's natural argument would be that if the boat is only fit to fly to Amsterdam and to fly away again, and is not fit for trial flights while there, it cannot be worth very much. But of course that is all in accord with the Civil Aviation Department's *blâgue* about "blazing the trail" for commercial aeronautics.

Anyhow, the flight was unusually fine. The boat left the Gos-

AN OFFICIAL RECEPTION.—Captain Sir John Alcock, K.B.E., D.S.C., entering the Elta, escorted by General Snyders (on his left) and the Elta Committee.



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port Aviation Company's works at Southampton on Wednesday, July 31st, piloted by Lieut.-Col. Hope-Vere, R.A.F., and Lieut. Carnegie, R.A.F., carrying as passengers Dr. Bisschop (who brought the diplomatic mail with him), Mr. M. H. Volk (manager of the Gosport Co.), Mr. Nicholson (son of Mr. Charles Nicholson, the famous yacht builder), and an engineer. They followed the British coast to Beachy Head, crossed thence to Gris Nez, and so along the French, Belgian, and Nederlands coast to Ijmuiden, whence they followed the ship canal to Amsterdam, where they arrived at 8.25 p.m.

Southampton to Amsterdam non-stop in 5 hours and 35 minutes is a splendid demonstration of the value of the flying-boat for international communication. Incidentally the boat carried the London morning papers, which thus reached Holland for the first time on the day of publication, in spite of going all the way to Southampton.

After its arrival the boat was moored out in the Ij, where it was only visible at a distance to those who went to the Elta by boat instead of by road and ferry. And, presumably because it is a Government order, there was no advertisement on it to proclaim its performance, or the fact that it was made by the Gosport Co. Thus do we English hide our lights under many bushels.

The Pride of Holland.

The Hollanders themselves were filled with pride when the F.K.26 Bat arrived, piloted by Major Draper, and carrying Mr. and Mrs. Koolhoven, and the invaluable "Tom" (Mr. Koolhoven's chief aerodrome engineer) as passengers. As they emerged from the big black and white machine with their many suit-cases, rugs, coats, spare tyres and so forth, the crowd waxed joyful at this example of aerial "tourism," and the Amsterdam Press quite let itself go on the subject, even to the extent of pulling Mr. Koolhoven's leg and reminding him that as a motor-racing hero he was popularly known as Fritz before he became a naturalised Englishman and took to calling himself Frederick.

But Holland's pride in Mr. Koolhoven grew exceedingly when a Bantam Bat with the 170 A.B.C. engine arrived, piloted by Mr. Duke, late Lieut., R.A.F., and proceeded to show Amsterdammers real flying for the first time. Mr. Duke has beautiful hands for a fast machine, and he did everything that a first-class scout pilot can do—which is rather wonderful considering that he spent the last year of the war as a prisoner in Germany.

Then Major Draper took the machine over, and in an evil moment Herr Fokker chose to come and gaze closely at the machine while the engine was being started. That settled the matter for ever. The pilot's blood was up, and never in ten years' experience of flying has one seen such an exhibition of real skill. Without ever taking a risk, without once endangering the spectators, and always in full view well out over the aerodrome, Major Draper made the little Bat do everything that an aeroplane can do. Short of turning the machine inside out, or taking it to pieces and putting it together again in the air, there was nothing left to be done. The crowd shouted itself hoarse, and the Fokker reputation faded away into the *ewigkeit*.

Let it be said in fairness that when Major Draper came down Herr Fokker went up to Mr. Koolhoven and said, "It is a good thing for us that those machines did not come into the war!" and he congratulated the pilot on his fine flying. It was a handsome acknowledgment of defeat. But when one considers that, only for the imbecility or knavery of the Technical Department, those same Bats might have been in the war from the middle of 1917 onwards, it makes one feel inclined to go out and assassinate somebody. Incidentally Herr Fokker was not quite a good enough sportsman to accept challenges to a flying competition sent to him by Sir John Alcock and Major Draper.

A Cause for Thanksgiving.

The contrast between the way the Germans treated the Dutchman Fokker and the way the English treated the Dutchman Koolhoven ought to be a lesson to us. And we ought to thank all our Gods that the latter has a Franco-Belgian wife and so was prevented from going to Germany. If the Germans had had the machine which we know as the Bantam Bat they would have treated our much-advertised S.E.5s. in 1917-18 just as their Fokkers treated our equally advertised B.E.2s in 1915-16. Certainly the R.A.F. owes Fritz Koolhoven a debt of eternal gratitude for not becoming a German, but gratitude is all he is ever likely to get, for the Government technical official cannot forgive the man who is a better technician than he is himself. The future of the Bat aeroplane lies in international commercial aeronautics, for the Technical Department will never forgive Fritz Koolhoven for being a genius while the best men the Technical Department could produce were merely fair average journeymen-designers, and so the firm need never expect Government orders.

The Dutch Eye.

Incidentally one's visit to Holland has cleared up a mystery about those Bat machines. One could never quite place their origin. They are English enough in excellence of workmanship and construction, but there is an un-English neatness and cleanness of line about them. The journey through Holland fixed them. Mr. Koolhoven must have taken his inspiration for the big passenger machine from one of those beautiful black-and-white Dutch cows, either black with white heads or white with black heads, which cover the whole country. And the Bantam gambolling in the air reminds one of a fat little Dutch bull calf that has gone mad.

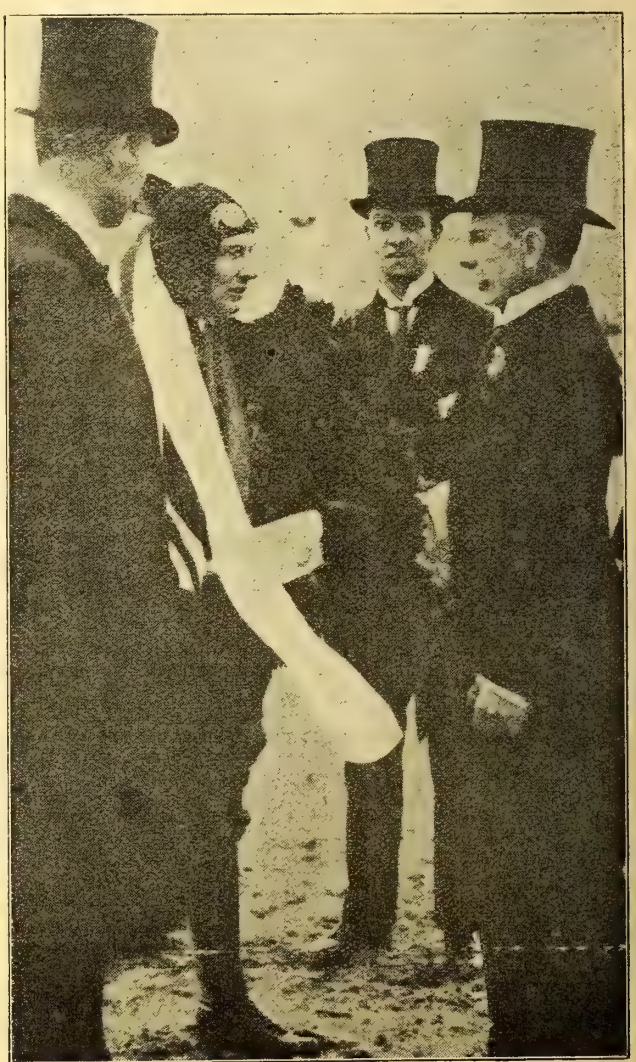
The Fokker is also essentially Dutch, but of a distinct type. Its short stubby fuselage, thick wings, and quick jerky manœuvres remind one of the little tubby high-bowed boats with brown sails which one sees on the big canals and rivers. Equally, Mr. Wijnmalen's beautifully-built Spijker biplanes suggest the unfailing eye for line and finish which produces the best buildings in Holland.

Some very good flying of the non-acrobatic kind was done by various Dutch civilian pilots, and by officers of the Flying Corps on Spijker machines, and on German machines which had been crashed in Holland and rebuilt at Soesterburg, the headquarters of the Army's aviation.

A Credit to Great Britain.

A terrific amount of hard work was done, purely for the credit of the old country, by a pair of Australian Flying Corps officers who flew a couple of 110 Le Rhône Avros to Amsterdam early in the Show. Seemingly all the Avro "joy-ride" pilots were too busy in England to go to Holland, so these two sportsmen volunteered to ferry the machines over. When they arrived they found that the Avros were expected to give joy-rides, so they set to work and carried passengers all day long. Being on the active list they could not take pay for it, but rather than let down the Avro firm before the Amsterdam public they became volunteer chauffeurs for a week or so, pending the arrival of the regular pilots.

Although they took up some fifty passengers a day there was always a queue waiting for flights, and they flew so well and safely that they did excellent propagandist work for British aviation. At times they did some "stunt" flying to amuse the crowd, and were duly presented with wreaths of honour by the Elta Committee. One of them in particular won much kudos by going up alone in the back seat of his machine and coming down in the front seat. As one was leaving Amsterdam a third Avro



AT THE ELTA.—Herr Fokker, encircled by a triumphal wreath, talking to General Snyders after an exhibition flight.

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arrived with two of the regular joy-ride pilots on board, but one believes that for the next two months Holland could keep a couple of dozen joy-ride machines fully occupied.

The Big Machines.

Despite the bogginess of the ground Sir John Alcock made several flights on a Vimy passenger machine, which had been flown over full of passengers and luggage by Captain Cockerell, R.A.F. The machine flies beautifully, the big streamline body making it faster and easier to handle than either the bomber or the trans-Atlantic machines—which seems to confirm Mr. José Weiss's theory that to get the best results out of a machine the cross-section of the body must bear a definite relation to the span and chord of the wings.

The little leading wheel of the Vimy saved her more than once from turning over onto her nose. Both Sir John Alcock and Captain Cockerell handled the machine splendidly, and gave the various people in high society in the Netherlands who were privileged to fly in the machine an excellent opinion of her suitability for her work.

A twin-engined Handley Page arrived about the middle of last week, piloted by Captain Meintjes, a South African Dutch pilot, formerly a star turn of the famous 23 Squadron, R.F.C., and a noted Hun-killer. He handles the big machine as well as he used to fly a scout, and made a perfect landing. As he was taxying to his shed—directed by a Dutch officer—his wheels sank into a hidden bog and the machine, after hesitating for what seemed like minutes, solemnly and slowly stood on its nose, where it remained bowing to the crowd with its nose in the sand and its tail in the air, like a Mussulman praying. It was very sad, but it was extraordinarily funny to watch.

It took six hours to get it right side up and out of the bog and into its shed, but happily it was quite undamaged, except for its wireless mast.

Late Arrivals.

Towards the end of last week various other machines began to arrive. Just as one was leaving the Show, with the cheering prospect of a 24-hour journey to London before one, Captain Lawford, R.A.F. (who will be remembered as the proprietor of a Champel biplane at Hendon before the war) drifted in happily on an Airco 9 with a Siddeley Puma B.H.P. engine, having come from Hounslow (which, with our usual intelligence, is a terminal air station ten miles the wrong side of London) to Amsterdam in three hours. Captain Saint, R.A.F., also came in on an Airco 4, having taken about the same time. General Brancker was expected some days earlier, but it was reported that he was staying a while in Brussels before coming on to Amsterdam.

No French machines arrived, which is rather remarkable, but Italy sent three excellent specimens, all of which put up a very good show.

Italy's Part.

The famous Lieut. Brack-Papa, one of the most charming as well as one of the most gallant and skilful of Italian pilots, arrived from London with that excellent little sportsman, Lieut. Buonocini, on the great 700-h.p. Fiat biplane which they flew from Rome to London in the day. So far she is the fastest publicly proved machine in the world, with her 160-mile-an-hour touring speed. The roar of that engine is a joy to hear, and Lieut. Brack-Papa handles her like an artist.

There was also a little S.V.A. two-seater which flew very well, and was cleverly handled. On Thursday a three-engined Caproni biplane arrived, making much noise, and carrying many passengers. It is not a pretty machine, and it seems to depend entirely on the pilot for its stability, but it does its job. Its turn seems to take the form of a flat spin checked by the three vast rudders after a quarter of a circle, which is terrifying but effective, for it has not fin area aft at all.

The Exhibition Itself.

The actual Aero Show itself is very well arranged in two big wooden halls. Naturally it is not a big show, judged by the standards of London and Paris, but what there is is good. British exhibits predominate, but the Hollanders themselves make a very creditable display. Mr. Henry Wijnmalen's Spijker-Trompenburg biplane, though of conventional design, will stand comparison with the machines of any other country. He shows a single-seater scout, and a two-seater, and on his stand is a Spijker sporting model car which fills one with covetousness. A particularly neat fitting in the Spijker machines is the method of fixing the steel ribbons which are used for bracing instead of our over-rated raf-wires. The Spijker way seems just as good, and about a quarter as costly.

Herr Fokker shows a biplane and a parasol monoplane of the war type, and an ingenious folding biplane, with a Morane-type fuselage. This last is shown with the left plane folded and laid flat against the body for road transport. The tail-skid is hitched onto the stern of an Opel car (a very smart two-seater), to demonstrate how the sporting aviator may tow his machine from aerodrome to aerodrome. It is pretty, but in this country our aviators prefer to fly from one place to another.

The Royal Nederlands Navy shows a well-built Friedrichshafen seaplane, built in the naval workshops from the wreckage of a German machine which was fished out of the North Sea. It is a highly creditable piece of work.

The Royal Nederlands Army shows a cleverly designed twin-engined machine, with two 110-h.p. le Rhônes, rather on Caudron lines, built at the military aerodrome at Soesterburg, out of the material of two Sopwith 1½ strutters which were compelled to descend in Holland and partly crashed. With two 80-h.p. le Rhônes the machine flies very well, but it has not yet been tried with the 110's. The workmanship throughout is up to the high standard of all work in Holland.

The remaining Dutch exhibit is a seaplane of Brandenburg type, minus an engine, built by Van Berkel's Patent, of Rotterdam, the firm which is famous for the slicing and cutting machines so popular in hotels and cook-shops. The combination is curious. As usual, the workmanship is good.

There are a good many accessory stands showing tools, material, lamps, and so forth, but nothing of particular note except the "Picus Triplex," which appears to be a very excellent breed of three-ply wood at very much less than the price which we are accustomed to pay in this country.

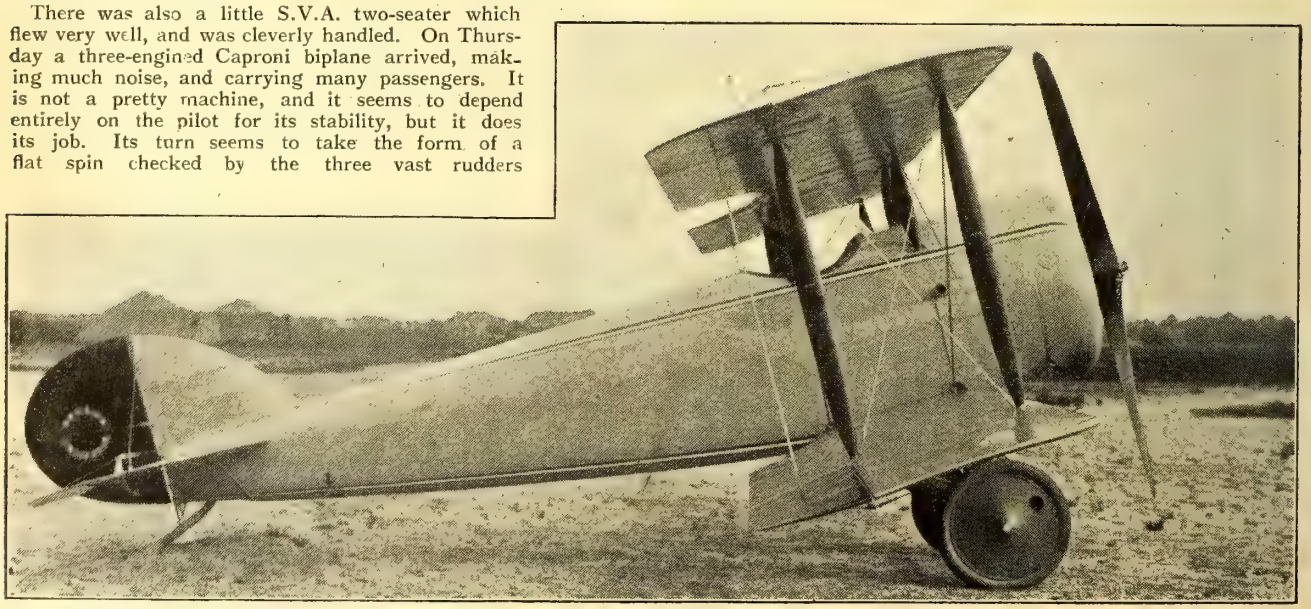
The French Exhibits.

The French exhibit consists of a stand of the Messageries Aériennes—a combine of Blériot, Bréguet, Caudron, and Morane. The only machines on view are a Breguet war machine with five machine-guns, and a Caudron, neither of new type. The Gnôme and Le Rhône Co. also have a stand.

The British Exhibits.

There are several British machines in the show. The biggest is, naturally, the four-engined Handley Page already mentioned.

The next is a Vickers-"Vimy"-Rolls-Royce bomber, and on



A CLEAN DESIGN.—The latest type Spijker-Trompenburg Scout, Holland's leading aeroplane.

Victory Aerial Derby

Open to All Comers

Out of 12 starters—only one with Napier Engine—seven finished.

NAPIER FIRST

Average speed 129.3 m.p.h; 2.8 m.p.h. better than the Official World's Record.

The Napier was also the First Engine to Reach Six Miles Up in the Air.

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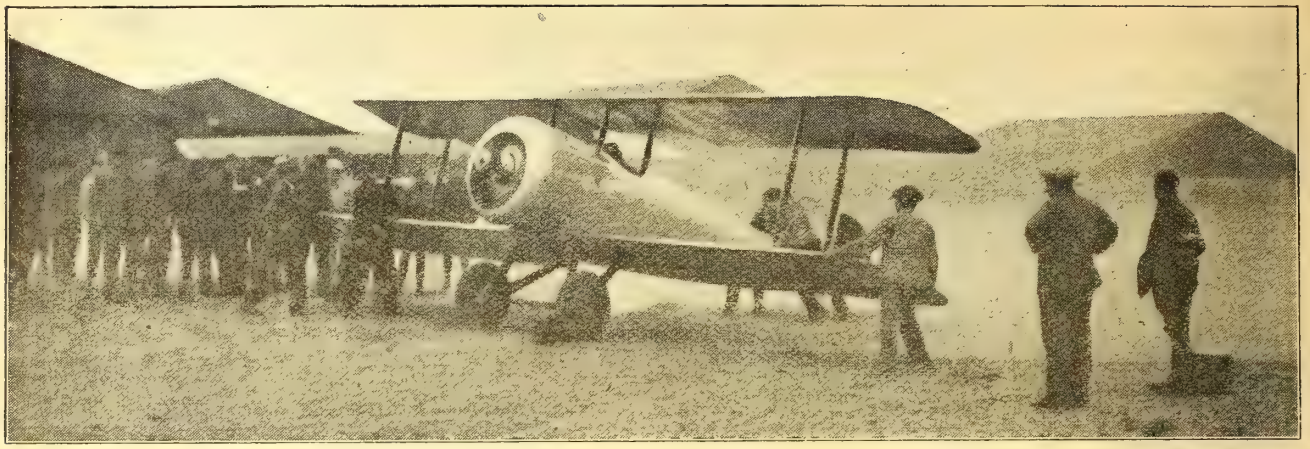


AVIATION IN HOLLAND.—The latest type Spijker Biplane under test at Soesterburg.

the stand is the passenger cabin of a Vimy commercial machine, now improved by having a door at the back. The Vickers people also show a very neat model of their "Valentia" flying boat, and a model of a Vimy reposing inside a model of an Alban Richards hangar. Altogether it is a very taking exhibit.

The British Aerial Transport Co. show a Bantam Bat, and also a Bat "Crow," an up-to-date version of the early "Demoiselles." These machines have already been described in this paper.

The Airco had just received an Airco 4, with enclosed passenger compartment, when one was leaving. Their stand is strikingly arranged with very good paintings of Airco machines by Mr. Hill Reid, and a big model of Hendon aerodrome. A prominent feature on the stand is a Napier "Lion" engine, which attracts much attention from the motor engineers of all nations, and has produced very favourable comments.

The Gosport Co. and the Blackburn Co. both have stands, but either because of strikes or Government officials (one never knows which are hanging up industry in these days) their exhibits had not arrived when one left. The General Aeronautical Co. also have a stand, which was similarly lacking in exhibits at the time, though British Emaillite, which pertains to their business, was well represented in the show. The Palmer Tyre Co. have a good show of their famous products. Adastra Clothing is well shown, but for some curious reason the London address of the firm was not to be seen, so far as one could discover. The Marconi Co. show wireless sets for field and aerial work of all sorts. And the Farringdon Propeller Co. make a good show.

Holland's Aircraft Factory.

A very pleasing interlude in one's work at the Elta was a visit to the Spijker works, in company with Lieuts. Brack-Papa and Buonocini, at the invitation of Mr. Wijnmalen. Those who were concerned with flying in its early days will remember Mr. Wijnmalen as a singularly fine pilot of Farman biplanes. On October 1st, 1910, he beat the world's height record by reaching a height of 9,118 feet (2,780 metres) on a 50-h.p. Gnôme box-kite, so modern pilots may judge that he was an aviator of great ability. Though he is now the head of the biggest motor works and the only aircraft factory in Holland, he looks as young and is as energetic as he was nine years ago.

His works are at Trompenburg—the site of the castle of our ancient enemy, Admiral Van Tromp—and they would cheer the heart of any enthusiastic motor maker in this country. The showroom is a thing of beauty which would kill any car which was less than first class, but the cars are worthy of the showroom, for Mr. Wijnmalen is an artist as well as an engineer. Never has one seen more beautiful chassis lines nor finer *carrosserie*.

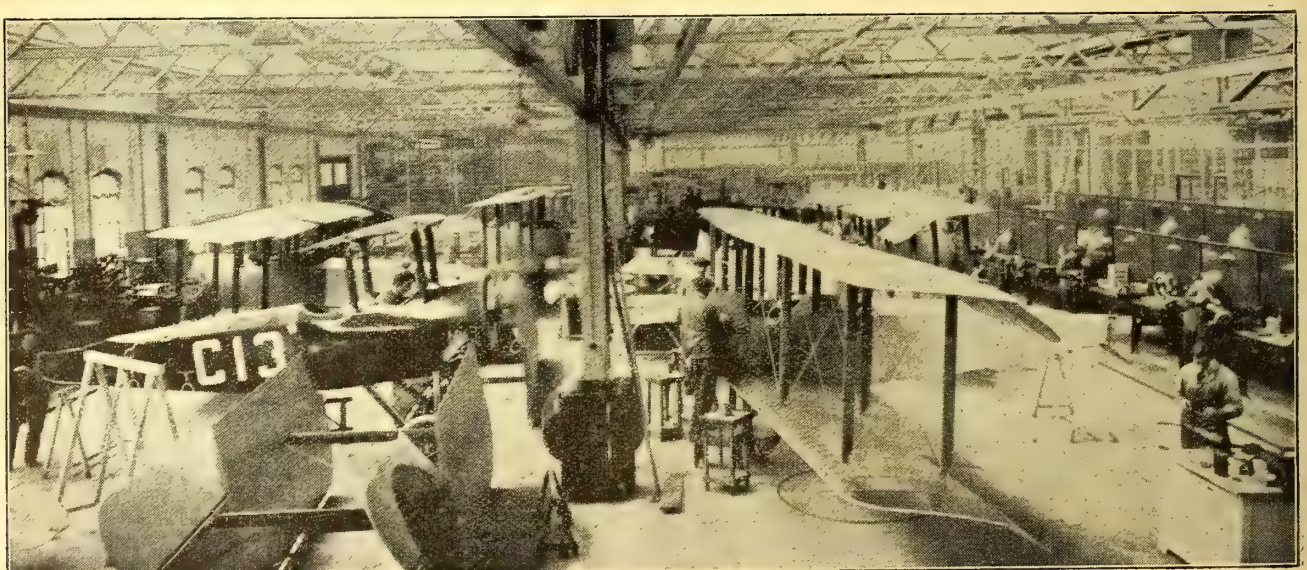
The works themselves are worthy of their products; they are exquisitely neat, they are arranged on the most modern system, everything possible is done for the health and comfort of the workpeople, and they are equipped with the latest thing in machinery—chiefly American, sad to say.

The aeroplane section of the works, which exists on orders for the Royal Nederlands Flying Corps, is on a par with the firm's motor works. The machines are thoroughly well made, and the internal finish of the parts is equal to our own best work. Though Mr. Wijnmalen has adhered to conventional lines in his designs his machines have a distinctive appearance, thanks to their typically Dutch cleanness of outline, and one feels sure that when international commercial flying develops the Spijker aeroplanes will make a big name for themselves.

After the inspection of the works Mr. Wijnmalen and his charming wife entertained the visitors with even more than that hospitality which seems to be one of the national industries of their country, and one confesses to a feeling of helpless envy after seeing the artistic treasures which he has accumulated in his house. One takes this opportunity of thanking Mr. and Mrs. Wijnmalen on behalf of their various guests from England for adding very greatly to the pleasure of their visit to Holland. It is to be hoped that ere long they themselves will come to England and afford us an opportunity of returning their hospitality.

Thanks to Elta.

Taking it all round, the promoters of the Elta may congratulate



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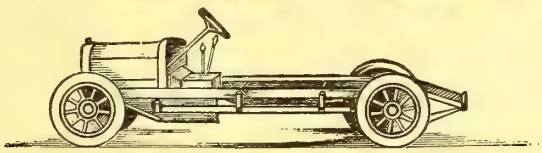

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themselves on Holland's first aero show, and none is better deserving of congratulation than is Mr. Van Der Steen, the organiser in London of the British section. Mr. Van Der Steen's energy and assiduity brought many of the best people in the Aircraft Industry to Amsterdam, and his care for their welfare when they arrived deserves the thanks of all concerned.

As one has indicated in these notes, the show is not a big show, but it is a very good show, and it is fulfilling an excellent purpose. It is interesting the international commercial men of Holland in aviation, and it is demonstrating to all and sundry that, despite strikes and Government officials, the British Aircraft Industry still leads the world in its own particular line of business.

Therefore one feels that the Elta deserves the thanks of the aeronautical community for the good work it is doing. To the President and to the Committee of the Elta one offers compliments on their success and thanks for their hospitality on behalf of all their British visitors.

C. G. G.

P.S.—As this number is going to press on Aug. 12th a telegram, sent from Amsterdam on Aug. 10th at midday, arrives stating that a Gosport flying-boat of the school training type, with a 120-h.p. British Anzani engine, had arrived at the Elta in 4½ hours' flying time from Southampton, piloted by Mr. Ash, with an engineer as passenger. So it takes two days for a telegram to get from Amsterdam to London, and 4½ hours for a little school boat to get from Southampton to Amsterdam.

THE CANADIAN AIR BOARD.

The following appeared in the issue of "Canada," dated Aug. 2nd:—

"The Civil Service Commission, Ottawa, state that a Canadian Air Board having been constituted, the following appointments have become available at the following initial salaries:—Secretary, $3,000 per annum; Superintendent of Certificates Branch, $3,600 per annum; Superintendent Government Flying Operations, $4,500 per annum; Medical Officer, $2,400 per annum. All salaries are subject to annual increase.

"These appointments would be for three years, renewable, and candidates who do not secure appointments may be eligible for other positions under the Air Board, probably including the following:—Assistant Secretary, 2 Inspectors in the Certificates Branch (1 for pilots and navigators, 1 for aeroplanes and mechanics), a Flying Officer in Operations Branch, and Equipment and Supply Officer in Operations Branch. The appointees of all positions must be willing to fly.

"Application should be made to the office of the Director of Air Services, Canadian Air Force, Oxford Circus House, London, not later than Aug. 21st, 1919."

THE ROYAL AERO CLUB.

VICE-PATRON OF THE CLUB.

H.R.H. The Prince of Wales has honoured the Club by becoming a Vice-Patron.

THE SOCIETY OF BRITISH AIRCRAFT CONSTRUCTORS AND THE ROYAL AERO CLUB.

A meeting of the Joint Standing Committee of the Society of British Aircraft Constructors and the Royal Aero Club was held on Thursday, July 24th, 1919, when there were present:—Royal Aero Club: Lieut.-Col. J. T. C. Moore-Brabazon, M.P. (in the Chair), Lieut.-Col. F. K. McClean, Lieut.-Col. Alec Ogilvie, and Mr Harold E. Perrin (Secretary). Society of British Aircraft Constructors: Mr. R. O. Cary, Mr Hamilton Fulton, Mr. N. G. Gwynne, and Mr. Charles V. Allen (Secretary).

CHAIRMAN.—On the motion of Mr N. G. Gwynne, seconded by Lieut.-Col. F. K. McClean, Lieut.-Col. J. T. C. Moore-Brabazon, M.P., was unanimously elected to the Chair.

The appointment of the Joint Standing Committee was reported as follows:—

SOCIETY OF BRITISH AIRCRAFT CONSTRUCTORS.—Capt. P. D. Acland, Mr. R. O. Cary, Mr. Hamilton Fulton, Mr. N. G. Gwynne.

ROYAL AERO CLUB:—Lieut.-Col. F. K. McClean, Lieut.-Col J. T. C. Moore-Brabazon, M.P., Mr. J. H Nicholson, Lieut.-Col. Alec Ogilvie.

RECORDS.

It was decided that the word "Record" should not be used in any advertisement except in the case of a definite record having been granted by the Royal Aero Club.

SPECIAL COMMITTEE MEETING.

A Special Meeting of the Committee was held on Wednesday, July 30th, 1919, when there were present:—Brig.-Gen. Sir Capel Holden, K.C.B., F.R.S. (in the Chair), Mr Ernest C. Bucknall, Lieut.-Col. John D. Dunville, R.A.F., Lieut.-Col. Spenser D. A. Grey, D.S.O., R.A.F., Lieut.-Col. T. O'B. Hubbard, M.C., R.A.F., Lieut.-Col. F. K. McClean, Lieut.-Col. Alec Ogilvie, Col. C. R. Samson, D.S.O., R.A.F., and Mr Harold E. Perrin (Secretary).

GOLF.

A golf match between the Royal Air Force Club and the Royal Aero Club took place at Worplesdon on Tuesday, July 29th, 1919. The morning's play resulted in the Royal Air Force Club being defeated by 6 matches to 1. The afternoon was given up to four-ball matches, in which the teams finished "2 all." The Royal Aero Club won, therefore, on the day's play by 8 points to 3.

THE FLYING SERVICES FUND.

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For the benefit of Officers, Non-Commissioned Officers and Men of the Royal Air Force who are incapacitated while on duty, and for the widows and dependants of those who are killed or die from injuries or illness contracted while on duty.

HONORARY TREASURER:
The Right Hon. Lord Kinnaird.

COMMITTEE:
H.R.H. Prince Albert, K.G. (Chairman).
Mr. Chester Fox.
Lieut.-Col. T. O'B. Hubbard, M.C., R.A.F.
Lieut.-Col. C. E. Maude, R.A.F.

SECRETARY:
H. E. Perrin.

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SUBSCRIPTIONS:

Total subscriptions received to July 29th, 1919	£15,677 19 1
Amount paid for a passenger flight with Mr. H. G. Hawker on May 31st, 1919, per the Sopwith Aviation and Engineering Co., Ltd.	42 0 0
Total, August 1st, 1919 ...	£15,719 19 1

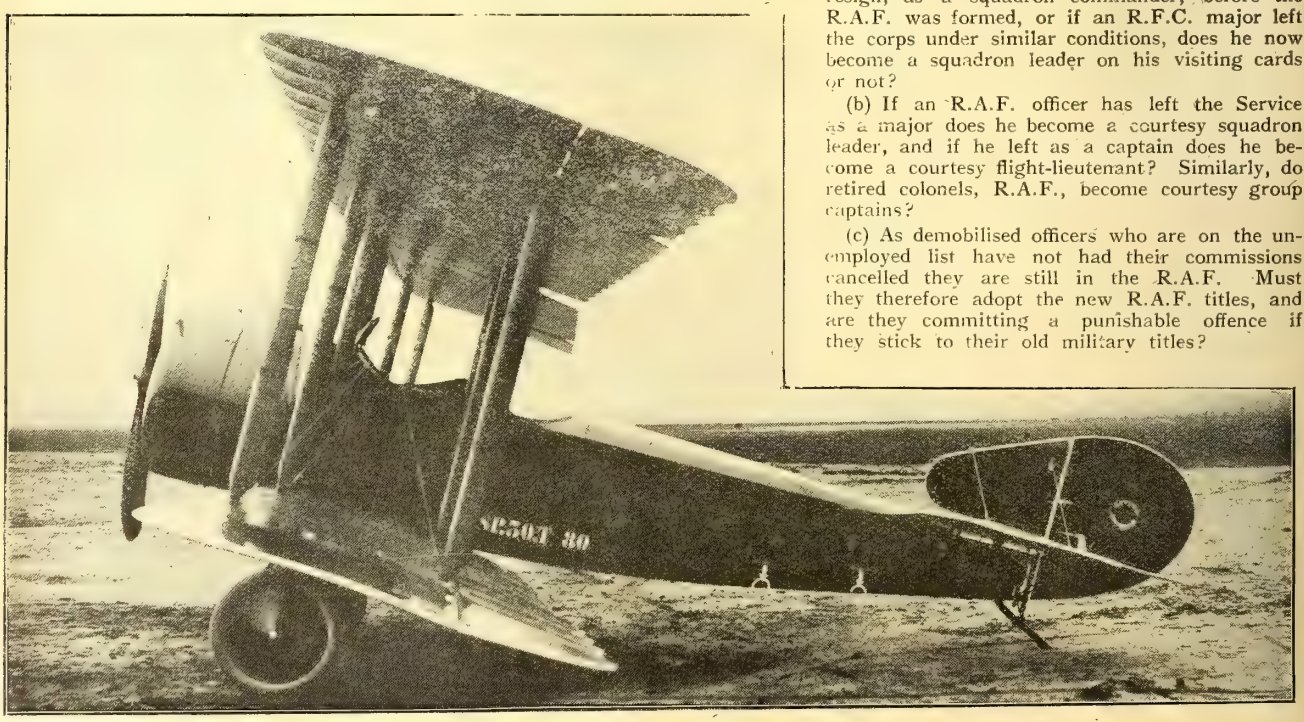
NEW FOR OLD TITLES.

Will the Invention of Rank Titles Department of the Air Ministry please give rulings on the following points?

(a) If an R.N.A.S. officer was invalided out or was permitted to resign, as a squadron commander, before the R.A.F. was formed, or if an R.F.C. major left the corps under similar conditions, does he now become a squadron leader on his visiting cards or not?

(b) If an R.A.F. officer has left the Service as a major does he become a courtesy squadron leader, and if he left as a captain does he become a courtesy flight-lieutenant? Similarly, do retired colonels, R.A.F., become courtesy group captains?

(c) As demobilised officers who are on the unemployed list have not had their commissions cancelled they are still in the R.A.F. Must they therefore adopt the new R.A.F. titles, and are they committing a punishable offence if they stick to their old military titles?



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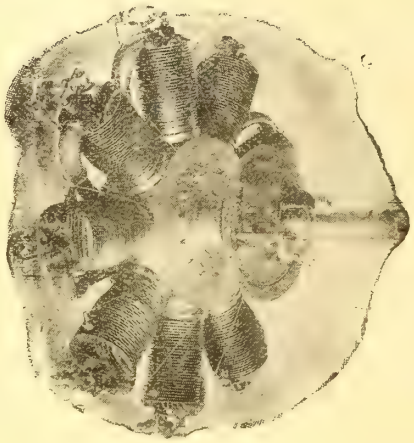

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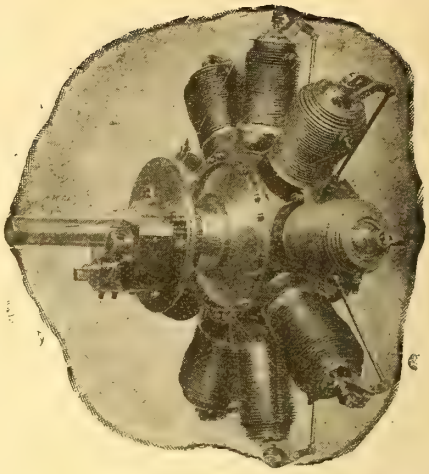

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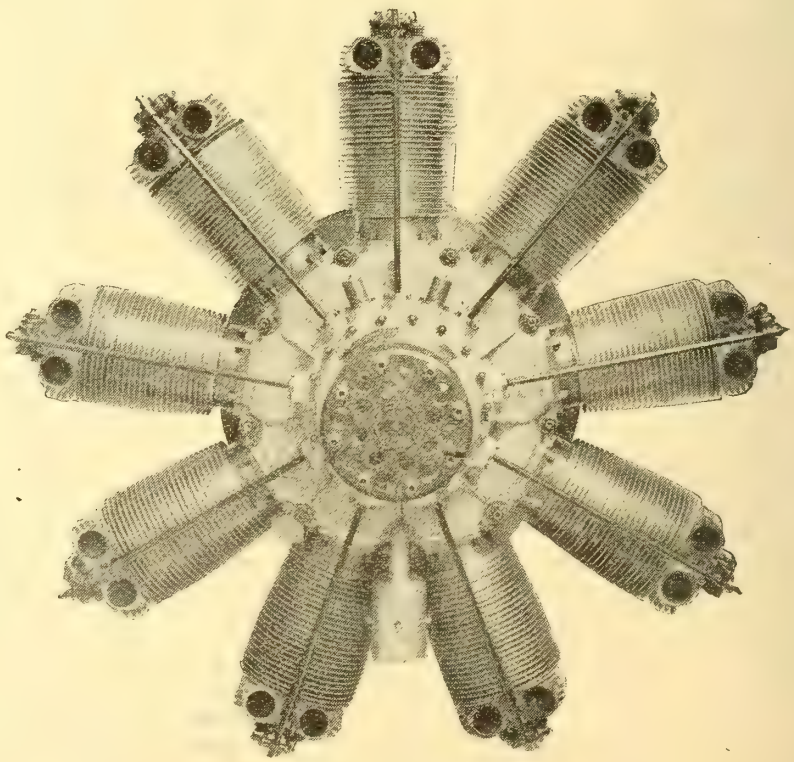

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THE machine illustrated above is the B.A.T., F.K. 26—a dual purpose aeroplane equally suitable as a heavy load mail carrier or a four-seater touring machine. Equipped with a Rolls-Royce Eagle VIII. motor, an average speed of over 120 miles per hour is obtained at a fuel cost of under eightpence per mile.

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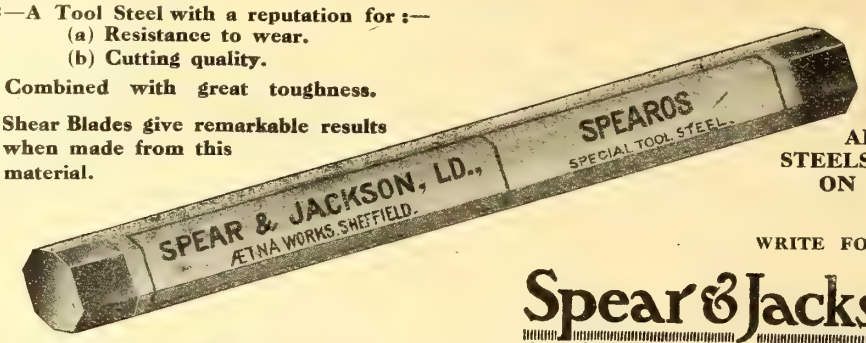

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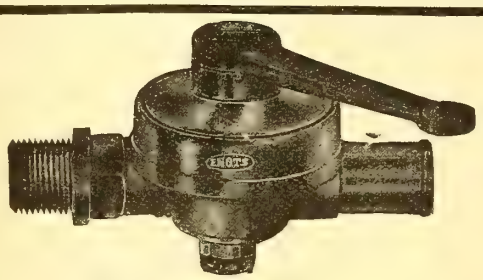

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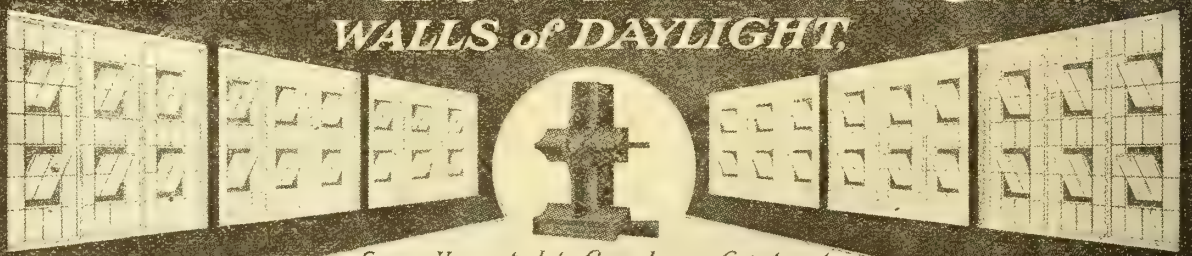

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INCORPORATING AIRCRAFT ENGINEERING, AERODYNAMICS, AIRCRAFT FINANCE AND COMMERCIAL AERONAUTICS AND MATTERS PERTAINING TO THE AERONAUTICAL ENGINEER AND THE AIRCRAFT TRADER.

THE WEEKLY COMMENTARY.

In an article on "Aerial Propulsion," Capt. W. H. Sayers discusses the inefficiency of the method now employed in the propelling of aircraft.

He shows that the heat energy of burning fuel is used directly to set gas in motion, this motion is communicated by a complicated mechanism to the airscrew, finally to set in motion once more another body of gas—the airscrew slipstream.

The turbine is considered as a simplification of the chain of mechanism between the first and the final stage.

A new passenger-carrying machine designed and built by the Westland Aircraft Works for commercial purposes is described in this issue.

The Handley Page multiple-engine machines of the O/400 and the V/1,500 types are described in this week's instalment of the series on "Modern British Aeroplanes."

A letter from M. L. P. Frantzen describes the French Couade tandem parachute system of 1913, which bears a close resemblance to the tandem parachute system described by Lieut.-Col. Holt in recent issues of this paper.

AERIAL PROPULSION.

By Capt. W. H. SAYERS, late R.A.F.

The future of the aeroplane as a commercial vehicle is to a very large extent dependent upon the cost of operating aerial services.

Whether the aeroplane remains as it now is, a costly method of transport, or whether it can be made cheap to build and to run, it undoubtedly has a future.

Unless the world at large relapses into mere savagery, there will always be occasions upon which the saving in time on a journey, which the aeroplane alone can secure, will be of greater value than the cost of thus saving it.

If, on the other hand, aerial transport can be made really cheap and at the same time safe and reliable, then its uses will be enormously extended.

Practically the whole question of the cost of aeroplane travel is a question of the method of propulsion.

The prime cost of an aeroplane of any normal type is very largely composed of items relating to the propelling plant.

The Direct and Indirect Cost of Power Plant.

In very few modern machines does the cost of the aeroplane itself, without engine, fuel tanks, radiators, airscrews, and the instruments and controls incidental to the power plant, exceed one half of the total cost of the machine with these items installed.

Of the cost of maintaining an aeroplane in service, at least 50 per cent. is directly chargeable to the cost of power plant overhaul and maintenance, and with present-day machines the weight of engines and their accessories, together with fuel and oil, is always very much greater than that of the useful or paying cargo which can be carried.

Of the actual cost of running an aeroplane over any given stage, fuel and oil account for no inconsiderable proportion.

Finally, apart from accidents caused either directly or indirectly by failure of the propelling mechanism, the aeroplane is probably the safest type of vehicle in existence.

Thus the importance of improving upon the present methods of propelling aeroplanes cannot be exaggerated.

It is well worth while to consider in some detail the chain of processes which in the aeroplane convert the latent energy of the fuel into a propulsive effort.

A Complex Cycle.

In the first place, the fuel, mixed with an appropriate amount of air, is burnt, raising the temperature of the products of combustion to a great extent, and causing them to expand. In so expanding, this gas drives before it a piston, which in its turn, through the connecting-rod, drives round the crankshaft.

The crankshaft by its rotation causes the airscrew to revolve, and the airscrew reacts upon the air in which it works and drives backward from the aeroplane a column of air.

The actual propulsion effort exerted upon the aeroplane is equal, and in the opposite direction, to the force which is exerted upon the air driven backwards, and which serves to put it in motion.

Thus the process begins with the setting in motion by the application of heat of a mass of fluid. This motion is in turn converted into a linear movement of the piston, a rotary motion of crankshaft, airscrew, and finally into a more or less linear movement of a further mass of fluid.

In each of these changes in the nature of the movement there is a loss of some of the original energy of combustion.

In the first place, of the heat energy liberated at combustion some large proportion is absorbed in heating cylinders and pistons, and is carried off by the cooling water and air. Secondly, the heated gas within the cylinders is liberated long before it has given up all its heat energy, and is allowed to escape, carrying the remnant with it. Some 55 per cent. or more of the total heat energy of the fuel is thus lost.

In the translation of the linear motion imparted to the piston into the rotary motion of the crankshaft there are frictional losses. In addition to those which occur in the actual translation there are losses involved in driving the valve gears, oil and water pumps, and magnetos, which have to be deducted from gross

power delivered by the piston to the crankshaft. In such ways some 10 per cent. of the energy delivered to the piston, or 5 per cent. of the fuel heat energy, is dissipated.

Thus at the most 40 per cent. of the total stored energy in the fuel is available at the crankshaft end for driving the airscrew.

In the final translation of the rotary motion of the crankshaft to the linear motion of the slipstream, by the airscrew, there is a further loss of at least 20 per cent. of the net output of the engine, or 8 per cent. of the original energy of the fuel.

A Low Efficiency.

Thus the overall efficiency of the propelling mechanism of the aeroplane is not more than 32 per cent. In practice this figure is never reached. It is based upon a combination of the best possible results right through the whole cycle of propulsion.

Probably 28 per cent. overall efficiency is about as high as can be relied upon under practicable conditions.

Since an aeroplane in flight is entirely immersed in the air, and has no connection with any other body, there is obviously no other abutment against which a propelling force can act. As the air is fluid, any force applied to it will set it in motion, and it is not possible to propel an aeroplane without driving a current of air astern, not merely relatively to the aeroplane, but relatively to the whole body of air.

The propulsive effort obtained by so driving a current of air astern depends upon the mass of air affected and the speed of the current. Thus an airscrew which drives an air current astern at 32 ft. per second will give a thrust of one pound for every pound of air which passes through it per second. If the air speed of the aeroplane to which the airscrew is attached be 88 ft. per second, the slipstream velocity past the aeroplane must be 88 + 32 or 120 ft. per second to keep the thrust to that value.

If the slipstream velocity relative to the aeroplane is reduced to 104 ft. per second, making the real velocity of the air current 16 ft. per second, a thrust of only half a pound for every pound of air passing the airscrew per second is obtained.

The stream of air moving astern has, in virtue of its motion, kinetic energy, which has to be supplied by the engine driving the airscrew. Thus a certain amount of the engine power is necessarily expended in propelling air instead of propelling the aeroplane.

For any given thrust the amount of this loss is entirely dependent on the relative velocity of the slipstream to the general body of the air.

Thus with a slipstream having an absolute velocity of 32 ft. per second the loss is $1 \times 32 = 32$ ft.-lbs. per second $= 32/550 = 0.058$ h.p. per lb. of thrust obtained.

With the absolute slipstream velocity of 16 ft. per second the loss is only 16 ft.-lbs. per second $= 0.029$ h.p. per lb. thrust, although twice as much air must be set in motion to give that pound of thrust.

The Real Problem.

Thus the problem of aeroplane propulsion is to provide a stream of air of the greatest possible mass, or cross-section, and moving, relatively to the undisturbed air around, at the least possible velocity.

In its present form the airscrew can be made to give efficiencies up to 80 per cent., but, except for machines of very much greater speeds than have at present been reached, there is little likelihood of any great advance. As a device for transforming rotary motion into a propulsive effort there is little hope of greatly improving upon the airscrew as it is now known.

The internal combustion engine converts the heat energy of the fuel into energy in a form suited to the driving of the airscrew with an efficiency of rather less than 40 per cent. Here again there is little prospect of, if much room for, any great improvement without an entire change in the type of engine used.

The idea of using some form of turbine in place of the reciprocating engine has many attractions.

A Real Simplification.

The turbine in effect cuts out two of the transformation steps in the conversion of the energy of expanding gas into the energy of rotation of the engine shaft. The hot gas is allowed to expand in flowing past the blades of the turbine wheel, and in so flowing gives up part of its kinetic energy directly to the rotating blades. It is thus possible to avoid many of the mechanical losses which are inseparable from the reciprocating engine.

Also, the turbine promises a large reduction in weight as compared with the reciprocating engine.

So far, though there are certain rumoured experimental productions, no internal combustion turbine is doing practical work. In any form the steam turbine is scarcely a practicable aero-engine.

The best steam turbine fuel consumption per h.p.-hour still exceeds that of the petrol engine to a very appreciable extent. The weight of water which must be evaporated is something like 10 lbs. per h.p.-hour, and, although this can be condensed and returned to the boiler after exhaust, a certain loss occurs in the process. To make up for this, a weight of water probably not less than half a pound per h.p.-hour will have to be carried as a "make-up."

Thus water and fuel together will weigh at least twice as much as the fuel and oil required for a petrol engine of equal output.

In addition, the steam turbine loses immensely in efficiency unless a very high vacuum is maintained at the exhaust outlet. This calls for large condensing plant and air pumps. Condensers may be made light by air-cooling them. Unfortunately an enormous surface is needed, and the head resistance would then become excessive. Altogether, steam plants do not appear to have any very great future.

An Experimental Effort.

There has been suggested, and it is understood that experiments are to be made with, a type of turbine generally similar to the steam turbine of commerce, but employing the vapour of some fluid other than water.

This fluid is preferably to be an inflammable one, with a considerably lower boiling point and a lower latent heat of evaporation than has water.

Owing to the low latent heat, it is hoped that condensers small and light compared with those needed for steam will suffice, and it is proposed to use a small proportion of the exhaust as a fuel in the boiler.

It is hoped that by such methods it may be possible to produce large power plants which shall not exceed either in plant weight or in fuel consumption petrol engine plants of equal output, and which will be very much more reliable than are these.

The author must confess that he does not see any great likelihood of success along such lines.

Putting an inflammable liquid into a boiler and vaporising it does not sound a particularly safe proceeding, particularly in an aeroplane, and the prospects of greatly reducing the total weight to be carried for power plant and accessories seem remote.

However, the scheme is being considered by a firm of the highest standing in the engineering world, with a very large turbine experience, so that it may fairly safely be presumed that the scheme has advantages as yet undisclosed to recommend it, and the fact that any such experiment should be put in hand in earnest is at least a hopeful sign.

(To be continued.)

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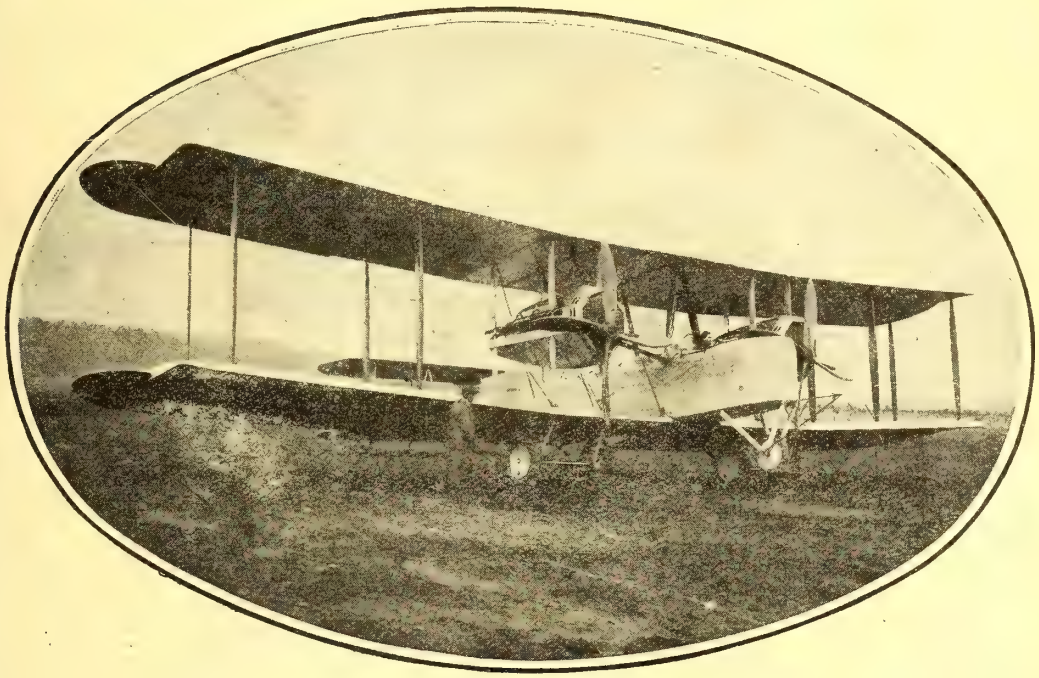

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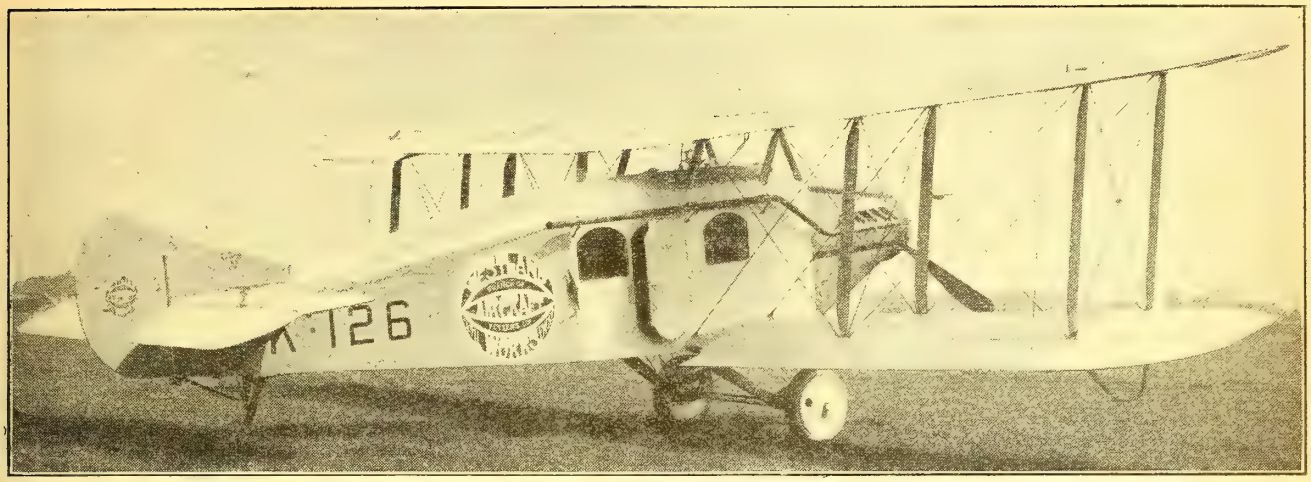
THE "WESTLAND LIMOUSINE."



Three-quarter View from Rear of the "Westland Limousine" (Rolls-Royce "Falcon" engine).

Of the numerous engineering firms which during the war have undertaken the manufacture of aircraft, Petters, Ltd., of Yeovil—known as regards their aeroplane department as the Westland Aircraft Works—have taken a prominent place. Their aircraft products have gained for themselves a uniform and high reputation for excellent workmanship and finish.

The success of their efforts at producing machines to official specification encouraged them to proceed to original design work, and they have built, for war purposes, the experimental seaplanes N.16 and N.17, the Westland "Wagtail" and the Westland "Weasel," all of which have given excellent results.

Messrs. Petters' experience of war aeroplane building has left them with a firm confidence in the future of aviation as a means of transport, and the firm has determined to develop aircraft for commercial transport services.

At the invitation of the company, representatives of the Technical Press were given on July 31st, an opportunity of inspecting and making trial flights in the first of the firm's machines designed for commercial work.

This—which is to be known as the "Westland Limousine"—is a small four-seater passenger-carrying machine, designed for the use of business men and the like to whom time is of value, but who wish to travel in reasonable comfort.

In so far as its aerodynamical features are concerned, the machine is a perfectly normal tractor biplane.

The fuselage is a totally enclosed affair containing four seats. Of these the after one on the port side is raised above the cabin floor some 2 ft. 6 ins., and has above it an opening into the outer air. This is occupied by the pilot, and is fitted with the usual controls.

The three remaining seats are at a lower level, so that the occupants are entirely within the fuselage.

One seat is beside that of the pilot, facing forward, and the remaining pair, in the front end of the cabin, face one forward and one back.

The passenger cabin, which forms one unit of the three comprising the fuselage, is a three-ply and timber structure, free from all internal crossbracing, and has at its for'ard end a double bulkhead of three-ply with an asbestos filling between, which acts as an insulation against both the heat and the noise of the engine.

The engine exhaust is carried back past the pilot by long exhaust pipes, and the cabin is fitted with a ventilator, adjustable from within, which allows air from the slip stream to enter at the for'ard end and pass out by the pilot's cockpit.

The interior of the cabin is upholstered in the style characteristic of the very finest class of motor-car bodies, the seats are extremely comfortable, and there is ample leg room.

Conversation can be carried on with ease, and although there are no draughts, there is no trace of odour from the engine.

After a fairly long experience of flying in open machines the writer must confess to a feeling of discomfort when flying in the totally enclosed cabin of this machine.

The discomfort is by no means uncommon, and is probably due to the fact that though one knows that one is flying, one misses most of the accustomed sensations of the sport.

It is, in fact, very terrifying to miss that comforting 100-mile an hour blast straight in the face that assures one that though the earth is apparently trying its hardest to fall on one from the side it will not succeed, and a muffled kind of moan is a poor substitute for the healthy roar that tells of 12 cylinders all firing regularly.

Thus the feeling is, in fact, a measure of the designers' success. It can certainly be said that the "Westland Limousine" is considerably more comfortable to travel in than was the dining-car upon which the return journey from Yeovil to London was made.

There was no more noise, considerably less oscillation—and that under very bumpy weather conditions—certainly less smell, and considerably less of that leg-cramping effect which is common to railway carriages and theatre seats.

To the front end of the cabin structure ahead of the bulkhead are affixed beams for fuel tanks and the engine mounting.

The latter is in this case an affair of steel tubes arranged to carry a Rolls-Royce "Falcon" engine. The whole structure is removable, and engine mountings for other types of engine may be fitted without any structural alterations to the cabin unit.

The rear part of the fuselage is of the usual wire braced construction.

Very great care has been taken over the engine installation to secure cleanliness.

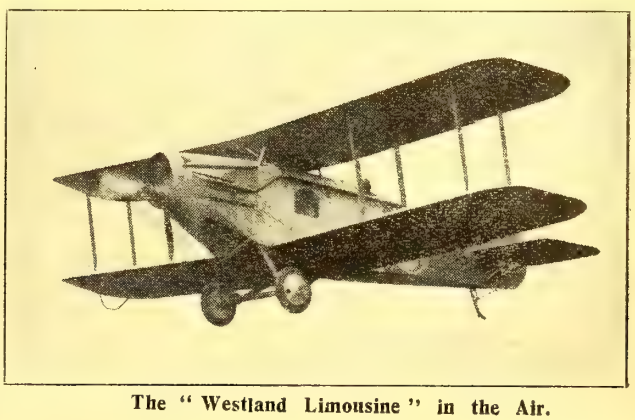
The whole body is painted in a very pleasing shade of grey—one which would easily rival "Bolo blue" in its capacity for showing dirt.

Upon the arrival of the party at the aerodrome the machine had the appearance of having just left the paint shop. At the end of the afternoon—after four or five flights—of a total of probably an hour and a half, it was impossible to discover any sign of oil or dirt about the body.

As a demonstration of the conditions prevailing within the cabin, one of the typists from the works office, complete with note-book and typewriter, made a flight in the machine. Whilst in the air letters were dictated to her and were successfully typed.

This particular demonstration was partially marred by a hitch which would appear to demand the immediate attention of the Department of Civil Aeronautics. The ground staff at the aerodrome appear to have been totally inexperienced in the erection and truing up of typewriter machines, and, on the first trial, it was found that insufficient clearance had been allowed for the operation of the shift key. Quite a number of otherwise excellent letters were thus deprived of their Capitals, and unless a new department is immediately formed to supervise the installation of aerial typewriters, a number of accidents even more serious may occur.

By the removal of the upholstery and the seats the "Limousine" may be converted to a mail-carrier. There is available about 95 cub. ft. of space, and the machine would carry comfortably from 500 to 600 lbs. of goods.



The "Westland Limousine" in the Air.

A careful observation of the pilot's actions in the air leaves no room for doubt that the machine is in excellent balance, and is both light and quick in answering its controls.

Altogether, the machine reflects great credit upon the enterprise of its makers and upon its designers, Mr. R. A. Bruce, the managing director, and Mr. Davenport, the chief draughtsman, of the Westland Aircraft Works.

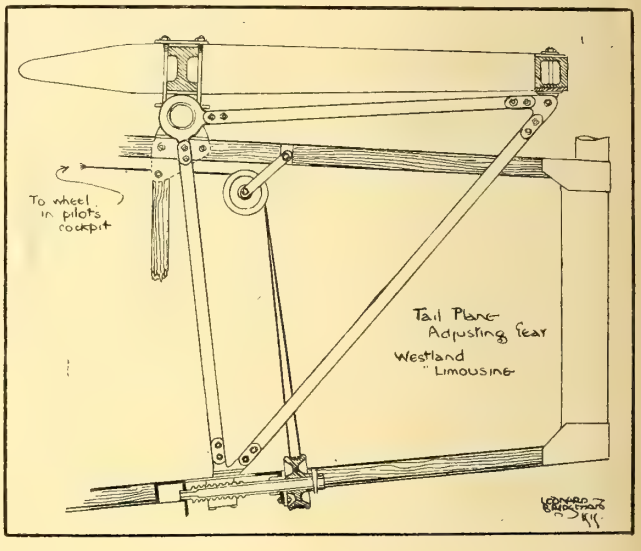
Amongst the noteworthy details of construction the tailplane adjustment gear, which is illustrated herewith, is of interest. The mechanism is covered by a patent, and the essential feature is the complete and simple triangulation of the tailplane bracing which is secured.

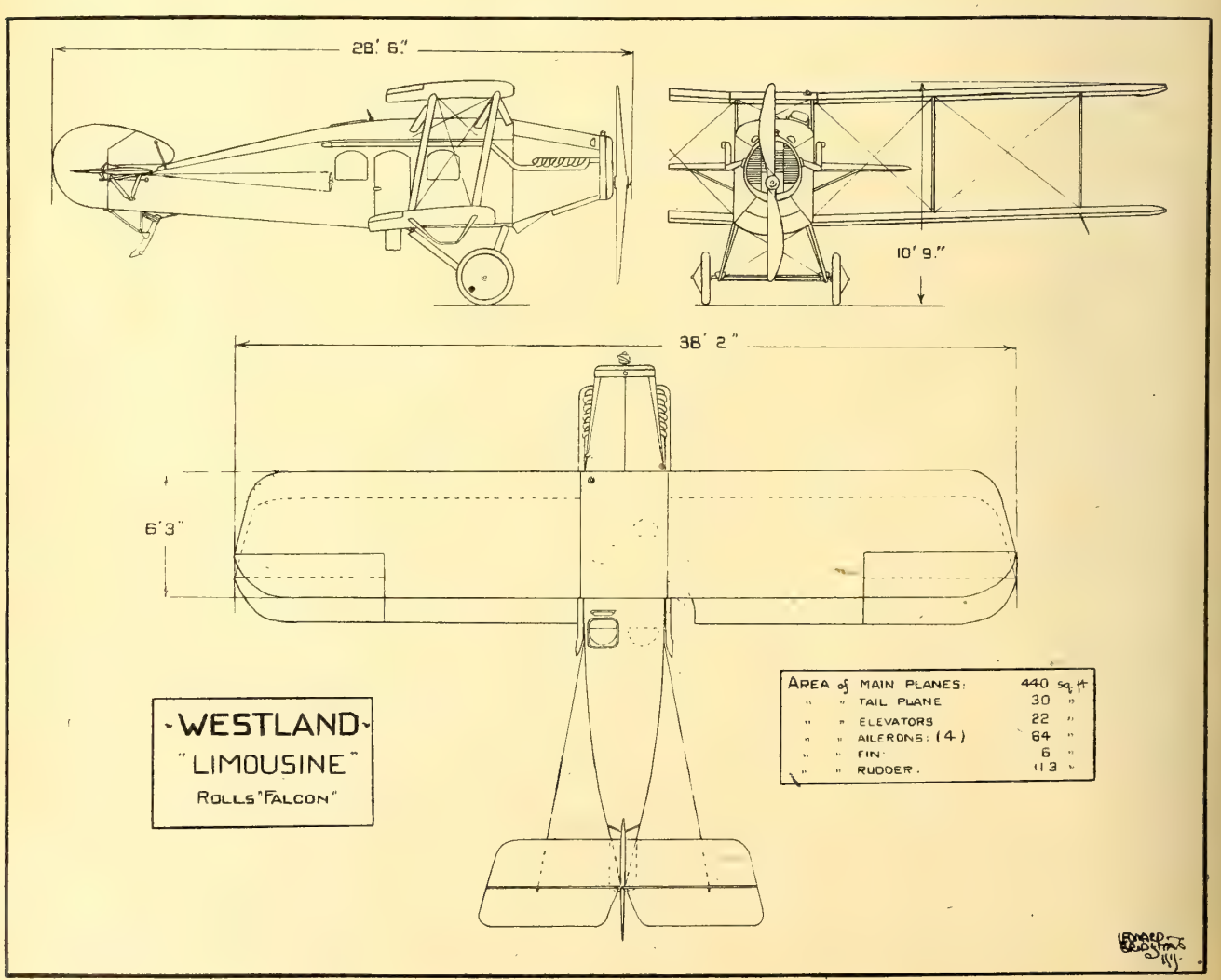
At the conclusion of the visit, Mr. F. W. Petter, one of the joint managing directors of Petters, Ltd., in a short speech, expressed the confidence of the firm in the future of commercial aviation, and their determination to take an important part in that future.

To him, to Mr. Chandler, the works manager, of the Westland Aircraft Works, and to Capt. Keep, M.C., late R.A.F., the firm's very able pilot, one must express one's thanks for a very pleasant and a very interesting day.

The attached specification gives all the main particulars of the Westland "Limousine."

Length overall	28 ft. 6 in.
Span	38 ft. 2 in.
Chord	6 ft. 3 in.
Gap	6 ft. 0 in.
Stagger	1 ft. 0 in.
Total wing area	440 sq. ft
Dihedral angle	2 deg.
Total aileron area	64 sq. ft.
Area of tail plane	30 sq. ft.
Area of elevators	22 sq. ft.
Area of fin	6.0 sq. ft.
Area of rudder	11.3 sq. ft.
Engine	Rolls-Royce "Falcon."
Weight, empty	2,010 lbs.
Weight, loaded	3,226 lbs.
Weight, useful load	540 lbs.
Fuel capacity	3 hours.
Loading	7.8 lbs. per sq. ft.
do.	15.6 lbs. per h.p.
Performance—	
Speed low down	100 m.p.h.
Speed 10,000 ft.	91 m.p.h.
Speed 15,000 ft.	85 m.p.h.
Climb—	
5,000 ft.	8.35 mins.
10,000 ft.	19.6 mins.
15,000 ft.	37.5 mins.
Ceiling	17,000 ft.





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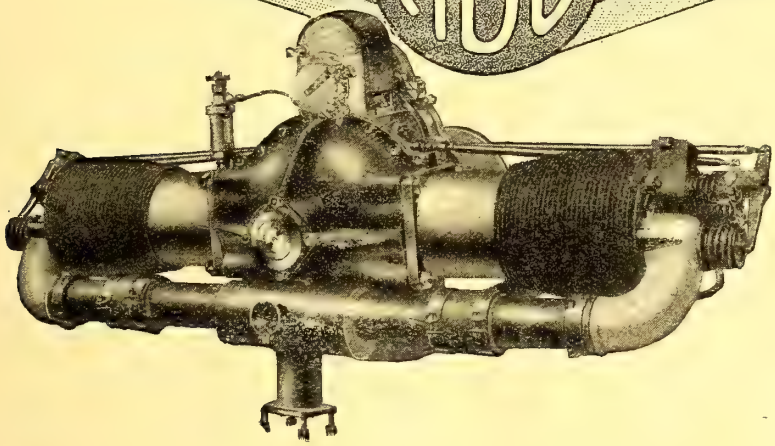

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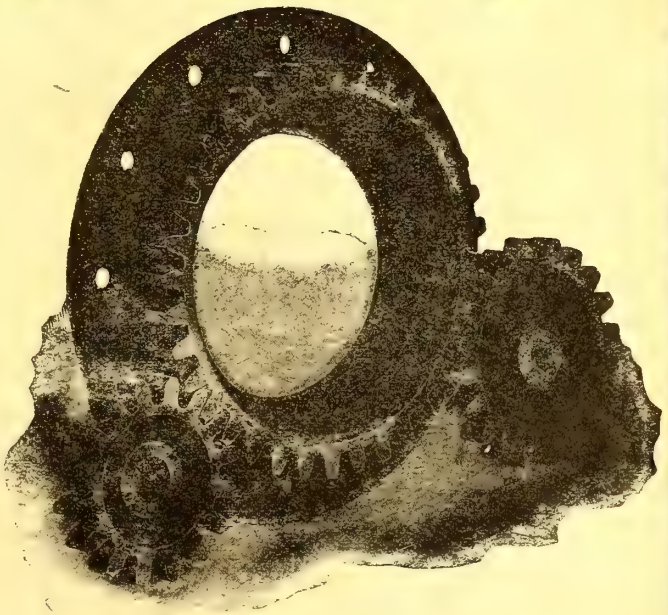

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The Chloride Electrical Storage Co., Ltd., Clifton Junction, near Manchester. "Chloridic, Pendlebury." Central Manchester, 1638. Pendleton, 11.

Acetylene Welding Plant—

Acetylene Corporation of Great Britain, Ltd., The, 49, Victoria Street, Westminster, S.W.1. "Flamma, Vic, London" Vic 4830.

Imperial Light, Ltd., 123, Victoria Street, London, S.W.1. "Edibrac, 'Phone. London." 3540 Victoria (3 lines).

Aeroplane Manufacturers—

Aircraft Manufacturing Co., Ltd., Hendon. "Airmanship, Hyde, London." Kingsbury 220.

Armstrong, Sir W., Whitworth & Co., Ltd., Newcastle - on - Tyne. "Armstrong Aviation, Newcastle-on-Tyne." Gosforth 500.

Blackburn Aeroplane & Motor Co., Ltd., Olympia, Leeds. "Propellors, Leeds." Roundhay 345 (3 lines).

Boulton & Paul, Ltd., Rose Lane, Norwich. "Aviation, Norwich." Norwich 851.

British Aerial Transport Co., Ltd. Head Office: 38, Conduit Street, London, W.1. "Batigram Reg. London" Mayfair 637, 638.
Works: Hythe Road, Willesden, London, N.W.10 "Aerbrirans, Phone, London." Willesden, 2272, 2273

British & Colonial Aeroplane Co., Ltd. (The Bristol Co.), Filton, Bristol "Aviation, Bristol." Bristol 3906

Central Aircraft Co, High Road, Kilburn, N.W.6. "Aviduction, Phone, London." Hampstead 4403 and 4424.

Dawson, John, & Co., Ltd., Newcastle-on-Tyne. "Dependable, Newcastle-on-Tyne." Central 2604 (2 lines).

Eastbourne Aviation Co., Ltd., Eastbourne. "Aircraft, Eastbourne" Eastbourne 1176.

Gosport Aircraft Co., Gosport. "Flight Gosport." Gosport 217.

Grahame-White Company, Ltd., London Aerodrome, Hendon. "Volplane, Hyde, London." Kingsbury 120.
London Office, 12, Regent Street, S.W.1. Regent 2084.

Handley Page, Ltd., 110, Cricklewood Lane, N.W 2. "Hydrophid, Crickle, London." Hampstead 7420.

Hooper & Co., Ltd., 54, St. James St., Piccadilly, London, S.W. "Sociable, St James, London." Regent 912.

Mann, Egerton & Co, Ltd., Norwich. "Motors, Norwich" Norwich 482 (4 lines).

Martinsyde, Ltd., Brooklands, Byfleet, "Martinsyde, Weybridge." Woking 331; Byfleet 171.

"Nieuport" & General Aircraft Co., Cricklewood, London, N.W.2. "Nieuscout, Crickle, London." Willesden 2455

Phœnix Dynamo Manufacturing Co., Ltd., Thornbury, Bradford. "Dynamo, Bradford." Bradford 3700 (4 lines).

Roe, A. V., & Co., Ltd., Manchester. "Triplane, Manchester" City 8530-8531, Manchester.

Saunders, S. E., Ltd., East Cowes, I.O.W. "Consuta, East Cowes." Cowes 193.

Short Bros., Rochester, Eastchurch and Whitehall House, S.W. "Tested, Phone, London." Regent 378.

The Siddeley Deasy Motor Car Co., Ltd., Coventry. Coventry 954 "Deasy, Coventry."

Sopwith Aviation Co., Ltd., Kingston-on-Thames. "Sopwith, Kingston." Kingston 1988 (8 lines).

The Supermarine Aviation Works, Ltd., Southampton. "Supermarin." Woolston 37 (2 lines).

Vickers, Ltd, Imperial Court, Basil Street, Knightsbridge, S.W.3. "Vickerfyta, Knights, London." Kensington 6810.

Waring & Gillow, Ltd., Hammersmith. "Warisen, Ox, London." Museum 5000.

Westland Aircraft, Yeovil "Aircraft, Yeovil." Yeovil 129.

White, J. Samuel, & Co., Ltd., East Cowes. "White, East Cowes." Cowes 3.

Airships—

Airships, Ltd., High Street, Merton. Wimbledon 1314.

Short Bros., Rochester, Eastchurch, and Whitehall House, S.W. "Tested, 'Phone, London." Regent 378

C. G. Spencer and Sons, Ltd. (See under "Balloons").

Aluminium Castings (Sand and Die)

Coan, R. W., 219, Goswell Road, London, E.C.1. "Krankases, Isling, London." City 3846.

Balloons—

C. G. Spencer and Sons, Ltd., 50A, Highbury Grove, N.5. "Aeronaut, London." Dalston 1893.

Bent Timber Parts—

Hopton & Sons, George Street, Euston Square, London, N.W.1. "Hoptons, Eusquare, London" Museum 496.
Also at Market Harborough, Leicestershire. "Hoptons, Market Harborough." Market Harborough 15.

Bearings (Etonia Cast Phosphor Bronze)

Brown Bros., Ltd, Gt. Eastern St., E.C.1.

Yorkshire Engineering Supplies, Ltd., Wortley, Leeds. "Yes, Leeds." Central 3927.

Blowpipes (Oxy-Acetylene)—

Acetylene Corporation of Great Britain, Ltd, The, 49, Victoria Street, Westminster, S.W.1 "Flamma, Vic, London." Vic. 4830

Imperial Light, Ltd, 123, Victoria Street, London, S.W.1. "Edibrac, 'Phone, London." Vic. 3540 (3 lines).

Bolts—

Mitchell Wedgewood & Co., Campbell Works, Stoke Newington, London, N.16. Dalston 2500 (2 lines).

Books (Aero Engines)—

Dykes' Auto Encyclopedia, Gillam, 149, Strand, W.2

Buildings—

Boulton & Paul, Ltd Rose Lane, Norwich "Aviation, Norwich." Norwich 851

Rubery Owen & Co, Darlaston, South Staffs

Cable Coverings and Cable Controls—

The Bowden Brake Co., Ltd., Tyseley, Birmingham "Bowden, Acock's Green." Acock's Green 103 & 104

Bowden Wire, Ltd, Willesden Junction, "Bowirelim Harles, London." Willesden 2400 (3 lines).

Herbert Terry & Sons, Ltd., Redditch. "Springs, Redditch." Redditch 61.

Carburettors—

Hobson, H. M., Ltd., 3, Vauxhall Bridge Road S.W.2 Victoria 4670.

Casein—

Nieuwhof, Surie & Co., Ltd., 5, Lloyds Avenue, London E.C.3. "Suricodon, Fen, London." Avenue 34 and 35.

Clothing—

Burberry's, Ltd, Haymarket, S.W.1 Regent 2165.

Dunhill's Ltd., Euston Road, N.W.1. "Dunsend, London." North 3405-6.

Component Parts—

Accles & Pollock, Ltd Oldbury, Birmingham "Accles, Oldbury." Oldbury 111 (4 lines).

Brown Bros., Ltd., Gt. Eastern St., E.C.1.

Central Aircraft Co., High Road, Kilburn, N.W.6. "Aviduction, Phone, London." Hampstead 4403 & 4404.

Thompson Bros. (Bilston), Ltd., Bradley, Bilston, England. "Thompson Bros., Bilston" Bilston 10.

Cords, Tapes, and Threads—

MacLennan, J., & Co., 30, Newgate Street, E.C.1. And at Glasgow City 3115.

Dopes

Titanine, Ltd., 175, Piccadilly, W.1. "Tetrafree, Piccy, London." Gerrard 2312

British Cellulose Co., 8, Waterloo Place, S.W.1. "Cellutate, London" Regent 4046.

The British Emaillite Co., Ltd., 30, Regent Street, S.W.1. "Ridleypren, Piccy, London" Gerrard 280.

Cellon, Ltd., 22, Cork Street, London, W.1. "Ajawb, Reg, London." Gerrard 440.

Robt. Ingham Clark & Co., Ltd., West Ham Abbey, E.15. "Oleotine, Strat, London." East 955.

Engines and Parts—

Allen, W. H., & Co., Ltd., Bedford. "Pump Bedford." Bedford No 1

Arrol-Johnston, Ltd., Dumfries. "Mocar, Dumfries" Dumfries 281-282.

Beardmore Aero Eng., Ltd, 112, Great Portland Street, W.1. "Beardmore, London." Gerrard 238.

The Cosmos Engineering Co., Ltd., Fishponds, Bristol

Dudbridge Iron Works, Ltd (Salmson), 87, Victoria Street, London, S.W.1. "Aeroflight, Vic, London." Vic 7026.

Gordon Watney & Co., Ltd., Weybridge. "Mercédès, Weybridge." Weybridge 550 (7 lines).

Green Engine Co, Ltd., Twickenham. Richmond 1203.

Gwynnes, Ltd., Hammersmith, W. "Gwynne, Hammersmith." Hammersmith 1910.

Napier & Son, D., Ltd, 14, New Burlington Street, London, W., and at Acton, W. "Nitrifier, London" Gerrard 8926.

Rolls-Royce, Ltd, 14 and 15, Conduit Street, W.1. "Rolhead, London." Gerrard 1654-5-6.

The Siddeley-Deasy Motor Car Co., Ltd., Coventry. Coventry 954 "Deasy, Coventry"

Sunbeam Motor Car Co., Ltd., Wolverhampton. "Moorfield, Wolverhampton." Wolverhampton 985.

The Gnôme & Le Rhône Engine Co., Ltd., 27, Buckingham Gate, S.W.1. "Elevenfold, London. Walthamstow 811 (2 lines).

Walton Motors, Ltd., Walton-on-Thames. "Motors, Walton-on-Thames." Walton-on-Thames 220.

Electrical Accessories—

Belling & Co., Montague Road, Upper Edmonton, N.18. "Belling, Edmonton." Tottenham 1984

Brown Bros., Ltd., Gt. Eastern St., E.C.1.

Gent & Co., Ltd., Faraday Works, Leicester. "Lodestone, Leicester." National 151 (two lines)

Johnson & Phillips, Ltd., Charlton, London, S.E.7 "Juno, London." Central 2207; London Wall 1564.

The Rotax Motor Accessories Co., Ltd., Victoria Road, Willesden Junction, N.W.10. "Rodynalite, 'Phone, London Willesden 2480.

Electric Cables—

E. Kalker and Co., Coventry. "Kalker, Coventry" Coventry 248.

Johnson & Phillips, Ltd., Charlton, London, S.E.7. "Juno, London." Central 2207; London Wall 1564.

Electric Lighting and Power—

Johnson & Phillips, Ltd, Charlton, London, S.E.7. "Juno, London." Central 2207; London Wall 1564.

Mann, Egerton & Co., Ltd., 117, Cleveland Street, London, W. "Installing, Euston-road." Museum 70 (4 lines).

Electro Platers and Metal Polishers' Engineers—

W. Canning & Co., 123-137, Great Hampton Street, Birmingham. "Materials, Birmingham." Birmingham 3022 Central (3 lines)

Fireproof Petrol Tanks—

The Aircraft Improvements Co., Mornington Works, Arlington Road, Camden Town, N.W.1.

Flare Lights—

Imperial Light, Ltd., 123, Victoria Street, London, S.W.1 "Edibrac, 'Phone, London." Victoria 3540 (3 lines).

Flexible Shafts—

Herbert Terry & Sons, Ltd., Redditch. "Springs, Redditch." Redditch 61

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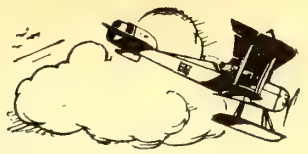

Fluxes—
Imperial Light, Ltd., 123, Victoria Street, London, S.W.1. "Edibrac, 'Phone, London." Victoria 3540 (3 lines).
The Auto Controller Co. (Fluxite), Vienna Road, Bermondsey, Eng.

Flying Boat Builders—
Gosport Aircraft Co., Gosport. "Flight, Gosport." Gosport 217.

Galvanising—
Boulton & Paul, Ltd., Rose Lane, Norwich. "Aviation, Norwich." Norwich 851.

Gauges—
J. A. Prestwich & Co., Northumberland Park, Tottenham, N.17.

Gears—
Moss Gear Co., Ltd., Thomas Street, Aston, Birmingham. "Mosgear, Birmingham." East 407.

Glue—
Cannon, B., & Co., Ltd, Lincoln. London Office, 110, Cannon Street, E.C.4. "Bececolin, Cannon, London." City 1206.
Improved Liquid Glues Co., Ltd., Gt. Hermitage Street, E. (Croid.) "Excroiden, 'Phone, London." Avenue 4611-2.
Meudine Co., 8, Arthur Street, E.C. Bank 5873.

Goggles—
Triplex Safety Glass Co., Ltd., 1, Albemarle Street, Piccadilly, W.1. "Shatterlys, Piccy, London" Regent 1340

Heating and Ventilating—
Chas. P. Kinnell and Co., Ltd., 65 & 65A, Southwark Street, London, S.E.1. "Kinnell, London." Hop 372 (2 lines).
The Thames Bank (Blackfriars) Iron Co., Ltd, Upper Ground Street, London, S.E.1. "Hot Water. Friars, London." Hop 763.

Instruments—
British Wright Co., Ltd, 33, Chancery Lane, W.C.2. Holborn 1308.

Instruments (Scientific, Altimeters, etc.)—
Short & Mason, Ltd., Macdonald Road, Walthamstow, E.17. "Aneroid, Phone, London." Walthamstow 180.

Insurance—
Aviation Insurance Association, 1, Royal Exchange Avenue, E.C.3. London Wall 9944.
Bray, Gibb & Co., Ltd., 166, Piccadilly, W.1.
Captain A. Newman (late R.A.F.), 20, Bucklersbury, E.C.4. City 4855
Harold Townend, Ltd., 13-14, Abchurch Lane, King William Street, E.C.4. "Carinsur, London." Central 156 (2 lines).
Percy Wingfield, 22, Newgate Street, E.C.1. City 4672.

Leather Cloth—
New Pegamoid, Ltd., 134, Queen Victoria Street, London. "Pegamoid, Cent, London." City 9704 (2 lines).

Lubricating Oil Refiners and Merchants—
W. B. Dick & Co, Ltd., 90, Fenchurch Street, E.C.3 Telegrams, Dicotto Fen, London. Avenue 7854 (2 lines.)

Magneto Driving Pieces—
Herbert Terry & Sons, Ltd., Redditch. "Springs, Redditch." Redditch 61.

Magnetos—
The British Lighting & Ignition Co., Ltd., 204, Tottenham Court Road, W.1. "Vicksmag, Phone, London." Museum 430.
The British Thomson-Houston Co., Ltd., Lower Ford Street, Coventry. "Asteroidal, Coventry." Coventry 278.

Metal Casement Manufacturers—
Henry Hope & Sons, Ltd., 55, Lionel Street, Birmingham. "Conservatory, Birmingham." Central 999 (2 lines).

Metal Manufacturers—
Clifford, Chas., & Sons, Ltd., Birmingham. "Clifford, Birmingham." Central 42-43. Avenue 1432.

Metals in General—
Samuel Mercer & Co., 198, Upper Thames Street, E.C.4. "Reconciled, Cannon, London." City 6342.

Metal Parts and Fittings—
Accles & Pollock, Ltd Oldbury, Birmingham. "Accles, Oldbury." Oldbury 111 (4 lines)
Arnott & Harrison, Ltd, Hythe Road, Willesden Junction. Willesden 2207.
Bayliss, Jones, & Bayliss, Ltd., Wolverhampton. (Bolts and Nuts.) "Bayliss, Wolverhampton." Wolverhampton 1041.
Blackburn Aeroplane & Motor Co., Ltd., Olympia, Leeds. "Propellors, Leeds." Roundhay 345 (3 lines).
Brown Bros., Ltd., Gt. Eastern St., E.C.1.
Mann, Egerton & Co., Ltd., 177, Cleveland Street, London, W.1 "Installing, Eusroad, London." Museum 70.
Rubery Owen & Co., Darlaston, South Staffs.
Sankey, Joseph, & Sons, Ltd., Wellington, Shropshire. "Sankey, Wellington, Salop." Wellington 66.
The Selsdon Aero & Engineering Co., Ltd., 1, Albemarle Street, Piccadilly, W.1. "Selaero, Phone, London." Regent 1181.
Thompson Bros., Ltd., Bradley, Bilston. "Thompson Bros., Bilston." Bilston 10.

Metric Bolts—
Cashmore Bros, Hildreth Street, Balham, S.W. Battersea 415.
Rubery Owen & Co., Darlaston, South Staffs.

Miscellaneous—
Anderson, D., & Son, Ltd. (Roofs), Belfast. "Anderson, Belfast." Belfast 4033-4034-4035
Brown Bros., Ltd., Great Eastern Street, E.C.1 "Imbrowned, Bethroad, London." London Wall 6300.
Herbert Frood Co., Ltd., Chapel-en-le-Frith. "Frodobrake, Birmingham." Central 793
MacLennan, J., & Co., 30, Newgate Street, E.C.1., and at Glasgow. Tapes, Cords, and Threads. City 3115.

Motor Cars—
Arrol Johnston, Ltd., Dumfries. "Mocar, Dumfries." Dumfries 281-282.
Mann, Egerton & Co., Ltd. 379/381, Euston Road, London, N.W.1 "Manegecar, Eusroad, London" Museum 70.
Standard Motor Car Co., Coventry. "Flywheel, Coventry." Coventry 530 (4 lines).

Nameplates and Labels—
The Clegg Metal Engraving Co., Ltd., Worthing. "Clegg, Worthing."

Observation Panels—
Triplex Safety Glass Co., Ltd., 1, Albemarle Street, Piccadilly, W.1. "Shatterlys, Piccy, London." Regent 1340.

Oils—
C. C. Wakefield & Co., Ltd, Wakefield House, Cheapside, E.C.2. "Cheery, Cent, London" Central 11305 & 13466.

Parachutes—
E. R. Calthrop's Aerial Patents, Ltd., Eldon Street House, Eldon Street, London, E.C. "Savemalivo, Ave, London." London Wall 3266-3267.
C. G. Spencer & Sons, Ltd. (See under "Balloons").

Piston Rings—
The Standard Piston Ring and Engineering Co., Ltd., Don Road, Sheffield. "Ocean, Sheffield" Sheffield 2149

Presswork—
Rubery Owen & Co., Darlaston, South Staffs.
Terry, Herbert, & Sons, Ltd., Redditch. "Springs, Redditch." Redditch 61.

Propellers—
The Aircraft Improvements Co., Mornington Works, Arlington Road, Camden Town, N.W.1.
Blackburn Aeroplane & Motor Co., Ltd., Olympia, Leeds. "Propellors, Leeds." Roundhay 345 (3 lines).

Propellers (continued).
Boulton & Paul, Ltd., Rose Lane, Norwich. "Aviation, Norwich." Norwich 851.
Ebora Propeller Co., 11 & 12, Surbiton Park Terrace, Kingston-on-Thames "Ebora, Kingston." Kingston 672.
Integral Propeller Co., Ltd., "Aviprop, Hyde, London." Hendon 9. Kingsbury 104
Lang Propeller, Ltd., Weybridge. "Aerosticks, Weybridge." Weybridge 520-521.
Oddy, W. D., & Co., Leeds. "Airscrews, Leeds." Leeds 20547-8.
Westland Aircraft, Yeovil. "Aircraft, Yeovil." Yeovil 129.

Pyrometers—
The Foster Instrument Co., Letchworth, Herts. "Foster Instruments, Letchworth." Letchworth 26.

Rawhide Hammers—
Ira Stephens, Whitelands Leather Works, Ashton under-Lyne. "Stephens, 709, Ashton." Ashton 709.

Rigging for Aircraft—
Cradock, Geo., & Co., Ltd., Wakefield, England. "Cradock, Wakefield." Wakefield 466

Rubber Tubing & Accessories—
Hancock, James Lyne, Ltd., 266, Goswell Road, London, E.C.1 "Masticator, Isling, London." City 3811 & 3812

Safety Belts—
C. H. Holmes & Son, 38, Albert Street, Manchester. "Semloh, Manchester." City 4432.

Screw-driving Machines—
Russell Bros. (Redditch), Ltd., Littleworth, Redditch. "Inventors, Redditch." Redditch 74.

Seaplane Manufacturers—
Blackburn Aeroplane & Motor Co., Ltd., Olympia, Leeds. "Propellors, Leeds." Roundhay 345 (3 lines).
Phœnix Dynamo Manufacturing Co., Ltd., Thornbury, Bradford. "Dynamo, Bradford." Bradford 3700 (7 lines).
Short Bros., Rochester. "Seaplanes, Rochester." Chatham 627.
Supermarine Aviation Works, Ltd., Southampton. "Supermarin, Southampton." Woolston 37.

Searchlights & Landing Lights
Brown Bros., Ltd., Great Eastern St., E.C.1.
Imperial Light, Ltd., 123, Victoria Street, London, S.W.1. "Edibrac, Phone, London." 3540 Victoria (3 lines).

Shock Absorbers—
Luke Turner & Co., Deacon Street, Leicester Leicester 967.
Tubbs, Lewis & Co., Ltd., 29 & 30, Noble Street, E.C.2. "Elastics, London." City 22.

Sheet Metal Pressings—
Accles & Pollock, Ltd, Oldbury, Birmingham. "Accles, Oldbury." Oldbury 111 (4 lines)
Blackburn Aeroplane & Motor Co., Ltd., Olympia, Leeds. "Propellors, Leeds." Roundhay 345 (3 lines)
Rubery Owen & Co., Darlaston, South Staffs.

Sheet Metal Work—
The Acetylene Corporation of Great Britain, Ltd., 49, Victoria Street, S.W.1. "Flamma, Vic, London." Vic 4830
Rubery Owen & Co., Darlaston, South
The Selsdon Aero & Engineering Co., Ltd., 1, Albemarle Street, Piccadilly, W.1. "Selaero, Phone, London." Regent 1181
Imperial Light, Ltd., 123, Victoria Street, London, S.W.1. "Edibrac, Phone, London." Victoria 3540 (3 lines).

Solder Manufacturers—
Samuel Mercer & Co., 198, Upper Thames Street, E.C.4. "Reconciled, Cannon, London." City 6342.

Sparking Plugs—
Brown Bros., Ltd., Great Eastern St., E.C.1
Lodge Sparking Plug Co., Ltd., Rugby. "Igniter, Rugby." Rugby 235.
The Robinhood Engineering Works, Ltd., Newlands, Putney Vale, S.W.15. Makers of KLG Plugs. "Kaelgee, Phone, London." Putney 2132-3.

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Accumulators—

The Chloride Electrical Storage Co., Ltd., Clifton Junction, near Manchester. "Chloridic, Pendlebury" Central Manchester, 1658 Pendleton, 11.

Acetylene Welding Plant—

Acetylene Corporation of Great Britain, Ltd., The, 49, Victoria Street, Westminster, S.W.1 "Flamma, Vic, London" Vic 4830.

Imperial Light, Ltd., 123, Victoria Street, London, S.W.1 "Edibrac, 'Phone London" 3540 Victoria (3 lines).

Aeroplane Manufacturers—

Aircraft Manufacturing Co., Ltd., Hendon. "Airmanship, Hyde, London" Kingsbury 220.

Armstrong, Sir W., Whitworth & Co., Ltd., Newcastle-on-Tyne "Armstrong Aviation, Newcastle-on-Tyne" Gosforth 500.

Blackburn Aeroplane & Motor Co., Ltd., Olympia, Leeds "Propellors, Leeds" Roundhay 345 (3 lines).

Boulton & Paul, Ltd., Rose Lane, Norwich. "Aviation, Norwich" Norwich 851.

British Aerial Transport Co., Ltd. Head Office: 8, Conduit Street, London, W.1 "Batigram Reg London" Mayfair 637, 638.

Works: Hythe Road, Willesden, London, N.W.10 "Aerbritrans, Phone, London" Willesden, 2272, 2273.

British & Colonial Aeroplane Co., Ltd. (The Bristol Co.), Filton, Bristol "Aviation, Bristol" Bristol 3906.

Central Aircraft Co., High Road, Kilburn, N.W.6. "Aviduction, Phone, London." Hampstead 4403 and 4404.

Dawson, John, & Co., Ltd., Newcastle-on-Tyne "Dependable, Newcastle-on-Tyne" Central 2604 (2 lines).

Eastbourne Aviation Co., Ltd., Eastbourne "Aircraft, Eastbourne" Eastbourne 1170.

Gosport Aircraft Co., Gosport. "Flight Gosport" Gosport 217.

Grahame-White Company, Ltd., London Aerodrome, Hendon "Volplane, Hyde, London" Kingsbury 120. London Office, 12, Regent Street, S.W.1. Regent 2684.

Handley Page, Ltd., 110, Cricklewood Lane, N.W.2 "Hydrophid, Crickle, London" Hampstead 7420.

Hooper & Co., Ltd., 54, St. James St., Piccadilly, London, S.W. "Sociable, St. James, London." Regent 912.

Mann, Egerton & Co., Ltd., Norwich. "Motors, Norwich" Norwich 482 (4 lines).

Martinsyde, Ltd., Brooklands, Byfleet, "Martinsyde, Weybridge." Woking 331, Byfleet 171.

"Nieuport" & General Aircraft Co., Cricklewood, London, N.W.2. "Nieuscout, Crickle, London." Willesden 2455.

Phœnix Dynamo Manufacturing Co., Ltd., Thornbury, Bradford "Dynamo, Bradford." Bradford 3700 (4 lines).

Roe, A. V., & Co., Ltd., Manchester. "Triplane, Manchester" City 8530-8531, Manchester.

Saunders, S. E., Ltd., East Cowes, I.O.W. "Consuta, East Cowes" Cowes 193.

Short Bros., Rochester, Eastchurch and Whitehall House, S.W. "Tested, Phone, London." Regent 378.

The Siddeley Deasy Motor Car Co., Ltd., Coventry. Coventry 954 "Deasy, Coventry"

Sopwith Aviation Co., Ltd., Kingston-on-Thames. "Sopwith, Kingston" Kingston 1988 (8 lines).

The Supermarine Aviation Works, Ltd., Southampton "Supermarin" Woolston 37 (2 lines).

Vickers, Ltd., Imperial Court, Basil Street, Knightsbridge, S.W.3. "Vickerfyta, Knights, London." Kensington 6810.

Waring & Gillow, Ltd., Hammersmith. "Warisen, Ox, London" Museum 5000.

Westland Aircraft, Yeovil "Aircraft, Yeovil." Yeovil 129.

White, J. Samuel, & Co., Ltd., East Cowes "White, East Cowes" Cowes 3.

Airships—

Airships, Ltd., High Street, Merton Wimbledon 1314.

Short Bros., Rochester, Eastchurch, and Whitehall House, S.W. "Tested, 'Phone, London" Regent 378.

C. G. Spencer and Sons, Ltd. (See under "Balloons").

Aluminium Castings (Sand and Die)

Coan, R. W., 219, Goswell Road, London, E.C.1 "Krankases, Isling, London" City 3840.

Balloons—

C. G. Spencer and Sons, Ltd., 50a, Highbury Grove, N.5 "Aeronaut, London." Dalston 1803.

Bent Timber Parts—

Hopton & Sons, George Street, Euston Square, London, N.W.1 "Hoptons, Eusquare, London" Museum 496. Also at Market Harborough, Leicestershire "Hoptons, Market Harborough" Market Harborough 13.

Bearings (Etonia Cast Phosphor Bronze)

Brown Bros., Ltd., Gt. Eastern St., E.C.1.

Yorkshire Engineering Supplies, Ltd., Wortley, Leeds "Yes, Leeds" Central 3927.

Blowpipes (Oxy-Acetylene)—

Acetylene Corporation of Great Britain, Ltd., The, 49, Victoria Street, Westminster, S.W.1 "Flamma, Vic, London" Vic 4830.

Imperial Light, Ltd., 123, Victoria Street, London, S.W.1. "Edibrac, 'Phone, London" Vic. 3540 (3 lines).

Bolts—

Mitchell Wedgewood & Co., Campbell Works, Stoke Newington, London, N.16. Dalston 2500 (2 lines).

Books (Aero Engines)—

Dykes' Auto Encyclopedia, Gillam, 149, Strand, W.C.2.

Buildings—

Boulton & Paul, Ltd., Rose Lane, Norwich "Aviation, Norwich" Norwich 851.

Rubery Owen & Co., Darlaston, South Staffs.

Cable Coverings and Cable Controls—

The Bowden Brake Co., Ltd., Tyseley, Birmingham "Bowden, Acock's Green" Acock's Green 103 & 104.

Bowden Wire, Ltd., Willesden Junction, "Bowirelim Harles, London" Willesden 2400 (3 lines).

Herbert Terry & Sons, Ltd., Redditch "Springs, Redditch" Redditch 61.

Carburettors—

Hobson, H. M., Ltd., 29, Vauxhall Bridge Road, S.W.1 Victoria 4670.

Casein—

Nieuwhof, Surie & Co., Ltd., 5, Lloyds Avenue, London, E.C.3 "Suricodon, Fen, London" Avenue 34 and 35.

Clothing—

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Dunhill's Ltd., Euston Road, N.W.1 "Dunsend, London" North 3405-6.

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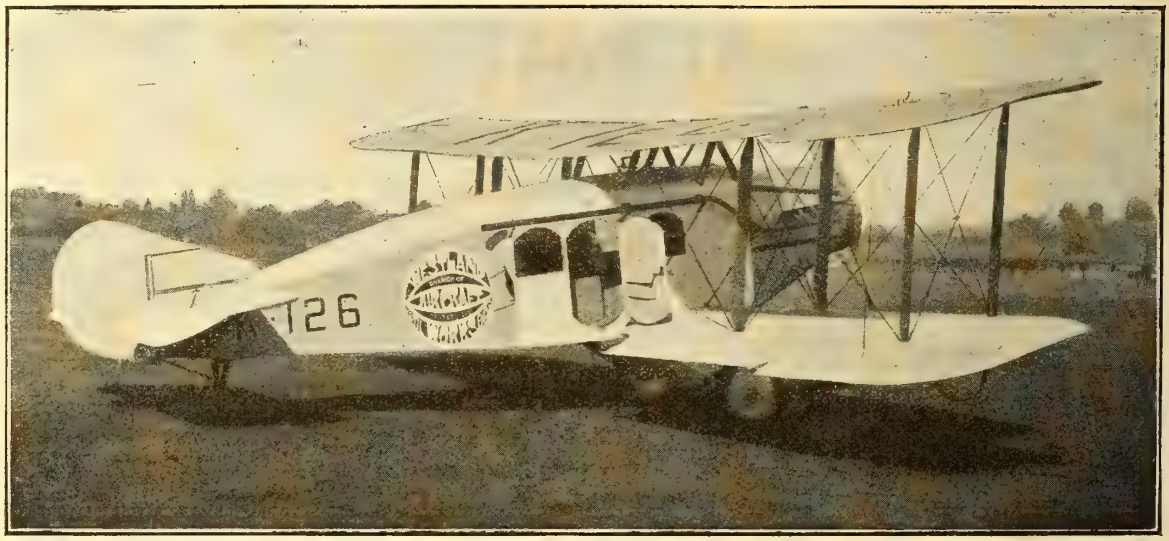

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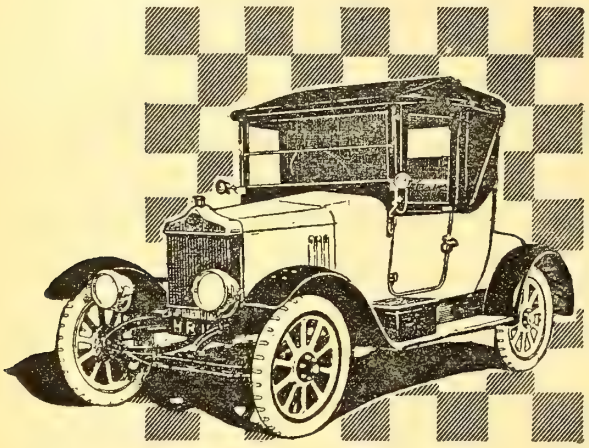

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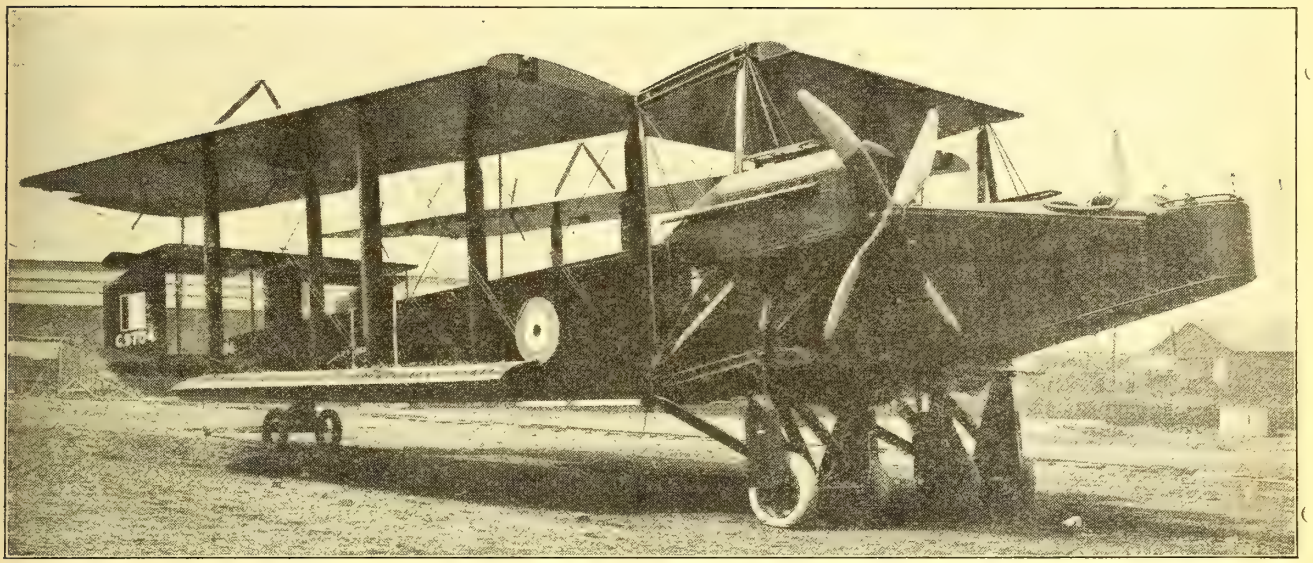
MODERN BRITISH AEROPLANES.

XI.—Handley Page, Ltd.



The twin-engined Handley Page Type O/400 Biplane with wings folded (two 375 Rolls-Royce "Eagle" engines)

Mr. F. Handley Page is one of the earliest British experimental aircraft constructors. Originally—like quite a number of others of the pioneers of aviation in this country—an electrical engineer, Mr. Handley Page abandoned this profession *circa* 1908, and founded the firm of Handley Page, which became Handley Page, Ltd., in 1909. At their works in Barking they produced the extraordinarily successful two-seater monoplane with a 50 Gnôme engine, which was affectionately known as the "Yellow Peril," the 70 Gnôme-engined monoplane of the 1912 Military Trials, and the 1914 Handley Page biplane. All these machines were fitted with wings which followed upon the lines of the wing of a bird, both in plan form and in section, and they were all of them possessed of a very considerable degree of inherent stability.

During the early stages of the war, Handley Page, Ltd., were confined to building aeroplanes to official specification.

Towards the end of 1915—they produced the first of the now famous twin-engine H.Ps., and since then have been entirely engaged upon the production of this and its elder brother, the four-engined type V/1500 machines.

THE HANDLEY PAGE TWIN-ENGINED BIPLANE.

The Handley Page twin-engined biplane o/400 type was designed and built in 1915 as a bomber, but was not adopted as a service machine until 1916, when the R.N.A.S. commenced their heavy night raiding along the Belgian coast.

The machine follows the usual practice in twin-engined biplanes in having a centre fuselage with the pilot's cockpit situated in advance of the leading-edge of the main planes and the two observers' cockpits are one right in the nose and the other in rear of the main planes.

The two engines are carried in streamline nacelles between the planes on the first pair of interplane struts driving two tractor airscrews.

The upper plane has a considerable overhang which is braced above and below from a pylon over the last set of struts and the bases of the last sets of struts respectively.

The tail unit is of the biplane type and has two rudders. Two separate undercarriages are carried, one on either side of the fuselage, and each consists of three Vees attached to a stub skid, the axle being supported by oleo-pneumatic shock-absorbers as shown in the photographs.

Since the armistice the o/400 type has been converted for commercial and passenger-carrying work by having the central internal bomb racks and back observer's cockpit removed, the resultant space being fitted up with seats.

SPECIFICATION.

Type of machine	Biplane.
Name or type No. of machine	o/400.
Purpose for which intended	Night bombing.
Span	100 ft.
Gap, maximum and minimum	11 ft.
Overall length	62 ft. 6 in.
Maximum height	22 ft.
Chord	10 ft.
Total surface of wings	1,630 sq. ft.
Maximum cross section of body	6 ft. 10 ins. × 4 ft. 9 ins.
Engine type and h.p.	2 R.R. "Eagle VIII." Standard equipment.
Airscrew, diam., and revs.	11 ft. diam., 1,080 r.p.m.
Weight of machine empty	8,200 lbs.
Load per sq. ft. fully loaded	8.5 lbs.
Weight per h.p.	20 lbs.
Tank capacity in hours	8½ hours.
Tank capacity in gallons	300 gallons.
Performance—	
Speed low down	97 m.p.h. fully loaded.
Speed at 6,500 feet	95 m.p.h.
Speed at 10,000 feet	93 m.p.h.
Landing speed	50 m.p.h
Climb—	
1,000 ft. per min. lightly loaded	
To 5,000 feet	10 mins.
To 10,000 feet	25 mins.
Disposable load apart from fuel	3,500 lbs.
Total weight of machine loaded	14,000 lbs.

ALTERNATIVE ENGINES.—2 "Liberty's," 2 "Sunbeam Maori," 2 "Sunbeam Cossack," or 2 "F.I.A.T.," etc.

THE HANDLEY PAGE FOUR-ENGINED BIPLANE.

The Handley Page 4-engined biplane, type V1500 is a development of the smaller o/400, the principle alterations being the increase of dimensions all round, with exception of the length, the

The four-engined Handley Page in the Air.

abolition of the overhang by increasing the span of the lower plane and the addition of two engines, which are carried tandem-wise to the two front engines in the same nacelles, the front engines driving two two-bladed tractor airscrews and the rear engines two four-bladed pusher airscrews. The fuselage is almost identical with the smaller edition but is much deeper towards the rear end.

The undercarriage and tail-skid are of a simpler form, as can be seen in the photographs.

These machines can be converted to commercial vehicles by the mere elimination of the military apparatus—bomb gear and guns—and the refitting of the interior of the fuselage for the accommodation of passengers and/or goods.

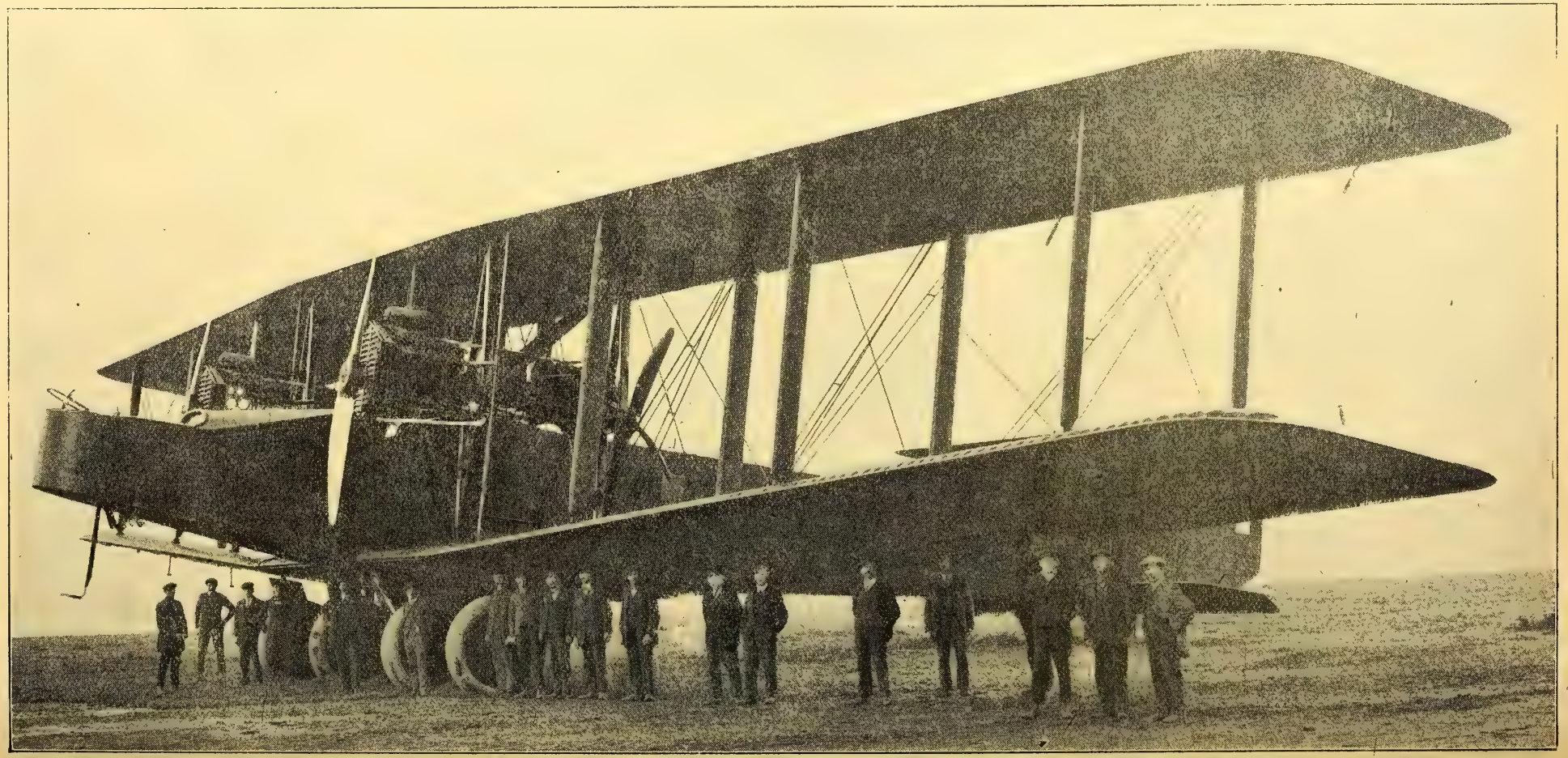
In the event of passengers, mails and goods all being carried by the same machine, each would be conveyed in a separate compartment.

SPECIFICATION.

Type of machine	Biplane.
Name or type No. of machine	V/1500.
Purpose for which intended	Night bombing.
Span	126 ft.
Gap, maximum and minimum	15 ft.; 12 ft.
Overall length	62 ft.
Maximum height	23 ft.
Chord	12 ft.
Total surface of wings	3,000 sq. ft.
Maximum cross section of body	8 ft. × 6 ft. 2 ins.
Engine type and h.p.	4 R.R. Eagle VIII.
Airscrew, diam., and revs.	13 ft. 5 ins.; 10 ft. 4 ins.; 1,080; 1,080.
Weight of machine empty	15,000 lbs.
Load per sq. ft. fully loaded	10 lbs.
Weight per h.p.	21 lbs.
Tank capacity in hours	14 hours.
Tank capacity in gallons	1,000 hours.
Performance—	
Speed low down	103 m.p.h. fully loaded.
Speed at 6,500 feet	99 m.p.h.
Speed at 10,000 feet	95 m.p.h.
Landing speed	50 m.p.h.
Climb—	
1,200 ft. per min. lightly loaded	
To 5,000 feet fully loaded	8 mins.
To 10,000 feet	21 mins.
Disposable load apart from fuel	7,000 lbs.
Total weight of machine loaded	30,000 lbs.

Alternative Engines.—

4 B.H.P. "Atlantic's," each 500 h.p., or 4 Napier "Lion's," or 2 R.R. "Eagle" and 2 "Liberty" (400 h.p.).



Three-quarter Front View of the V/1500 Handley Page (Two Rolls-Royce "Eagle" engines and two 400 h.p. Liberty engines).

To "Aeroplane" Subscribers.

Since the Armistice, the subscription list of the AEROPLANE has steadily increased: an eminently satisfactory development which we are anxious to encourage.

Of the many books published on the war on the Western front, none conveys a more realistic impression of the work of a particular arm than FLYING COLOURS by Captain H. M. S. Saundby, A.F.C., R.A.F., M.C., published at **£2 2s.** net (Edition de luxe) and **15/-** net (Popular Edition).

Among the art books published in the last year or two, none can claim to be a more faithful reproduction of the artist's colour scheme and that indefinable thing atmosphere.

FLYING COLOURS is a permanent memorial of the life of "the pilot in action," as Major-General C. B. Ashmore calls him. It was very costly to produce, and necessarily the price to the public had to be high.

Many would like to possess it who do not feel disposed to put down Two Guineas for the larger edition or Fifteen Shillings for the smaller.

How to meet their views? We make a special offer to any subscriber for one year to the AEROPLANE: namely to give him the right to purchase either edition at half price.

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In order to be fair to current yearly subscribers we extend the half-price concession to them also. If a subscriber has paid a quarterly or half-yearly subscription, then to secure the right to participate he should send the balance for the year.

Subscribers who have given their orders through the trade, and not direct to the AEROPLANE Office, must sign the form below or a copy thereof, and hand it with the balance on account of the book to their retailer for transmission to the AEROPLANE.

If the subscriber already has a copy of FLYING COLOURS, and would wish to take advantage of this offer, then he may secure McCudden's "Five Years in the R.F.C." **(7s. 6d.)**; Richthofen's "Red Air Fighter" **(3s. 6d.)**, and Gill's "The Aerial Arm" **(6s. 6d.)** at half price, *i.e.* **8s. 9d.** the three, plus the year's subscription to the AEROPLANE.

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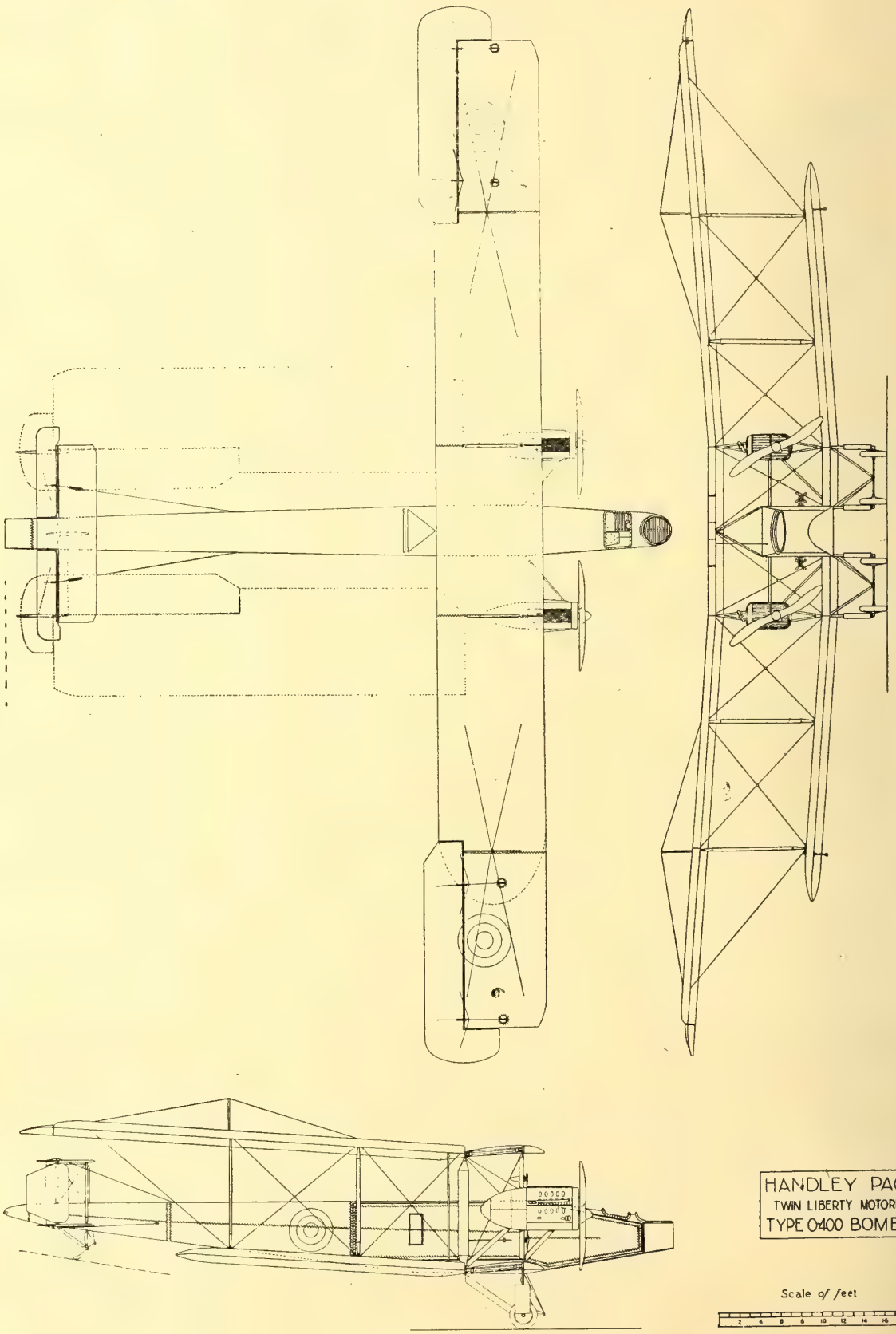
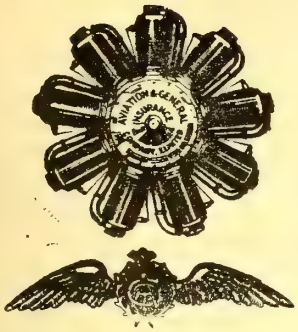


HANDLEY PAGE
TWIN LIBERTY MOTORED
TYPE O/400 BOMBER

Scale of feet

McLaughlin



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TANDEM PARACHUTES.

The following letter has been received :—

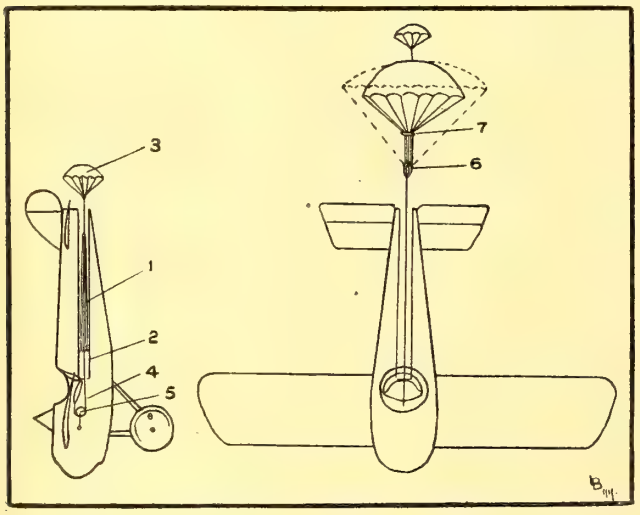
Sir :—In the very interesting series of notes on parachutes which have recently appeared in your excellent journal, Lieut.-Col. Holt has described the arrangement of a tandem parachute system wherein a parachute of small diameter is first released and serves to draw out the main parachute. This idea is excellent, but it is not novel. Several investigators have suggested it since 1910, and in 1913 Lieut.-Col. (then Captain) Couade, of the French Army, had already used this system.

On Oct. 2nd, 1913, a note describing the Couade Sloan parachute was communicated to the French Academy of Sciences by M. Léon Lecormi (Comptes Rendu Acad., t.C.L. VII, page 167).

This descriptive note gave a number of results obtained with the arrangement which had been tested in model form by Capt. Couade in collaboration with M. Sloan, who may be remembered as the inventor of a curious aeroplane (circa 1910) known as the Sloan Bicurve.

The following extract describes the features of the Couade system, which could not only be used for saving the pilot from danger, but which it was proposed to employ for salving the complete aeroplane :—

" The parachute (1) is fitted within a tube (2) placed in the fuselage which emerges behind the control surfaces of the tail, and it



(the parachute) has attached to its summit a small ' tractor ' parachute (3) fitted with elastic ribs, which alone projects beyond the tube.

" This ' tractor ' is normally held closed, but may be freed when necessary by the pilot. It then draws from its case the main parachute and brings it out into the air current. This then opens in its turn without any risk of its unfolding being interfered with.

" The surface of the parachutes is designed to allow a fall at the rate of 6 m. 50 per second.

" In order to avoid dangerous accelerations which would be caused by a sudden opening of the parachute when the machine is travelling at a great speed were the parachute directly attached to the machine, there is interposed between the two a cable (4) which passes round a brake (5). The acceleration cannot then exceed the effort applied by the brake. A shock absorber (6) is fitted which relieves the parachute of the effects of a brusque action on the part of the brake.

" In order to reduce the slip past the brake, the parachute is arranged to open in two stages.

" This is accomplished by a tie (7) which holds the suspension ropes together in their middle.

"The parachute opens partially, and when the load on 7 reaches a certain value this tie ruptures and allows the complete opening.

" For high speeds of fall (50 metres per second) the parachute should open completely within 100 metres."—L. P. FRANTZEN.

BY ERROR.

In the article by M. L. P. Frantzen on "Aerial Safety and the Aeroplane Parachute," published in this paper on July 23rd, two unfortunate errors occurred.

The Couade parachute system was referred to as the Conade (page 317), and on page 318 René Lallemand was described as Roger Lallemand.

TECHNICAL KNOWLEDGE.

Following are some questions and answers collected by an instructor of R.A.F. Cadets :—

How is a machine supported in flight?—By flying wires.

What is the object of a tail-plane?—It is fitted for stabling purposes.

What is propeller torque?—When the propeller is loose on its boss and rattles.

How does a machine get into a glide?—By gravity acting through the propeller boss.

How is rotary motion obtained in a rotary engine?—By means of two eccentric circles.

What is the construction of the crankcase of a mono?—It is made of clamped iron filings.

What are the chief points of a R.A.F. engine?—It has crinkly cylinders.

How would you find the direction of the wind?—By holding out my handkerchief.

You lose your way over the enemy lines. How would you find your way back?—I would come down and wait for someone to approach. I would then talk to him in English, and if he answered in German, I would turn round and fly back in the opposite direction.

What is the right bank of a river?—That bank on your right when you are speaking from the mouth of the river.

What are iso-bars?—Hot air rises from the ground, and where it meets cold air coming down from the sky, it freezes and forms iso-bars.

What are the chief duties of an Equipment Officer?—He acts as adviser to his C.O., looks after stores, etc., and sees that all rubber articles are wrapped in French chalk.

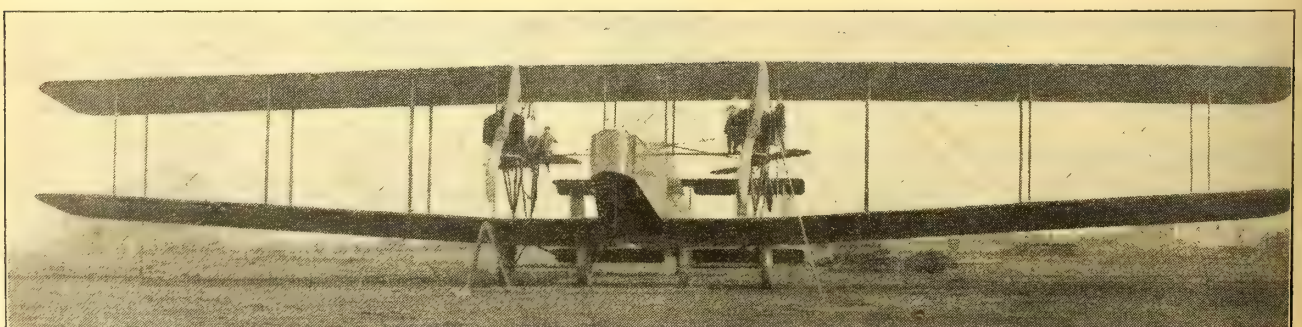
THE REPAIR OF MAGNETO PARTS.

It is not generally known that the vulcanite parts of magnetos (slip rings, distributors, etc.) can be effectively repaired if broken, and that the results secured are so satisfactory that repairs of this nature for aeroplane and other important work were carried out during the war with the full approval of the Government inspectors.

Messrs. Harvey Frost and Co., Ltd., who are responsible for this innovation, expect a large demand as soon as it is realised by motorists and the motor trade that valuable magneto parts, sometimes irreplaceable, need no longer be scrapped when broken, but that they can be repaired efficiently at trifling cost. They have opened, therefore, a special department to deal with this business, and they now invite anyone who may have broken vulcanite magneto parts on their hands to send them to 148-150, Great Portland Street, W.1.

A BELGIAN DECORATION.

The King of the Belgians has conferred the title of Commandeur de l'Ordre de Leopold II upon Sir Herbert Austin, managing director of the Austin Motor Co., Ltd., in recognition of "constant and generous help given to this country in the course of the war."



Front View of the Type V/1500 four-engined Handley Page Biplane described on page 616.

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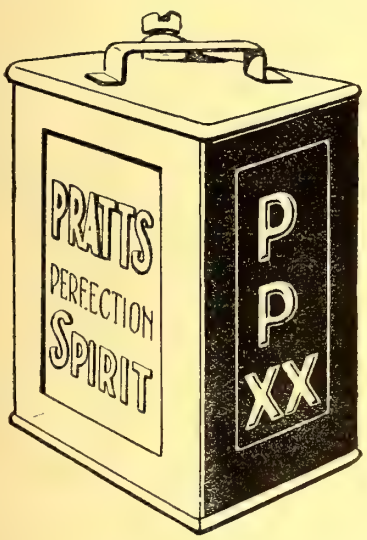

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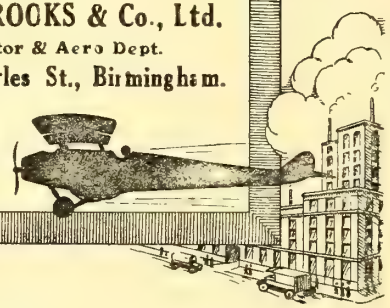
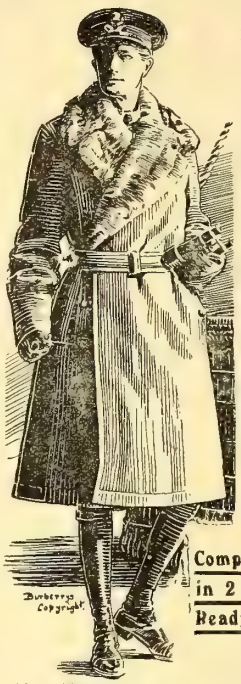


161A.

BURBERRY FLYING KIT



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PATENTS INDEX

The subjoined list of recent inventions has been specially compiled by THE AEROPLANE from the current Official Patents Records :—

PATENTS APPLICATIONS.

Cummuskey, G. Device for locking steering gear and switching-off electric current from magnetos of motor-cars, boats, aeroplanes, etc. No. 14731. June 11th.
Dupigny, L. E. Toy aeroplane. No. 14646. June 10th.
Gosport Aircraft Co. Aerial machines. No. 14897. June 12th.
Houlden, H. W. Motive-power vehicles, ships and aircraft. No. 14727. June 11th.
Lyons, L. A. Aeroplanes. No. 14881. June 12th.
Macdonald K. Turbine for aeroplane and airship propulsion. No. 14628. June 10th.
Morris, F. Devices for automatically controlling aircraft. No. 14752. June 11th.
Palethorpe, J. Tail-skids for aeroplanes, etc. No. 14933. June 13th.
Potral, A. Flying-machines. No. 14815. June 12th.
Power, R. F. Aerial observation. No. 14767. June 11th
Siddeley Deasy Motor Car Co. Balanced rudders, flaps, etc., of aircraft. No. 15029. June 14th.
Siddeley Deasy Motor Car Co. Fittings for metal framework of aeroplanes, etc. No. 15030. June 14th.
Siddeley Deasy Motor Car Co. Control mechanism of balancing flaps, etc., of aircraft. No. 15031. June 14th.
Supermarine Aviation Works. Flying-boats, etc. No. 14681. June 10th.
Tebaldi, A. Aeroplanes. No. 14687. June 10th.
Worsley, L. S. Undercarriage and landing device for aircraft. No. 14826. June 12th.

COMPLETE SPECIFICATIONS ACCEPTED, PRINTS OF WHICH CAN BE OBTAINED ON AND AFTER JULY 3RD, 1919.

127620. May 1st, 1917. Lanchester, F. W. Mechanism for receiving and launching aeroplanes at sea.
127627. May 2nd, 1917. Lang Propeller, Ltd., and Mills, G. Construction of aerial propellers.
127628. May 3rd, 1917. Wolseley Motors, Ltd., and Remington, A. A. Internal-combustion engines (particularly aircraft engines) which are required to work under considerable variations of air pressure.
127633. May 5th, 1917. Aeronautical Instrument Co. and Brewer, G. Ripping panels for balloons and other aerostats.
127637. May 7th, 1917. Aeronautical Instrument Co. and Brewer, G Ripping panels for balloons and other aerostats.
127643. Jan. 27th, 1917. Birkigt, M. Combined gun and engine for aerial machines.
127644. Feb. 12th, 1917. Birkigt, M. Means for coupling internal-combustion engines.
127648. May 10th, 1917. Dawson, Sir A. T., and Buckham, Sir G. T. Aircraft gun mountings.
127658. May 15th, 1917. Roe, A. V. Device for anchoring bracing cable and the like.
127665. May 17th, 1917. Tarrant, W. G. Construction of girders, beams, struts, and the like for aircraft and other purposes.
127667. July 22nd, 1916. Soc. dite "Spad." Control of aerial machines.
127671. June 26th, 1916. Bleriot, L. Joints particularly for aerial machines.
127673. May 22nd, 1917. Sopwith Aviation Co. and Cato, H. E. Tool for extracting the fixing bolts of the propellers of aeroplanes and other aircraft.
127676. May 23rd, 1917. Armstrong Whitworth and Co., Sir W. G., and Allan, A. Hydraulic transmission apparatus.
127684. March 2nd, 1918. Woyevodsky, N. Aircraft.
127691. May 1st, 1918. Bowden Wire, Ltd., and Sentinella, A. E. Bowden Wire Mechanism.
127695. May 4th, 1918. Patent Corporation and Thompson, W. P. Flying-machines.

PATENTS APPLICATIONS.

127703. May 31st, 1918. Robins, T. H., and Thompson, G. H. Device for indicating the angular position of an aeroplane or like machine with respect to the horizontal.
127710. May 31st, 1918. Mooney, D. J. Method of or apparatus for building aeroplane wings.
127711. May 31st, 1918. Mooney, D. J., Brown, E. E., and Westcombe, A. C. Aeroplane wings having metal frames.
127743. June 18th, 1918. Rudge-Whitworth, Ltd., Pugh, J. V., Holroyd, V. A., and Nelson, W. H. Fairings or streamlinings for aircraft.
127748. June 20th, 1918. Hobbs, E. Sighting apparatus for dropping bombs from aircraft.
Aguirre, A. Means for automatically controlling steering mechanism of marine or airships. No. 15279. June 18th.
Austin, G. B. H. Aeroplanes. No. 15319. June 18th.
Blakoe, R. Friction driving gear for motor vehicles, boats and aircraft. No. 15517. June 20th.
Brown, E. E. Metal framework for aircraft. No. 15653. June 21st.
Duplan, A. E. Machines to travel on land or in air. No. 15239. June 17th.
Foster, G. H. Aeroanutical apparatus. No. 15220. June 17th.
Gangler, J. B. E. Aeroplane construction. No. 15478. June 19th.
Gath, J. H. Indicator for lateral shifting of aircraft. No. 15370. June 10th.
Gath, J. H. Indicator for lateral shifting of aircraft. No. 15634. June 21st.
Holmes, W. Aeroplane. No. 15158. June 17th.
Irving Airchute Co. Safety parachute pack device. No. 15473. June 19th.
Jubey, H. Instrument for measuring divergence of aircraft from horizontal. No. 15627. June 21st.
Mackworth, J. D. Ballonet diaphragm systems for balloons. No. 15435. June 19th.
Marriott, R. H. Course-indicating means for water, land, or aircraft. No. 15607. June 20th.
Moore, H. R. Rivers-. Method for navigating aircraft. No. 15409. June 19th.
Reid, G. H. Apparatus for indicating position of controls on aircraft and operating same. No. 15306. June 18th.
Rumbelow, J. J. Level indicator for aeroplanes. No. 15545. June 20th.
Schneider et Cie. Fuse for aviation bombs. No. 15582. June 20th.
Stafford, F. Airships, etc. No. 15493. June 20th.
U.S. Industrial Alcohol Co. Aeroplane motor fuel. No. 15124. June 16th.
U.S. Industrial Alcohol Co. Aeroplane motor fuel. No. 15125. June 16th.
U.S. Industrial Alcohol Co. Aeroplane motor fuel. No. 15126. June 16th.
Vanattenhoven, G. Aerial transport device. No. 15436. June 10th.

COMPLETE SPECIFICATIONS ACCEPTED, PRINTS OF WHICH CAN BE OBTAINED ON AND AFTER JULY 10TH, 1919.

127841. May 26th, 1917. Robinson, C. J. Machines for shaping propeller blades and the like.
127842. May 26th, 1917. Lott, R. E. L. Means for supporting fuel tanks on aeroplanes and airships.
127844. May 26th, 1917. Tarrent, F. G. Construction of and method of joining together girders, beams, struts, and other frame members of airships.
127847. May 29th, 1917. Sopwith Aviation Co. and Hawker, H. G. Cowls for engines of aeroplanes.
127857. June 2nd, 1917. Thomas, G. H., and Havilland, G. de. Radiators on aeroplanes.
127858. June 4th, 1917. Sopwith Aviation Co. and Sigrist, F. Struts, spars, and the like used in aircraft construction.
127862. June 5th, 1917. Flower, S. A. Airships.
127866. June 6th, 1917. Sage and Co., F., and Turnbull, W. R. Floats for hydro-aeroplanes and the like.
127867. June 8th, 1917. Brotherhood, Ltd., P., Bryant, C. W., and Jones, G. F. Aero engines.
127868. June 8th, 1917. Brotherhood, Ltd., P., Bryant, C. W. and Jones, G. F. Aero engines.
127874. June 9th, 1917. Waring and Gillow, and Richmond, W. H. Spars, struts, or like members of aircraft, and the like.
127877. June 11th, 1917. Taylor, A., and Gray, P. W. Optical sighting-devices for aircraft and the like.
127881. June 12th, 1917. Calthrop, E. R. Parachutes
127882. June 13th, 1917. Page, F. H. Rapidly-releasable fastening devices.
127884. June 13th, 1917. Western Electric Co. Telephone apparatus particularly for use on aeroplanes.
127898. June 20th, 1917. Joseph, G. F., Portholme Aerodrome, and Pape, F. Wings for aeroplane flying-machines.
127904. June 21st, 1917. Vickers, Ltd., and Duncan, T. S. Landing devices of aeroplanes.
127905. June 21st, 1917. Anderson, D. Aeroplanes, hydroplanes, seaplanes, and like craft.
127910. June 23rd, 1917. Aeronautical Instrument Co. and Brewer, G. Balloons.
127911. June 23rd, 1917. Leyland Motors, Ltd., and Thomas, J. G. P Internal-combustion engines especially for use on aircraft.
127917 August 27th, 1917. Danielson, O. A. Indicating-devices for aeroplanes and other aerial machines.
127943. June 3rd, 1918. Mooney, D. J. Construction of fuselages and the like for aviation.
127944. June 3rd, 1918. Innes, J. Hangars and like buildings.
127989. June 12th, 1918. Kent, W. G., and Hunt, N H. Aircraft instruments for sighting terrestrial objects.
128040. July 11th, 1918. Taplin, T. J., and Taplin, T. J. Stabilisers for aeroplanes.
128076. Sept. 3rd, 1918. Mooney, D. J. Metallic frame-members for aircraft.
121459. Dec. 12th, 1917. Caretta, E. Girders.
124709. March 25th, 1918. Caretta, E. Girders.
128131. Dec. 24th, 1918. Brown, E. E., and Mooney, D. J. Metal construction for aircraft.

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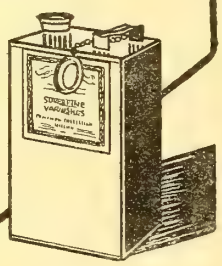

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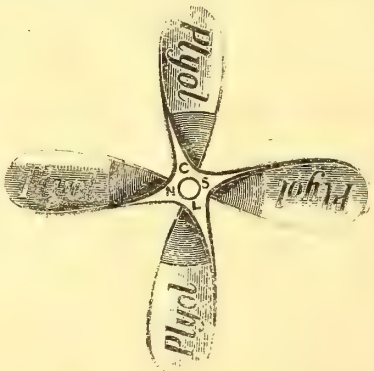

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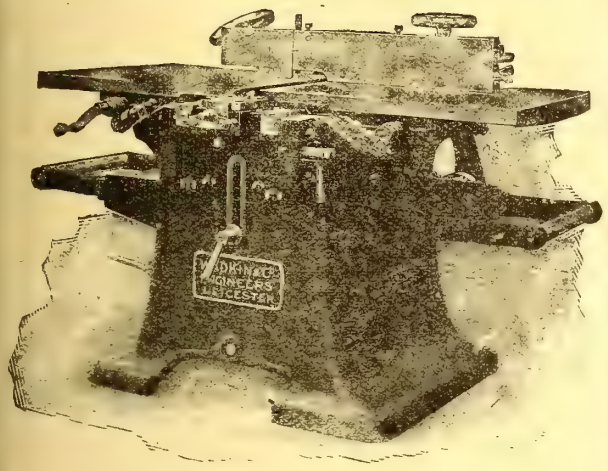

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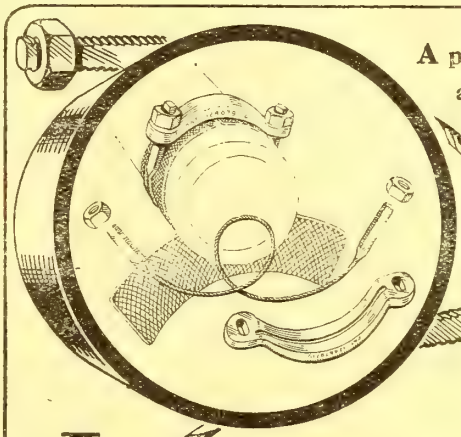

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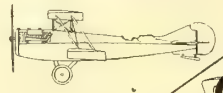

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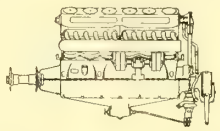

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COMMERCIAL AERONAUTICS & CIVIL AERIAL TRANSPORT

CO-OPERATIVE PROPAGANDA. (COMPETITION FLYING.)

By "MEDWAY."

When dealing in my last article with the conduct of propaganda by individual firms, I hinted at my own opinion that the bulk of the work towards the development of commercial aeronautics throughout the world must be the result of co-operative rather than individual action.

The most obvious form of co-operative propaganda is to be found in races, trials, and other competitions. All these are certainly worth doing, provided that they are done well. We must have no nonsensical official interference calculated to give the world the impression that the machines turned out in this country are slow and feeble.

Up to a point races will serve our turn, because there are many forms of commercial aeronautics in connection with which speed is the first and most valuable factor. This applies to mail services, express passenger services, and attempts to create a rapid system of communications where cables do not exist or are inefficient or inadequate. Speed is not, however, the beginning and end of all things.

Endurance Tests.

I am convinced that the future depends in an even greater measure upon reliability, economy, and weight-carrying capacity. To prove these qualities we want trials more on the lines of endurance tests. To take an analogy from the Motor Industry, the private car benefited very much from the racing in the Isle of Man and on the Brooklands track. The best thing that was ever done for the commercial motor vehicle was the Royal Automobile Club's five-week trial, held in 1907. On each day of the trial the vehicles covered only a moderate distance at a moderate speed. Each day they moved from one centre to another, with the exception of an occasional day's rest at some large centre, where a sort of extemporary exhibition was held. The consumption of fuel, oil, and so on was very carefully noted and checked by observers. At the end of the trial all the machines were thoroughly inspected and examined for wear and depreciation.

I am convinced that it would be well worth the while of the British Aircraft Industry to work up an event on similar lines, covering anything from three to six hundred miles a day, and holding little exhibitions at a number of important points. The trials would result in some very useful figures bearing upon operating costs, and would give a good idea of the degree of reliability at present secured.

Experimental Services.

Last week I suggested that individual propaganda should take the form of the establishment of experimental services in various parts of the world. It would be better still if the Industry as a whole could co-operate for the establishment of, say, forty or fifty such services. Machines of a variety of British makes would be used. The central organisation would supervise the accounts of every service. Tremendously valuable data would be collected, as a consequence of which anyone contemplating the establishment of a service of any kind would be able to come to the central body representing the British Industry and to get some really reliable guide as to probable operating costs, based on experience and not on guesswork. The fee charged for such advice would be a heavy one, but the bulk or the whole of it would be returnable if the service were subsequently established and the orders for machines were placed solely with British firms.

The central organisation would also receive Press matter and photographs from all of its affiliated services and would distribute these, not so much for the glorification of individual firms, whose names would only figure incidentally, but for the purpose of rubbing into the world the supremacy of the British Industry as a whole.

In the first instance this last form of propaganda would be an expensive matter. Later on, as I have already suggested, a fair proportion of the services established would become profitable, and these would be floated as public companies or sold as going concerns. In this way I think that the bulk of the initial losses would be recovered. At any rate the risk would be far less and the possible loss far smaller if we took an average of a large number of services than it would be to the individual firm necessarily experimenting only in a few quarters.

It will be noticed that, in connection with this last scheme, I have referred only to the use of British aircraft. In such a scheme we should not want to advertise our competitors' goods, or to create goodwill for them by getting them known locally in various promising districts.

[One fears that a co-operative effort of this kind would not appeal to the individualistic Englishman.—Ed.]

The Policy of the Open Door.

On this whole question of whether we should limit propagandist competitions to British vehicles, whether we should exclude German machines, or whether we should open the door to the whole world, a very sharp division of opinion is possible. I do not altogether share what I regard as the super-cosmopolitan attitude of C. G. G. I admit that if you want to prove your ability to knock out Beckett in five rounds it is perfectly useless to advertise the fact that you have punched your small brother's head. Similarly, the fact that one British machine can beat another in a race or durability test does not prove that either of them can beat the foreigner, and this is really what we ultimately have to demonstrate. I think that in all speed tests the foreign machine, whatever its country of origin, should be allowed free rights of participation. Even if other countries do not follow our lead in this matter, the policy of the open door would be of advantage to us.

When it comes to any competition, part of the purpose of which is to secure reliable data of operating costs and so on, the case is different. One of our prime needs of the moment is to be able to show the prospective investor what it will cost to do certain work by air. We are very short of reliable data. So also are our foreign competitors. If we can provide such data in respect of our own machines, we are one up. Supposing that the foreigner has an even better proposition to offer, but

cannot put that proposition in convincing form because he has no accepted figures to show, it is not our business to provide him with them. I should therefore limit him to participation in races, stunts, and performances of a kind calculated to encourage the exceptional machine evolved for that purpose rather than the normal machine designed purely for commerce.

No Stupid Traditions.

Reverting to the question of experimental services, I recognise the difficulties in the way of co-operative action. I think, however, that these ought to be overcome by a young and progressive Industry with no stupid traditions in its way. In that case it would be far better for the Industry as a whole to organise these experimental services than for single firms to do so. Whatever may be the real ultimate intention, the manufacturer who starts to operate his products personally for profit lays himself open to the accusation of competing with his own customers on preferential terms, inasmuch as he can get his stuff at cost price. This encourages the customer to go elsewhere or to start manufacturing on his own account.

The existing manufacturer may reiterate the assurance that he was merely experimenting and had no intention of remaining permanently in the business, but it is very doubtful whether he would be believed. On the other hand, if the Industry as a whole worked out a scheme and publicly stated its intentions from the first, it is not likely that anyone would suspect it of ulterior motives. Moreover, the accumulated data, which would in this way be made available at one single centre, would be of immense value as bearing upon the prospectuses of independent operating concerns. Promoters of such concerns, if they really honestly believed in them themselves, would be quite willing to go to the central body to get a certificate to the effect that their estimates of operating costs were in accordance with the figures in the possession of that body. This would give much increased public confidence, and therefore would encourage the investment of money in aerial enterprises.

THE COPENHAGEN AERO-SHOW.

By ERIK HILDESHEIM (Copenhagen).

Under Peace conditions the second Scandinavian aero exhibition chiefly stimulated interest for coming events, the shows of the Danish Army and Navy being most attractive, the stand of the former including a Vickers 100 h.p. Gnome monosoupape pusher, an H. tractor of own model with 140 h.p. Argus, a Maurice Farman longhorn school biplane, and a 30 h.p. B. and S. monoplane, beside home-made 70 h.p. Renault motors.

The Navy exhibited their first aeroplane, a 50 h.p. Farman box-kite, a school flying boat with 100 h.p. home-made Curtiss motor, a 160 h.p. twin-float seaplane, and a 200 h.p. flying boat of the Danish type. The Swedish Army Works showed a biplane of German outlines with a 260 h.p. Mercédès, the stand of Thulin containing a single-seater and a two-seater scout and a 160 h.p. tractor.

Owing to the many service accidents the advisory committee, appointed by the Parliament, forbade the army all flying with the worn-out monosoupapes of the Vickers, as well as the Argus motors, with their vibrating camshafts, of the H tractors, and the Thulin engines of the scouts. Thus only the 1912 M. Farman model remained, on which Sergeant Bjarkow covered the longest distance in to and fro flying by Copenhagen, in the 12 hours allowed in the "Star Flying" called so for its demonstrating character of ending, from all corners of the Scandinavian countries, in Copenhagen, to arouse interest in the show.

The Danish naval pilots were not followed by luck, Lieut. Gylling on a flying boat being prevented by rain and mist from carrying out his full course between the extreme points of Denmark, and Lieut. Thiele having the screw of his tractor seaplane damaged by the rough sea at an intermediate landing which blew then off in the continued flight and smashed one float.

The Swedish competitors were prevented from completing by meteorological conditions, and thus the Norwegian partakers showed off best, being even to the credit of the British aircraft trade, as the two naval pilots, Lieuts. Lützow-Holm and Riiser-Lassen flew 130 h.p. Clerget Sopwith Baby seaplanes from the naval air station at Horten by Christiania to Copenhagen with one landing at Gothenburg.

Lieut. Ibsen of the army, a grandson of the two well-known Norwegian authors, Henrik Ibsen and Björnstjerne Björnson, on the first army-built tractor biplane with a R.A.F. motor put up a fine performance from the army Christiania aerodrome at Lillestrom, in spite of bad weather conditions.

As these three Norwegian pilots gave an exhibition of fancy flying over the Danish capital, this performance impressed too well of the training that the two naval officers had undergone at an English war flying school.

A passenger service was to have been run during the exhibition between Copenhagen and the Swedish city Malmö, but the Nielsen and Winther seaplane was smashed after forced landing in first two flights, and the Thulin seaplane was stopped by the Swedish police, till it had passed a technical examination, and carried then on the last days out a number of flights.

The first foreign pilot to come attracted by the show, was the German Sablatnig, who landed with two passengers at Copenhagen, after long efforts to be allowed to continue his service from Berlin to the last German station, Warnemünde on to Copenhagen. He flew his own type, the model N for night flying, with 230-h.p. Benz motor, and the front cockpit enclosed with Cellon plates to form a narrow cabin for three passengers.

Two more Sablatnig biplanes came later, one piloted by Capt.-Lieut. Berchtold, and were sold to a new Danish company named Airexpress, formed chiefly for joyriding, and said to have ordered eight more Sablatnig aircraft, two of which are to have sleeping accommodation in lying position for two passengers.

Next came a number of L.V.G. biplanes to a dairy-exporter to Germany, one of which, after an exhibition tour, was sold to a provincial haulage contractor, while the other ones have been demonstrated to the army, their sale or use for a flying school being negotiated.

A young war-profiteerer imported sundry Rumpler and other type slough relics from the German Adlershof aircraft churchyard and after superficial reviving sold a number of them, but the first customer, a young sportsman met, a few days after taking his ticket, with a fatal accident, both he and his passenger, being burned to death on an overland flight. The papers therefore ask for restrictions on the imports, but as the flying regulations have not been issued so far, the air bill monopolising all air traffic to the Government, which will give concession to influential companies in return for their big financial outlays, has not been passed yet, the police do not see fit to forbid hurried efforts, in most cases associated with German enterprise, otherwise than declining to grant passports for foreign aviators, and limiting the duration of those pilots, staying in the country already.

A Sleswig aviator piloted the other day a British Red Cross officer from Berlin to Copenhagen on an Albatros, and afterwards carried out an altitude flight to 20,000 ft. with two passengers.

The former C.O. of the Richthofen fighting squadron, Lieut. Göring, flew over a Fokker D VII scout with B.M.W. motor, and gave a demonstration to the military authorities, afterwards going out on exhibitions, but when a big meeting was to have been organised, which was patronised by the King and a number of members of the Royal Family by their presence, his motor gave troubles, and as the army pilots were forbidden to partake, and other expected partakers turned up neither, the show was very poor.

The best performance was by the Danish pilot Reichert, who has returned from Johannisthal with 3 Albatros biplanes, of which he put during the war 1,100 through their delivery tests, experiencing later a narrow escape with his two passengers, when one of his biplanes caught fire and was burned.

To have appeared was the Austrian pilot Sparmann, of pre-war fame as a Lohner pilot, and now chief design pilot to the Phönix Works, the largest Austrian aircraft manufacturing company and successors to the Albatros firm of Austria, who, flying a scout, turned up later in the company of Capt. Perelli, who flew a two-seater in 8 hours from Vienna to Copenhagen with two stops at the Szeco frontier and in Berlin. After demonstrating their aircraft to the advisory committee and others they continued their flight to Stockholm and later to Christiania. It is said that Sparmann has been engaged as designer and school instructor by the Thulin works that are to turn out Phönix aeroplanes.

Dutch pilots turned up too as guests at the Copenhagen show. First arrived a two-seater Friedrichshafen seaplane with naval officers, and next an Argus-engined Rumpler with officer pilots. Another aeroplane of same make and starting at the same time, met with a fatal accident to the two officers manning it, in Sleswig.

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A BREACH OF AGREEMENT.

In an official document entitled "Directions Issued by the Secretary of State for Air, under para. 3 of the Air Navigation Regulations, 1919, dated April 30th, 1919," which bears what purports to be a reproduction of the signature of the Right Hon. Winston Spencer Churchill, there is laid down a scale of the charges which will be made to the owners of civil aircraft for accommodation and for landing fees at R.A.F. aerodromes.

These charges are based upon the floor space occupied by the machine. This is assessed on the product of overall span and overall length, and machines are classified therein as:—

Small type, less than 900 sq. ft.
Medium type, not exceeding 1,800 sq. ft.
Large type, over 1,800 sq. ft.

It appears, however, that the Civil Aviation officials at official aerodromes have received entirely different instructions, and that machines are to be classed as single-seaters, two-seaters, and large aeroplanes.

Thus, anyone flying a four-seater machine which comes within the published definition of a small machine must be prepared to be charged at the rate laid down for the large type if he is so ill advised as to land at a Government aerodrome.

It is not quite clear whether this performance on the part of the authorities is to be classed as foolishness or roguery.

It is a clear case of breach of agreement, and it would be interesting to learn what would be the views of the Air Ministry as to the action of the proprietor of a licensed private aerodrome who attempted to interpret his agreement as to charges for R.A.F. aeroplanes which landed upon his ground in a similar manner.

KILLING CIVIL AVIATION.

Though one knows, personally, that the operations of the Department of Civil Aviation are just pure natural foolishness, and are not inspired by any malicious intent, one cannot blame those who are less in touch with affairs for believing that it is the policy of the Department of Civil Aviation to kill all small firms who have the impudence to try and make a living out of aviation so that all civilian flying may pass into the hands of a few would-be monopolists who happen to be friends of the people in the Department. It has already been recorded, both editorially and in the advertisement columns of this paper, that the London and Provincial Aviation Co., Ltd., whose principal, Mr. Warren, is one of the pioneers of aviation in this country, have gone out of business, at any rate, until such time as Civil Aviation is controlled by people who know something about civility and aviation.

Considering all the good work that the firm has done during the war, it is a great pity that it should expire, or even suffer, from suspended animation, for nobody is better qualified than are Messrs. Warren and Smiles to turn out useful commercial aeroplanes at a reasonable price. One learns that they had actually in hand the designs for a five-seater touring machine with a 120 h.p. engine, which they intended to exhibit at the next Aero Show. This, however, will, of course, not be produced in view of the activities of the Civil Aviation Department.

Another small and enterprising firm which looks like being squeezed out of existence by the Department is the Cheltenham Aviation Co., Ltd., founded by Mr. Horace Wright and two other ex-R.A.F. officers who pooled their gratuities in the hopes of making a living out of the experience they gained in running aeroplanes during the war. It seems, however, that the mere war experience of practical aviators and engineers does not qualify them in the eyes of the stay-at-home officials of the Civil Aviation Department. The mere fact that these ex-R.A.F. officers were staking not only all they possessed in the way of cash but also were prepared to risk their lives in flying the machines in order to earn a living, does not seem to have weighed with the gentlemen of that institution which is becoming known as the "Fee-Snatching" Department.

Practically every other concern which has attempted to deal with the Department of Civil Aviation has nothing but complaints to make, and as this paper has already stated, it is quite time that the whole Department was overhauled from top to bottom.

THE AEROPLANE SITUATION IN THE U.S.A.

By G. W. Kettle.

From personal observation during a few weeks' visit to the United States, I am convinced that the Americans are thoroughly dissatisfied with their own progress in aeronautics. Whether in New York, Chicago, Philadelphia, Cleveland or Washington, I heard the same tale of woe.

The fact is their manufacturers came down very badly indeed over their war promises and supplies. The evidence is overwhelming; and though the average citizen says little he is very conscious of failure.

Here, the American believes in us. Doubting himself, he is convinced that the Britisher knows all about it. Being willing to trust us with his personal safety, he expects more inspiration and better supplies from England than from his own country. Our old reputation for thoroughness and conscientious workmanship, for initiative and skill, is doing us good service to-day.

There can be no question, again, that America wants aeroplanes—for commercial purposes and for pleasure. Remembering that in Cleveland, for example, one family in every five owns a motor-car, we may safely assume that the same spirit of restless enterprise—ever seeking after some new thing—will rapidly create the demand. For that continent, with her vast distances, is comparatively speaking, badly supplied with means of transit.

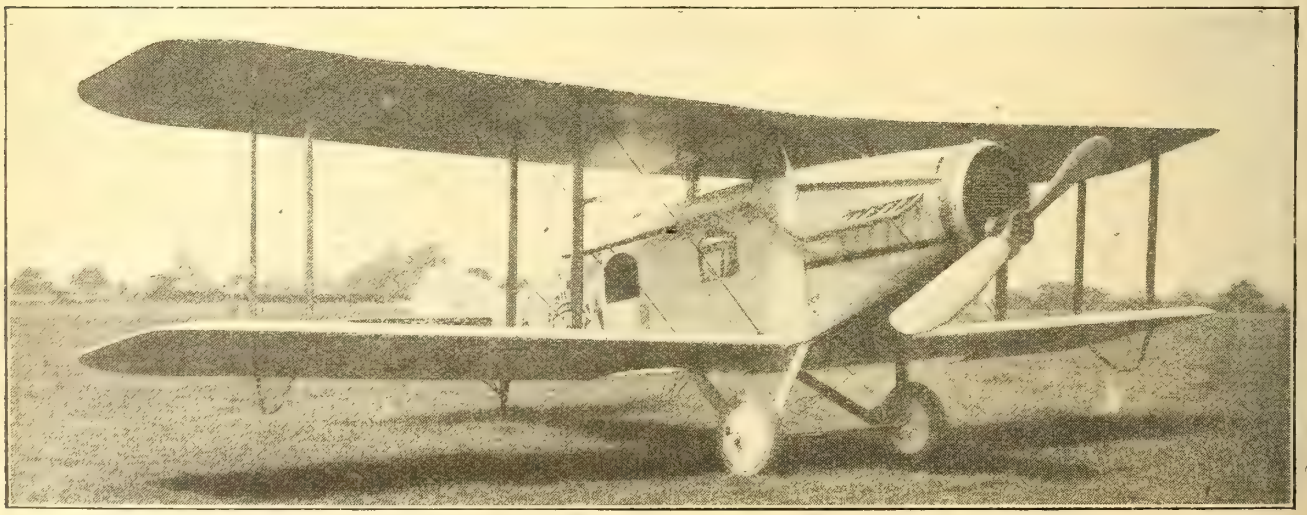
Her average roads do not reach at all a high standard of efficiency; there is very little railway development outside the great traffic systems. Yet her desires and her needs for the intercourse which prompts travel are rather exceptionally urgent.

Speed, too, is very imperative, and must be maintained over a number of miles scarcely contemplated in our little island. And gasolene is cheap. Wherefore, more and more, day by day, America is looking to the air.

Information as to the possibility of aeronautics is badly needed to-day in the States. Who is to build and establish her factories? Who is to supervise the work?

Since we English are leading in this matter, what have we really learnt from our five years' experience at war? Are we already applying that experience to peace purposes?

It is true that the whole question of air navigation laws, etc., though pressing, may not be decided for some months? But our cousins over the water are not likely to wait for the final result of deliberations affecting the interests of the whole world. They want practical programmes here and now—and they will find them, somewhere!



Three-quarter Front View of the "Westland Limousine" described on pages 597-598.

CIVIL AERIAL TRANSPORT NOTES.

GREAT BRITAIN.

Attention is drawn by the Air Ministry to the Secretary of State's order published in the "London Gazette" of Aug. 1st, which makes a small alteration in the method of marking aircraft.

Under the Regulations published on April 30th the marks of civil aircraft were to be underlined with a black line; the International Air Convention reserves this black line for one particular type of aircraft, i.e., the private or tourist aircraft as opposed to the commercial or State machines. The order published in the "London Gazette" of Aug. 8th thus brings the British Regulations into line with the International Convention in this respect.

The Big Purchase of Avros.

Mr. S. W. Copley, the managing director of Copley's Bank, 11, Queen Victoria Street, who purchased the 286 new Avro machines from the Aircraft Disposal Department, has also bought several other machines.

At present the project is in the air, but an aerodrome has been obtained near London. The machines, or some of them, will be used for passenger and cargo-carrying at a fixed and moderate mileage scale of payment.

An Aerial Police Force.

Major-Gen. the Right Hon. J. E. B. Seely, C.B., C.M.G., D.S.O., M.P., the Under Secretary of State for Air, has stated that it is not considered that the expense of maintaining an Air Police Force would be justified at present.

Free Flights.

The "Daily News" announce that they will give on Saturday, Aug. 16th, and on Monday, Aug. 18th, a total of 226 free flights. In addition to these, 20 free flights are announced for Nottingham on Aug. 13th.

Flights at the following places are to be given on Aug. 16th: Cricklewood, 100; Hastings and Southend, 20 each; Swansea, 16; Great Yarmouth and Eastbourne, 15 each; Sandown plus Ventnor and Torquay plus Paignton, 10 each.

On Aug. 18th seaplane flights will be given at Brighton from the end of the West Pier.

A Tax Collector Missing.

An Avro pilot recently conveyed passengers to a recognised Government aerodrome in Lancashire. He landed, and as no one came out to assist him or paid any attention to him he departed again without paying his 5s. landing fee.

Major McMinnies was under the impression that the charge of 5s. is made in return for services of taxying in with mechanics' assistance, etc., but when there is no one about and the machine only alights for a few moments this toll seems rather excessive.

Blackpool.

The five-seater Avros signified their arrival at Blackpool by setting up new records for the week ending Aug. 9th, nearly 500 passengers being flown in one day by three pilots. Thousands throng the beach all day long waiting for the day when flights will be 5s. each.

Brighton.

Eighty-five flights were made by Avro machines for the week ending Aug. 9th, and 212 passengers were taken up.

Cambridge.

The Cambridge School of Flying had a record day on Bank Holiday, Aug. 4th. Numbers of people turned up at the Hardwick Aerodrome to watch the flying, and many were taken up.

Lieut. Ortweiler piloted the only flyable Avro the whole day, and did many stunts, which the passengers enjoyed. In the afternoon, another pilot made a very short trip on one of the Caudron machines.

Conway.

It is hoped that when the Air Ministry's licence for the Morfa Ground, Conway, is granted, a special service will be inaugurated between Rhyl and Conway. The Morfa is an excellent centre for North Wales, Llandudno, Conway, and Colwyn Bay being within a few miles of the landing-ground.

Cowes.

Colonel Wingfield, a well-known member of the Royal Yacht Squadron, with three friends, flew from Cowes to Portsmouth on August 5th, in a Supermarine flying boat to witness the departure of the Prince of Wales to Canada.

A Supermarine flying boat attended the Cowes Regatta each day. Members of the R.Y.S. and other clubs were taken up and followed the yacht racing from the air.

Great Yarmouth.

Free flights were given by the "Daily Sketch," the "Illustrated Sunday Herald," and the "Evening Standard" at Burgh Castle on Aug. 3rd. Further flights were arranged to be given on Aug. 7th and 10th.

Hull.

Proposals for a new aerodrome at Hull have been discussed on the spot by a committee of the Hull Corporation and Lieut.-Col. Beatty of the Air Ministry. Lieut.-Col. Beatty stated the Scandinavian and Dutch traffic would probably come to Hull.

Isle of Man.

Capt. Pixton did very well for the week ending Aug. 9th in delivering his 3,000 copies of the "Daily News" daily to Douglas. The weather was not always kind, as on occasions he had to battle with 40 m.p.h. winds, but he got through to time despite them and a certain amount of mist. A standard Avro seaplane is used, but with a special compartment for papers instead of passengers.

Avros are reported to be as busy as ever at Douglas, "Round the Island" flights being the latest idea. Lieut. Moxon has an ideal spot for pegging his machines down as they are situated outside the Castle Mona Hotel, just off the promenade, where other but less up-to-date means of transport, such as cars and cabs, are also parked!

London.

Hendon.—Capt. Gathergood, with two passengers, in an Airco D.H.4.a machine, flew from Edinburgh to London on Aug. 5th. The flying time was 3¼ hours, and an average speed of 120 m.p.h. was made. The fastest express trains take over nine hours to do this journey.

Hounslow.—During the week ending Aug. 9th, 347 passengers were carried in Avro machines.

A five-seater Avro machine with Mr. H. R. Hastings (late R.A.F.) as pilot, and carrying two passengers and a mechanic, set out from Hounslow at about 5.30 p.m. on August 6th to fly to Camberley. The pilot was preparing to land near the Royal Military College when the machine dropped thirty feet onto the ground and crashed.

Mr. H. R. Hastings was killed. Major Phillips was seriously injured, and taken to the Royal Cambridge Hospital. The other passenger and the mechanic were uninjured.

Mr. Hastings was a highly skilled pilot who had done a great deal of flying. He was for some time instructing in flying in the R.A.F. at the Shoreham aerodrome. A short while ago he took Major Phillips on a flying trip from Hounslow to Swanage.

It is claimed that A. V. Roe and Co. have carried over 20,000 passengers in short and long distance flights, and that this was the first accident experienced in connection with passenger flights.

Margate.

Nearly 300 passengers were taken up in Avros at the Manston aerodrome during the week ending Aug. 9th. Among the passengers was the well-known jockey Duller. Miss Carrie Tubb flew to Herne Bay for a special engagement. A number of people arranged to fly to the Folkestone Races this week

Nottingham.

On Friday, Aug. 8th, Major McMinnies flew from Southport to Nottingham to see Sir Jesse Boot. Landing in a small field next to the Boots recreation ground, he transacted his business and was back at Southport again in thee same time that it would have taken to reach Nottingham by train. It is probable that a Boots flying week and aerial gymkhana and fête will take place at Nottingham during September.

Preston.

Preston Aerodrome will be opened very shortly for Avro flying, as the Air Ministry has granted a licence for it.

Rhyl.

Three Avro pilots have been kept busy during the week ending Aug. 9th, the Rhyl Council leading the way in flying, and rendering every possible assistance to the scheme.

St. Andrews, Fife.

The first day, Aug. 6th, of the four days' passenger flights in two Avro machines was a great success. The first passengers to be taken up from the sands were the Provost and the Town Clerk. The pilots were Capt. Simpson and Lieut. Doren.

Southport.

A dual-control machine for women pupils is expected shortly. The machine is a standard 100 h.p. mono Avro, and pupils will be taught by means of a telephone.

Last Saturday, Aug. 9th, flying continued till 10 p.m., and even when the pilots stopped in the moonlight there were a few more couples waiting to book.

Southsea.

Aeroplane flights over Southsea Common have not been very satisfactory financially. The Portsmouth Corporation Parks Committee have been advised to stop the flights as soon as possible.

Swansea.

During the holiday week crowds flocked to the Avro Aerodrome from extensive factory and mining districts of South Wales to get their first experience of flying. A large force of police was necessary to keep the waiting crowds off the aerodrome.

Aeroplanes were in great demand to carry passengers to the beautiful Gower coast for fishing or bathing. The local Commandant of the Boy Scouts flew for a parade to the sands of Port Eynon.

On Friday, Aug. 8th, in response to a letter from Llanwrtydd Wells, Capt. Dalton flew from Swansea to the grounds of the Abernant Lake Hotel. As a result of his visit passenger flights will be given daily at Llanwrtydd Wells. Many flights from the Wells have already been booked by visitors at other neighbouring towns.

A daily service was arranged to start on Monday, Aug. 11th, for the Wells, leaving Swansea at 11 a.m., and returning at 7 p.m. This route passes over the fine scenery of the Black Mountains.

643 passengers have been carried since July 26th without any mishap.

WESTON-SUPER-MARE.

At this town 232 passengers have been taken up in an Avro five-seater and an Avro three-seater during the week ending Aug. 9th.

Free flights have been given by arrangement with the "Bristol Times and Echo" and the "Daily News."

There are now two aviation companies established at Weston-super-Mare. On Aug. 1st a company had secured an aerodrome in the vicinity of Brean Down, across the River Axe. This company will cater for Burnham and Bridgwater, as well as Weston.

The sands aerodrome has proved very popular, crowds flock to that end of the sea-front which was only sparsely populated before. Tents are pitched near the enclosure, and family parties camp out in approved Bohemian fashion.

WEYMOUTH.

A seaplane piloted by Captain Alan Storey, late R.A.F., with a woman passenger, fell into the sea near Weymouth owing to the breaking of the airscrew. The machine was proceeding to Bournemouth. Both pilot and passenger were rescued.

CANADA.

Capt. Ernest Hoy, D.F.C., flew a Curtiss machine from Vancouver to Calgary *via* Crow's Nest Pass on Aug. 8th in 16 hrs. 48 mins. The distance is 745 miles. This is the first flight across the Rockies.

BELGIAN CONGO

The Belgian Congo aerial service is to be started on Jan. 1st, 1920. The route will be over the whole Upper Congo River, from Kinshasa (terminus of the railway from Matadi) to the Katanga. Seaplanes of a French type (Levy-le-Pen) will be used.

They will carry express mail and express parcels, and will fly in connection with the arrival and sailing of the mail liners of the Antwerp Compagnie Belge Maritime du Congo.

A special series of postage stamps is to be issued for the letters, etc. It is not yet decided whether passengers will be carried. Photographs will also be taken to be used for the drawing up of the hydrographical map of the Congo river and of its tributaries.

A Commission, formed by Col. van Crombrughe, Major Paulis and Commandant Jaumotte, is investigating matters connected with the scheme in Belgium. A party, headed by Engineer Allard, is to leave by the next Antwerp boat to choose the spots on which the sheds will be erected. The first aeroplane flights in Central Africa were given in 1913 at Elizabethville by the Belgian pilot Lescarts.

DENMARK.

The Danish Ministry of War has leased the military aviation ground near Copenhagen to two pilots. They propose starting a flying school there with German machines. The full course will not cost more than 3,000 kronen.

FRANCE.

The following flights will be attempted shortly by pilots who are in training at Villacoublay: Paris-Constantinople, Major Vuillemin and Capt. Leune; Paris-Cairo, Lieut. Dagneux; Paris-Fez, Lieut. Bonzac and Lieut. Patamhon; Paris-Rome, Lieut. de Romanet.

The Arc de Triomphe was flown through by a French aviator at 7.30 a.m. on Aug. 7th. His name is Charles Godefroy, and he had only been demobilised two days before. On an ordinary Nieuport, with an 120 h.p. Le Rhône engine, he descended in a spiral over the Place de l'Etoile and got in a direct line with the entrance of the Arc. He passed through the Arc at 90 m.p.h. and continued on to the Concorde.

The actual height of the Arc de Triomphe is some 90 ft., and its width is only 43 ft. The span of the machine varies in the various accounts from 22 to 27 ft.

Navarre was going to perform this feat soon after he was killed.

An enterprising Paris firm took a cinematograph film of the flight through the arch. The Prefect of Police has forbidden its exhibition until further notice.

GERMANY.

A large German aeroplane, belonging to a German aerial company and hired by the Ukrainian Government, crashed in the Raudten Forest, in Upper Silesia, on Aug. 5th.

The pilot and all the passengers, including M. Vitovsky, a former Ukrainian Minister, were killed. The machine also carried a great deal of money and important documents.

The flight began at Breslau and was to have continued to Podolein.

A German Government wireless message reported that it was shot down by Polish frontier troops.

The machine is reported to have had a span of 43 metres, five motors of 260 h.p. each, and a load capacity of 4,500 kilogrammes.

The Deutsche Luft Reederei has been founded by the A. E. G. Company, syndicated with the Zeppelin works. It has the assistance of the Hamburg-America Line in all matters relating to traffic, and has been established for commercial aviation to the exclusion of stunt flying. In the first three months of its existence 916 flights have been made without an accident. The total distance of those flights would encircle the world nine times. The average journey Berlin to Weimar has been made in just over two hours. In one day 1,300 lbs. of mail were taken from the Leipzig Fair. The "D. L. R." possesses 70 small and 20 large aeroplanes.

Since the opening of the seaside resort service the "D. L. R." has transported 44 persons and 8 tons of mail.

Three large aeroplanes left Berlin on July 19th for Swinemunde, each carrying eight passengers for the week-end trip.

On the same date a Berlin family hired a large private machine and flew to Rugen.

During the races at Harburg the "D. L. R." ran an air service from July 17-30th to connect with the postal service Berlin-Braunschweig-Hannover-Gelsenkirchen-Rhineland. The Harburg line connected at Braunschweig.

The Berlin Luftschiffbau G. m. b. H. have announced, regarding the New York to Hamburg aerial line, that no result has been achieved, although negotiations have been started. The company anticipates a regular trans-Atlantic Air Service for the summer of next year.

"Weser Zeitung," of July 24th, announces that the aerial line Berlin-Hannover-Gelsenkirchen which had been stopped for some time owing to the lack of raw material has again been started.

To connect the service by motor with Essen-Duisburg-Dortmund, etc., the various towns have promised to subsidise it. This will mean a tax of 2 pfennig per head on the local population. In Dortmund, for instance, the assistance given amounts to 6,000 marks.

It is rumoured that a new type of airship has been constructed in Germany which will make its first flight on about Aug. 16th from Berlin to Friedrichshafen *via* München. It will carry mails and 20 passengers exclusive of crew.

It is said to have a speed of 120 m.p.h., and that it will cover the distance within seven hours. A regular service will be started over this route, which eventually will be extended to Switzerland.

GERMAN TRADE NEWS.

The Danish correspondent of THE AEROPLANE writes:—

The well-known German naval expert and contributor to the German paper, "Berliner Tageblatt," Captain Persius, has issued a pamphlet entitled "Tirpitz, the Gravedigger of the German Navy," in which he shows the poor results of the airships, claiming the unreliability of the Zeppelins and the Maybach motor as the chief reason.

Against these statements the Zeppelin Airship Building Co. and the Maybach Motor Works in Friedrichshafen put large advertisements in the German technical papers, quoting first his remarks that technical imperfection was the reason for stopping the employment of the airships, as their military achievements in the war were very small, as they were often exposed to the enemy weapons owing to lacking manœuvring capacities, many cases being due to engine breakdowns. It is, however, published as a fact that one single report of "L.11" saved the whole German fleet from destruticon.

In the parallel articles on modern national aircraft, run by the German journal "Flugsport," various news is gradually revealed. Thus it is reported that the Hannoverische Waggonfabrik started by building Rumpler and Aviatik two-seaters, and Halberstadt scouts under licence. The firm engaged the pioneer designer Dorner, whose monoplane with front motor and propeller drive aft crashed in the fatal accident to its chief exponent. They are producing now the various Hannoveraner products

The Aviatik works took over the Grade plant at the Bork aerodrome and produced Staaken giant aircraft after the end of 1916. It appears that the front motor installation has soon been abolished, the Aviatik specimen having a power plant amounting to 1,500 h.p. in the two interplane engine nacelles made up with two front ones of 230 h.p. and two rear 12-cyl. ones of 500 h.p. each.

Horrible conditions are reported at the aircraft stores in Adlershof, where 6,000 workmen are paid £37,500 a week without doing anything, as 500 men would suffice. It is alleged that mostly everyone steals when leaving after 4 o'clock, foremost the safety guards, 400 of which were to have been dismissed last February, though it has not been done yet. The result of the Bolshevik workmen management since the revolution amounts to £1,100,000 loss against £8,750 income

HOLLAND.

According to the "Times" of Aug. 7th:—

Sir John Alcock, K.B.E., D.S.C., is selling seats in his aeroplane for passenger flights at the Amsterdam Exhibition to the highest bidders. The money thus received will be given to the poor of Amsterdam.

ITALY.

A flight from Varese to Barcelona, a 560-mile coastal trip, was made a few days ago by Petty Officer Zanetti with Signor Buzlo, the technical manager of the firm, on a Macchi-3 seaplane with an I.F. 150 h.p. engine. The M.9, with passenger accommodation, as seen at Taliedo, will shortly be following her, as Messrs. Macchi are out to show their wares to the Neutrals with cash to spare and some fear of future wars.

Among the eye-openers was a Caproni trip from Milan to Turin and back with two pilots and 15 passengers, in 2 hours; stated to be a world's record. The weight of passengers is not stated.

To a Socialist M.P., who lamented the waste of money on aviation when half Italy has no roads and no railways the new Premier replied deploring the threat of a general strike then being held over the Government's head, and stating that all arrangements were ready for guaranteeing communications and the transport of passengers by air if the threat were carried out. In fact, a large wine firm in Turin is advertising that their next consignment of wine "will arrive from Rome by dirigible if other means of transport are not available."

It was also stated in Parliament recently that of the 100,000 men employed in aeronautical factories in November last, there now remain fewer than 27,000. The orders for material in connection with the Air Forces amounted to 8 milliards of lire at that date. Which explains why some folk regret the collapse of the Central Powers.

Col. Berliri-Zoppi is now at the head of Aeronautics here—Civilian side—whilst Gabriele D'Annunzio has accepted the post of High Councillor to the Department with, apparently, acting powers. Col. Berliri-Zoppi announces that the Government will hold a show of Italian aeroplanes and parts at Pekin to back up the Mission being sent there.

It appears that the great Italian Aero demonstration by the Levant Squadron at Constantinople was very effective. Several C.As., including a big triplane and a small fleet of S.V.As. delighted the Turk by giving cool, comfortable trips. Some of the big Allies were slightly jealous, on dit! Count Sforza is at the head of the Mission.—T. S. H.

NORWAY.

According to the "Morgenblad" of Aug. 5th, a British expedition will leave Tromso in the next few days for Spitsbergen. The preparations for the expedition are being made with great secrecy.

Independently of the expedition a British aviator will fly shortly from Tromso to Spitsbergen.

SOUTH AMERICA.

Lieut. Antonio Locatelli, the Italian pilot, has recrossed the Andes and reached Buenos Aires after a direct flight from Santiago de Chile.

SWEDEN.

The Copenhagen correspondent of the "Times" states that a seaplane approached the coast at Smygehuk, the southernmost point of Sweden, on Aug. 10th. It dropped two parcels, which were picked up by a German couple who lived in the neighbourhood.

Coastguards seeing the incident pursued the Germans without success, but they were arrested at a railway station, searched, and the parcels were found on them. The parcels contained jewellery and shares worth a great deal of money, which belonged to the ex-King of Saxony.

The attempt is said to have been arranged by the Prince von Wied (pre-war ruler of Albania), and according to one version he was himself on the seaplane.

Reuter states that the ex-King of Saxony's attorney denies the report that the Prince von Wied attempted to take the securities of the ex-King to Sweden by aeroplane.

It was noted in THE AEROPLANE on July 30th that Major C. H. R. Johnston and Captain K. Saunders, late R.A.F., had started passenger flying in Sweden. They are doing school, passenger and exhibition flying on two Avros and a D.H.6. The Swedish public are at present very ignorant as to the possibilities of aviation. Germany is making strong efforts to establish a strong foothold for their machines in the country. Owing to the wooded nature of the country and the absence of any really good fields, Sweden is only suitable for machines with very slow landing speeds.

At present there are only three aerodromes of any importance, namely, Hägerstalund, near Stockholm, where Major Johnston and Captain Saunders are, Malmslett, which is the headquarters of the Swedish Air Force, and a civilian aerodrome at Landskrona, belonging to the Thulin people. The climatic conditions are good for aviation. The visibility on an average day is 100 miles. Rain and fog rarely give trouble. The surrounding country is ideal for seaplane work, as at 3,000 feet one is never out of gliding distance of water.

The Danish correspondent of THE AEROPLANE writes:—

It is pleasing to record from here that so far the longest flight to the Danish capital has been carried out by a Dane, Lieut. Krause Jensen, on voluntary French service, who made on a Bréguet (300 h.p. Renault) a non-stop flight from Villacoublay to Copenhagen, though his first intention was to continue to Stockholm, whither he flew next. Continuing to Christiania he had engine breakdown, as he had forgotten to open the cock for lubrication. He then went back to Paris to fetch a new motor, and, on his return, found so many metal parts stolen that he was unable to continue.

The large extended Danish telegraph firm, Great Northern Cable Co., expressed fears of the competition with aeroplanes and wireless, when discussing future prospects at the general meeting this year.

U.S.A.

The Post Office Department inaugurated a continuous air mail service between New York and Chicago on July 1st. The route is divided into three stages, the intermediate stations being Bellefonte, Pa., and Cleveland, O.

The Cleveland-Chicago stage has been in operation since May 15th, but the organisation of the other two stages was delayed on account of the difficult ground that the route follows, particularly between Bellefonte and New York, where there are only few natural landing grounds. The total distance is about 750 miles.

Letters from New York to Chicago will reach their destination in from eight to nine hours with the new through-going air mail service. Mail will be delivered on the Pacific coast 24 hours earlier than it was.

Most of the machines used are rebuilt D.H.4a biplanes with Liberty engines. They have a capacity for 400 lbs of mail

The New York terminal of the air mail service has been transferred from Belmont Park to Newark, N.J. This arrangement was made to avoid the fog which hangs over Long Island early in the morning, and also in view of the better train connections with New York.

What is claimed by the "Aerial Age Weekly" of America to be the largest post-war order for aircraft has been placed with the Curtiss Aeroplane and Motor Corporation of Buffalo.

The order consists of 225 aeroplanes and 200 engines. Of the machines 150 are the Curtiss Oriole type land machines and 75 are Curtiss "Sea Gulls." The engines are all of one type—namely, the new Curtiss 150 h.p. model, whose fuel consumption is estimated at one-tenth cent. per mile.

On Aug. 9th Mr. C. W. Webster started on a tour of South America, his intention being to demonstrate American-built machines. He takes with him several well-known American pilots, and the machines include the Curtiss Oriole, Sea Gull, and Hornet. The latter is a two-seater fighter.

The United Aircraft Engineering Corporation of New York, through its London agents, the Canadian and General Trust, Ltd., is buying from the Minister of Munitions Aircraft Disposal Department, 700 aircraft engines and a large number of aeroplanes. These are for export to Canada and the United States.

A QUESTIONABLE CLAUSE.

Major C. G. Turner, in the "Observer" of Aug. 3rd, writes:

"Ballooning does not appear likely to revive to any extent this year. There are general complaints of official discouragement. The Regulations for pilot's certificates contain one very questionable clause: It is that each of the test trips shall be of a minimum of two hours' duration.

"That is all very well for most Continental countries, but in England, Denmark, Sweden, Norway, Japan, and other countries of small land area, it is difficult. In England, during the spells—weeks long sometimes—of westerly winds, balloonists starting from London often find themselves compelled to land after little more than an hour, for fear of drifting over the Thames Estuary or the North Sea. The records of 'free' ballooning during the war give over many long periods an average of 80 or 90 minutes per trip. On occasion balloons had to descend before completing the minimum of one hour.

"Why that minimum should now be made two hours is not clear. Quite a lot of balloon management can be learned in an hour, and there is only one landing—the most important matter—in any case."

THE LOWEST HEIGHT RECORD.

An evening news-sheet last week published an account of "a new height record" of 22,000 feet. This is believed to be the lowest height record made in recent times.

AIRCRAFT FINANCE

CURRENT TOPICS.

Very Little Activity.

These are the dog days in the Stock Exchange, but instead of the customary humdrum stagnation, there has been some activity of the nervous sort arising out of the Labour unsettlement. Everything has been off-colour, including Aircraft securities.

Aircraft Manufacturing Notes.

Some of the holders of Aircraft Manufacturing 7 per Cent short term Notes appear to be growing nervous. They are standing about 96. The nervousness is due to the uncertainty natural to the change over from war to peace conditions. However, it must not be overlooked that these Notes are redeemable by five equal annual drawings over a period commencing Oct. 1st, 1921, at a premium of 15 per cent., or earlier, at the company's option, at a similar premium, on six months' notice.

Handley Page Recovering.

There has been a further recovery in Handley Page Participating Preference shares to 17s. The issue price of these, it will be remembered, was 21s. The recent fall was overdone, and it would not be surprising if the recovery made further progress.

An Ambitious Project.

It appears that about 280 Avro machines, the balance of the Government stock, has been bought by one individual who intends to "inaugurate express services from a centre near London where the machines will be always ready to take passengers or merchandise to almost anywhere."

This sounds impressive in itself. In an interview the purchaser did not give anything away as to his intention beyond that he seems to believe that no one has yet tackled Commercial Aviation projects as they ought to be tackled. Appositely, the early days of motors were referred to, and, somehow, similar pitfalls are to be avoided in this new venture. One has heard things like this before. Anyhow, the greater the experience the more intense the knowledge, and that is all for the good of aviators commercially and financially.

Waring and Gillow and Aircraft.

Nothing further has developed in connection with Whiteheads, but one is particularly interested in Waring and Gillow. Although actually a store business, Waring and Gillow interests have been largely connected with Aircraft construction. The accounts now published cover the operations of three years, and not a word is mentioned about Aircraft.

Presumably, the investments held in subsidiary companies, which have increased very considerably, owing to the exigencies of Government contracts, may have some bearing on the Aircraft ventures. These investments in subsidiaries appear as an asset for £822,319, which is the valuation of the directors.

The results failed to inspire enthusiasm. Trading profits for the three years aggregated £1,217,542. After meeting three year's dividend on the preference shares, and writing off £42,500 for discount and underwriting commission, there remains £942,048 to be carried forward, subject to an estimated liability of £880,000 for Excess Profit Duties and income tax. This is a big lump.

Simplified Excursion Insurance.

A week or two ago attention was drawn to the simplicity of insurance for aerial trippers. The simplicity is even more marked in the new scheme of the Aviation Insurance Association. Bookng agents and the transportation companies themselves are provided with books of insurance certificates requiring only the passenger's name.

One schedule covers the payment of £500 in the event of death for a premium of 2s. 6d. If the passenger wants to cover £5,000 in the new scheme of the Aviation Insurance Association. premium in all. Accidental injury, involving payment of £500 in the event of loss of two limbs or both eyes, or one eye and one limb, or permanent total disablement, can be covered for another 2s. 6d., which premium insures the payment of £250 in the event of the loss of one limb or one eye, and, alternatively, covers the payment of £2 10s. per week for 26 weeks in the event of temporary total disablement.

These premiums of 2s. 6d. for accidental injury are limited to six multiples of each or any of the benefits specified. That is to say, six half-crowns cover six times the payment.

The foregoing are aerodrome flights. There is another schedule covering similar risks when the passenger is flying within the land limits of the United Kingdom, which embraces trips by seaplanes not further than five miles from land. Here the premium is 5s. for similar benefits.

One cannot help admiring the excellent manner in which these insurance facilities are being enlarged for the benefit of the Aircraft Industry. When the general public realise how freely such facilities are offered, Aviation will become more popular

Brazil Aerial Contracts.

It is announced that the President of Brazil has formally sanctioned the contracts with Messrs. Davidson, Fuller, Joas Varsco, and Handley Page, Ltd., for the establishment of aerial services between Brazil and other countries. No further details transpire.

NEW COMPANIES.

Aircraft Tubes and Pressings, Ltd.—Private company. Registered May 24th. Capital £15,000 in £1 shares. To enter into agreement (1) of sale and purchase between Millward and Hughes, Ltd., of first part; and (2) of service between W. W. Hughes of the first part, G. V. Stringer of the second part, and the Company of the third part, and to carry on the business of manufacturers of and directors in tubes, etc. The subscribers (each with one share) are:—W. W. Hughes, 85, Middleton Hall Road, King's Norton, Birmingham, managing director; G. V. Stringer, 26a, Eaton Terrace, S.W., managing director. Directors: W. W. Hughes, G. V. Stringer, A. Millward, 80, Middleton Hall Road, King's Norton and W. E. Warden, 214, Hagley Road, Birmingham. Solicitors: Jeffery Parr, Hasell and Parr, 20, Temple Row, Birmingham.

E. N. V. Motors, Ltd.—Private company. Registered May 30th. Capital £100,000 in £1 shares. To take over the business of a motor manufacturer and engineer carried on at 4, Hythe Road, Hammersmith, as the E. N. V. Motor Co., by Brig.-General J. F. Laycock, D.S.O., to acquire the benefit of an agreement between the said J. F. Laycock and B. Oppenheimer, etc. Power is taken also to manufacture and deal in aircraft of all kinds. The subscribers (each with one share) are: H. S. Dennington, 117, Whitehall Court, S.W., merchant; A. E. Hukins, 31, Hartswood Road, Stamford Brook, Middlesex, engineer. The first directors are: H. S. Dennington, A. E. Hukins, and G. M. Oppenheimer. Qualification, £2,500. Solicitor: A. Tooth, 37, Lincoln's Inn Fields, W.C.

Aeronautical Intelligence Bureau, Ltd. Registered June 13th, as a company limited by guarantee, with not more than 150 members, each liable for £1 in the event of winding up, to unite for mutual advancement and protection certain persons, companies and firms carrying on business as manufacturers of and dealers in and agents for aeroplanes, airships, balloons and parts thereof, to obtain and distribute status information, to promote or oppose legislation, to collect debts, etc. The subscribers are:—R. H. Tetley (Palmer Tyre, Ltd.), 121, Shaftesbury Avenue, W.C.; F. M. Luther (Beardmore Aero Eng., Ltd.), 112, Great Portland Street, W.; J. Riendt (British Emaillite Co., Ltd., aero dope and varnish manufacturers), 30, Regent Street, S.W.; G. A. Mansfield (Motor and Aircraft Supplies Co., Ltd.), 125, Long Acre, W.C.; R. Delpech (Triplex Safety Gear Co., Ltd.), 1, Albemarle Street, W.; J. F. Inshaw (Auster, Ltd.), 133, Long Acre, W.C. (2); W. A. Jewell, 56, Shelley Avenue, Manor Park, E. (12). The first members of the council are to be nominated by the subscribers. Registered office: 30, Bedford Row, W.C.

Davidson Motor and Carriage Co., Ltd.—Private company. Registered July 7th. Capital £20,000 in £1 shares. (17,500 ordinary and 2,500 "B"). To adopt an agreement with the Davidson Aviation Co., Ltd., for the acquisition of certain garage premises, stock, plant and machinery, and to carry on business as garage proprietors, etc. The subscribers are:—P. L. Mott, 6, Cornwall Terrace, Regents Park, N.W., timber merchant, 300 "B"; S. Hoare, 17, Cornwall Terrace, Regents Park, N.W., solicitor, 300 "B"; T. Bain, 9, Ravenscourt Avenue, Hammersmith, W.5, joinery manufacturer, 300 "B"; G. H. Cude, 17, Colebrooke Avenue, W. Ealing, accountant, 150 "B"; N. Rawlins, Mansion Hotel, Richmond, motor engineer, 150 "B." Directors: P. L. Mott, S. Hoare, and T. Bain. Registered office: 16 and 18, Avonmore Road, West Kensington.

The WORLD of AERONAUTICS

NEWS OF THE WEEK FROM ALL QUARTERS

Honours for the Chief of the Air Staff.

In the list of monetary rewards granted by the Houses of Parliament at the King's will on August 6th last, Sir Hugh Trenchard was awarded a grant of £10,000, the only representative of the Royal Air Force to receive such a gift.

On the same day it was announced that among other distinguished officers receiving honours the King had been pleased to confer a baronetcy on Sir Hugh Trenchard.

All will join in congratulating Air Vice-Marshal Sir Hugh Trenchard on these well-earned honours, and one hopes that he will live long to enjoy the fruits of his labours and to continue his great work at the Air Ministry.

The Schneider Cup Race.

The list of entries for the Schneider Cup Competition at Bournemouth on Sept. 10th is now closed. There are only seven entries. Three are allowed from each country. The Aero Club of France has entered three machines, and the Aero Club of Italy one machine. Three British machines will fly out of the following four: Avro, Fairey, Sopwith, and Supermarine.

Big Developments.

Probably a good many people are surprised that the name of Col. John Porte, C.M.G., R.A.F., does not appear in the Permanent Commissions list recently published.

As a matter of fact Col. Porte was demobilised from the R.A.F. some months ago and is devoting his attention to commercial aviation. It is not yet possible to make any definite statements concerning his movements, but one is under the impression that he has in hand a scheme for the development of flying-boats of the very largest size and for their operation on a grand scale. Certainly nobody knows more about flying-boats than does Col. Porte, and one hopes to be able ere long to chronicle the complete success of his scheme.

Wireless Telephony.

The wireless telephony demonstration given on August 11th by Major-General Seely in a committee room of the Houses of Parliament was a great success.

General Seely stated that the Royal Air Force started experiments early in 1915, and by March, 1918 two squadrons in France had been fitted with the apparatus. The postal aeroplanes such as those flying between Kenley and France are now so fitted.

Communication has been made with an aeroplane 100 miles away and with an airship 165 miles distant. No evidence has been obtained to suggest that the Germans had developed wireless telephony.

Two specially powerful valves were arranged to amplify the signals, which came through a trumpet and were audible all over the room.

A gramophone was heard from Aperfield Court, some 20 miles away.

Communication was then established with aeroplanes sent up from Biggin Hill aerodrome. General Seely was informed that his voice carried very well. He asked the pilot and observer of one machine to dine with him at the House of Commons that evening, and asked that the invitation might be communicated to other aeroplanes in the air within 20 miles. Six officers availed themselves of the invitation.

An observer in another machine was constrained to sing into the telephone.

Directional wireless was demonstrated. A novel wireless telephone was also shown in which the transmitter is pressed against the neck of the speaker. There is a wire connection down the trouser leg. The wearer can speak to anyone within range.

Opportunities in the R.A.F.

One continues to receive many letters from young men who are anxious to obtain employment in the Aircraft Industry. To all one would repeat the advice to join the R.A.F. The new rates of pay compare very favourably with wages in civil life when the value of free rations and free uniform is taken into consideration.

Any young man who is ready to go through the workshops of a commercial firm—and no other is worth his salt—would do better at the present time to join the R.A.F. in which he will find every opportunity of acquiring knowledge of aircraft that he can turn to account when the Industry has developed.

The New Rank Titles in the R.A.F.

There would appear to be considerable dissatisfaction among officers of the Royal Air Force as to the new rank titles laid down on Aug. 4th for the commissioned ranks of their service.

It is easy to criticise and many objections can be outlined in regard to many of the new titles. For instance, all "air officers" will be termed "marshals" colloquially just as all general officers are loosely termed "general" in conversation. This practice will reduce in public estimation the standing of field-marshals, the highest rank attainable in the British Army.

Another criticism can be directed against the use in this list of the names of gradings as rank titles. The term "squadron leader" implies certain duties which will certainly not be common to all holders of the rank. In both the Army and the Navy all rank titles are generic terms in an order of precedence, and no hint is given of the duties to be performed by any rank save in certain cases where special titles are given in technical branches of these services.

But while it is easy to criticise, it is difficult to construct. Let each of those who dislike the new names by which they are to be known think of any possible alternatives which shall be different from those common in the Army and Navy and yet be free from that suggestion of absurdity which enhalos the titles of dignities in rustic friendly societies.

The old rank titles of the dead empires such as "dux" or "centurion" can hardly be revived for use by people who habitually travel to their hotel headquarters by tube or omnibus. There are, in fact, no titles which be both apt and dignified and at the same time distinct from those formerly in use in the three services. The new titles are bad, but they must be accepted in the lack of a better series.

Exclusive Misinformation.

The "Daily Mail" of August 11th announced that "air taxis for the Air Council is one of the latest innovations in Governmental services. An air council inspection squadron, with headquarters at Croydon, has just been formed." Inquiry at the publicity department of the Air Ministry, however, failed to confirm these statements. The truth appears to be that, as for many months past, a few machines—certainly not a squadron—are at the disposal of the Air Council and that there is nothing new to record.

Much innocent amusement has been caused by the exclusive misinformation given by this journal. It is said that:—

"Each member is permitted to state the class of machine he wishes to fly. There are specially equipped Bristol fighters with coupé seats and De H 10's with limousine cabin in the squadron. General Seely, it is said, wishes to fly every type ever used by the R.A.F. Recently he was supplied with a Bristol monoplane, an obsolete machine for service purposes. He now, it is stated, desires an old F.E.2B, one of the original bombers in the British service.

"Mr. Winston Churchill, although a qualified pilot, has more conservative tastes, and prefers a fool-proof school machine of the Avro type."

The last paragraph does not sound complimentary to Mr. Churchill, who doubtless will be as much amused by the news as everybody else.

Good Wishes.

Everybody concerned with aviation will regret very much to hear that Captain Geoffrey de Havilland is very seriously ill, and is not likely to be able to return to work for a considerable time.

Captain de Havilland first acquired fame as the designer of the original B.E. biplane, which was certainly the best machine of its period. Since then he has done very fine work as the designer of the famous "D. H." series of Airco machines.

His quiet and retiring nature prevented him from becoming a popular figure in aviation, but those who know him esteem him most highly, and all will wish him an early and complete recovery.

Mr. Burroughes' Move.

Mr. Hugh Burroughes, one of the original directors of the Aircraft Manufacturing Co., Ltd., and before that an important member of the staff of the Royal Aircraft Factory, has recently left the Aircraft Manufacturing Co. No official intimation has been given of Mr. Burroughes' future movements, but his experience and success as a business manager are sufficient guarantee that ere long news will be heard of him in some important connection.

The WORLD of AERONAUTICS (continued)

Benzol as Aeroplane Fuel.

An interesting test on a 110 h.p. Le Rhône Avro Scout has just been completed in Lancashire. The results closely follow what has already been found out in connection with motor-cars using this fuel

Unity may be Weakness.

It is reported that co-operation between Great Britain, America, and France by the formation of an Allied aviation committee of the League of Nations is being advocated.

One is inclined to think that such co-operation would be more likely to hamper than to assist the development of aviation, as it is probable that the main idea would be to reach an agreement to limit the amount of money to be spent by the countries concerned upon service machines. Healthy competition for the future mastery of the air would, one thinks, produce better results than co-operation.

An Absurd Stunt.

An American pilot and photographer recently performed the absurd stunt of diving under the suspension bridge at Niagara Falls. Apparently they had a series of adventures, for owing to unexpected air currents they were unable to rise again as they wished, and had to pass under two more bridges. At the whirlpool the machine was still below the top of the gorge, and a vertical bank had to be made at the right-angled turn of the river, where the aviator narrowly missed hitting the cliffs.

A Flight by Man Power

An interesting flight by man power is reported from Paris. It was made by the well-known French cyclist, Poulain, who, on August 11th, succeeded in flying twelve metres at a height of one metre. Poulain will attempt another flight on his aviette before officials of the Aero Club de France and will endeavour to win the Peugeot prize of 10,000 francs offered for the first flight of ten metres that is made entirely by man power.

A Basement Needed.

According to the Glasgow "Evening Citizen":—

"Details are to hand of the airship R.80, which has been designed for passenger service from Barrow to Rio de Janeiro. The vessel is of a capacity of 1,250,000 cubic feet, or rather more than half the size of the R.34. She is considered to be the most perfect known streamline shape of airship, while her hull is constructed of special light alloy, 'duralumin' girders.

"The R.80 possesses a cruising speed of 46 and a full-power speed of 60 miles per hour, and is 535 feet in length.

"The passengers' living yuarters are contanted on the top of the hull, where are situated a large saloon fitted out lie a Pullman car, a roof garden, and a spelter deck, and cabins of sleeping berths.

"There is an observation car below the hull of the airship, which is connected with the living quarters by means osf a passenger lift through the middle of the ship."

Somebody seems to have been giving a severe tug to the leg of the writer, and the compositor has not been kind. The "passengers' living yuarters," the saloon "lie a Pullman car," the roof garden and spelter deck all reached by means "osf" a passenger lift, all sound almost too good to be true. If only the airship had a basement for the cold storage of American beef it should solve the problem of Commercial Aviation between Barrow and Rio de Janeiro.

A Surprising Affair.

One of the greatest of the troubles of aviators is the starting of the big engines now in vogue, and it is eminently satisfactory to know that this trouble seems to be overcome for ever by a simple little device known as the Herzmark Self-starter, an apparatus which only weighs a matter of 20 lbs The most surprising thing about the apparatus is that though it only came to England a few weeks ago it has already attracted the attention of the highest aeronautical officials. A matter of a fortnight since Major-General J. E. B. Seely, C.B., C.M.G., D.S.O., Under-Secretary for Air, journeyed specially to Hendon to see it, and demonstrated its fool-proofness by himself causing it to operate successfully three times in succession on a Rolls-Royce engine in an F.K.26 type Bat commercial biplane.

THE LEPAERIAL TRAVEL BUREAU.

During the last two weeks there have been numerous enquiries for flights to Amsterdam, and the majority of the companies taking machines to the Exhibition were able to carry passengers on the machines they were showing. Owing, however, to the delay by the Air Ministry in licensing some of the machines and the short notice of definite dates, and times of starting, the publication of which are highly important if civilian flying is to be a success, there were few bookings.

Among the long-distance flights booked was a round trip, Hounslow-Cowes-Dover-Hounslow: one of the passengers landed at Dover to catch the Ostend boat

Joy-rides are still popular, not the least b ing the "Over London" trip; the passengers, starting from either Hounslow or Northolt, are brought up over the West-End to the Tower Bridge and St. Paul's and back again, about 30 minutes in the air at a fare of £2 5s. per passenger.

It is now possible to 'phone or call at the Bureau in Piccadilly Circus and hire a taxi-plane to any part of Great Britain at a moment's notice.

The management of the Bureau extend a cordial invitation to all members of the Aircraft Industry to call and inspect the magnificently appointed offices in Piccadilly Circus and would be pleased if they would make use of the office for keeping business appointments—it is certainly one of the coolest spots in London.

For the Attention of the Postmaster-General.

One would like to tell the following facts to the British Postmaster-General, Mr. Illingworth, who recently made the statement that aeroplanes for mail-carrying were of "only 60 per cent. efficiency":—

A record of 99 per cent. was made by the Air Mail Service between Washington and New York for the month of June, covering a mileage of 11,118 and carrying 15,643 lbs. of mail.

On the Cleveland-Chicago division a perfect score of 100 per cent. was obtained. A total of 19,825 miles was run during the month of June on that division and a total of 19,603 lbs. of mail was carried. The average speed on that route for the month was 97.8 miles per hour. The best flying was performed on June 18th, when the round trip from Cleveland to Chicago and return was made in 6 hours and 14 minutes—an average of 104.4 miles an hour in each direction.

The operation of the Cleveland-Chicago route is without a parallel in the history of aviation. The route was started May 15th and has never missed a day—70 consecutive daily non-stop flights of 325 miles each were made without a forced landing. On the 71st trip a petrol connection sprung a leak, causing a forced landing on the emergency air mail landing field at Bryan, Ohio.

On July 4th there were on the mail route between Washington and New York, New York and Cleveland, and Cleveland and Chicago, 10 aeroplanes in flight. The shortest route was 215 miles from New York to Bellefonte, Pa., and the longest route was from Cleveland to Chicago or 325 miles. All 10 aeroplanes scored 100 per cent., arriving and leaving every station on time.

An Air for Airmen.

A weekly newspaper is offering a prize for the best marching air for the Royal Air Force. How to induce the R.A.F. to adopt it will be the next problem. One thinks that the Force will not altogether appreciate the possibly well-meant attentions of the popular press. Marches and songs that would please the populace would in all probability be scorned by the service.

One good result of the war was the death of the old-fashioned sloppy "patriotic" song. One remembers such examples as:—

Hit is ther Nyvy,
Ther British Nyvy,
That keeps our foes at bye.

Very naturally the men in the ranks prefer to march to the lilt of "Another little drink wouldn't do us any harm," or "When you look in her eyes." A march with jazz band effects might catch the fancy of the mob if it included imitations of the drone of a propeller, a Lewis gun, and an occasional crash, but the airman would doubtless prefer one of the old favourites that he sang during the war.

A Removal.

Major-General Sir W. S. Brancker has moved from 13, Little Grosvenor Street, to K.6, The Albany, Piccadilly, W. Telephone: Regent 982.

A Vacancy.

There is a vacancy on the staff of THE AEROPLANE for a competent shorthand-typist who is interested in aviation. Applications should be made by letter only in the first instance to 175, Piccadilly, W.1.

COMING EVENTS.

AUGUST.

Amsterdam Aircraft Exhibition.

Saturday, August 16th.—R.N.A.S. Officers (Hendon) Dinner at the Café Royal.

Thursday, August 21st.—R.A.F. Annual Athletic Meeting at Stamford Bridge.

Sunday, August 24th to Sunday, August 31st.—The "Avenir's" Tour de France Aérien is due to start.

Saturday, August 30th.—Hendon-Brighton-Hendon Air Race at Hendon Aerodrome.

SEPTEMBER.

Monday, September 1st.—Last day for presentation of British machines for the Schneider Cup Competition.

Wednesday, September 10th.—Schneider Cup Competition, Bournemouth.

Saturday, Sept. 20th.—Hendon-Manchester-Hendon Air Race at Hendon Aerodrome.

DATES TO BE ANNOUNCED LATER.

Hendon-Paris-Hendon Air Race.

The "Daily Express" £10,000 Prize Competitions.

AIRCRAFT IN PARLIAMENT

HOUSE OF LORDS.

Earl CURZON, in his speech of thanks to the Services on August 6th, made the following references to the Royal Air Force :—

Every British soldier and every Ally who has been fighting in this war, with the exception of those brave heroes of the air who defended us from aerial attack in this country, has been fighting throughout on foreign soil.

Among those whom this House will be asked to honour with a grant is General Trenchard, the embodiment of the fighting spirit of that glorious force which he led at different times both at home and in the field.

When we compare the tiny fleet of aircraft that flew across the Channel in the first weeks of the war, numbering only 1,000 officers and men and not more than 100 machines, with the vast fleet and the tens of thousands of men who crossed later, we have some measure of the advance which has been made in that great branch of the Service.

The history of the aerial combats in these years of fighting has been a series of epics. Whether we think of the amazing development of the machines or the resourcefulness and incredible audacity of the men, there is no more admirable page in the history of the war.

HOUSE OF COMMONS.

The following written answers were given on August 5th :—

CELLULOSE INQUIRY.

Mr. RAPER asked the Prime Minister when Lord Sumner's Report on the cellulose inquiry will be forthcoming as it was promised before the end of last month.

Mr .BONAR LAW : It is hoped that the Report would be in the hands of the Chancellor of the Exchequer in the course of a few days, and it is certain that it will be forthcoming before the House adjourns.

MISS VIOLET DOUGLAS-PENNANT—(SELECT COMMITTEE).

Mr. BONAR LAW, replying to Sir J. Butcher, said that the expenses of the Select Committee would be chargeable to the Vote for House of Lords' Offices, which includes provision for witnesses attending the Committees and shorthand-writers.

* * *

The following written answers were given on August 4th :—

CIVIL AVIATION DEPARTMENT.

Mr. JOYNSON-HICKS asked the Under Secretary of State to the Air Ministry if he can make a statement as to the names, salaries, and working of General Sykes' staff in the Civil Aviation Department.

Major-Gen. SEELY : The following members of the staff of the Civil Aviation Department are being paid the civil rates shown :—

Major-Gen. Sir F. H. Sykes.—£2,000 plus £500 retired pay
Major-Gen. E. D. Swinton.—£1,800 less 10 per cent. deduction on account of pension.
Lieut.-Col. W. O. Raikes.—£1,000.
Mr. G. B. Cockburn.—£800.
Mr. J. M. Pearson.—£280 plus bonus.

Other gentlemen are serving in the Civil Aviation Department as officers, and these are in receipt of Staff rates of pay or pay and allowances of their rank. Letters offering civil appointments in those cases agreed by the Treasury have been sent.

Captain W. BENN asked the Under Secretary of State to the Air Ministry whether he can make a statement regarding the organisation of the Civil Aviation Department, especially the training and licensing of commercial pilots.

Major-Gen. SEELY : As regards the first part of the question, the organisation of the Department of Civil Aviation is proceeding on the general lines indicated in the Memorandum circulated amongst Members by me on April 30th last. Treasury sanction has been obtained for a certain proportion of the staff provisionally asked for by the Air Ministry. Since the date of the Memorandum referred to, all the meteorological services have become part of the Department of Civil Aviation. As regards the second part of the question, the Department of Civil Aviation does not undertake the training of pilots, but it licenses pilots possessing the qualifications prescribed in the Air Navigation Regulations.

AIR REGULATIONS (ENFORCEMENT)

Mr. JOYNSON-HICKS asked the Under Secretary of State to the Air Ministry whether he is making any arrangement in the nature of an air police force for ensuring obedience to the air Regulations.

Major- Gen. SEELY : Arrangements have been made in order to ensure, as far as possible, that breaches of the air regulations are reported to the Controller-General of Civil Aviation. It is not considered that the expense involved in maintaining an air police force would be justified at the present stage

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The following written answers were given on August 6th :—

CONSTRUCTION (TRANSFERENCE).

Captain W. BENN asked, separately, the Under Secretary of State to the Air Ministry and the First Lord of the Admiralty whether they could make a statement explaining the Government policy relating to the transference of the construction of lighter-than-air craft from the Admiralty to the Air Ministry; but neither could add anything further to previous answers given on July 31st.

WAR SERVICES—THANKS OF PARLIAMENT.

The PRIME MINISTER, in moving a vote of thanks to the Services on August 6th, made the following references to the Royal Air Force :—

I beg to move that the thanks of this House be accorded to the officers, non-commissioned officers and men of the Air Force for their brilliant daring and conspicuous services over sea and land

SUPPLY—GRANTS TO OFFICERS.

On August 6th a Motion was made and a Question proposed that a sum, not exceeding £585,000, be granted to His Majesty, to be issued to those officers who commanded and directed His forces by sea, on land, and in the air, in recognition of their eminent services during the late war, namely (among others) :—

Air :
Air Vice-Marshal Sir Hugh Trenchard ... ... £10 000.

The PRIME MINISTER in his speech said : As for Air Vice-Marshal Trenchard, he, by his energy and daring and drive and imagination and magnetism, which make for great leadership in war, made the Air Force become the powerful and formidable fighting machine that it was.

Mr. JOYNSON-HICKS : There is another name which should be mentioned in this list, whether it be in the form of a money reward or those other honours which have been announced in this morning's papers—I refer to General Sir Frederick Sykes, of the Royal Air Force. The Royal Air Force has been a great object in my life for years past, and I have gloried in its successes during the war.

The words which the Prime Minister spoke with regard to General Trenchard are none too high. We all know the magnificent work he has performed, and the inestimable service his spirit gave to the young men of the corps. They all swore by him, and when he gave an order they were always ready to go and carry it out. I am very pleased to see the Under Secretary for Air present this afternoon. He knows the very great services which General Sykes rendered at the time when General Trenchard resigned his post and General Sykes was appointed to take the command in the field, and the very good services which he performed.

I ask whoever is taking charge on behalf of the Government to mention these two names to the Prime Minister, and if they have been overlooked I ask that the matter may be reconsidered, and I feel by including them you will be doing honour not merely to those generals but to the whole community at large.

[As a matter of fact General Sykes was Chief of the Air Staff, and did *not* command in the field.—ED.]

* * *

The following written answers were given on August 7th :—

AERODROMES AND OFFICES (RELINQUISHMENT).

Captain W. BENN asked the Under Secretary of State to the Air Ministry what reductions have been made recently in the number of aerodromes in use and the hotels and offices occupied by the Ministry.

Major-Gen. SEELY : Between July 2nd and August 6th, 1919, one aerodrome, five seaplane stations, and thirteen landing-grounds have been notified to the Directorate of Lands as available for relinquishment or to be disposed of, making a total of fifty-two aerodromes, eleven seaplane stations, and 147 landing-grounds, so devised since November 11th, 1918. The Hotel Cecil, the only hotel now in the occupation of the Air Ministry, will be evacuated on August 13th, 1919. The offices at 5, John Street, Adelphi, will be evacuated on August 9th, 1919.

The following hotels and offices have been given up by the Air Ministry within the last five months :—

Cavendish Hotel, evacuated January 10th, 1919. 4-6, Adam Street, evacuated March 22nd, 1919. Adelphi Hotel, evacuated April 5th, 1919. 5 and 7, John Street, Adelphi, evacuated April 5th, 1919. Covent Garden Hotel, evacuated April 14th, 1919

The number of hired premises in use by the Royal Air Force at the date of the Armistice was 2,143; by August 1st, 1919, 1,899 of these had been given up.

CIVILIAN AVIATION (CONDITIONS).

Sir HERBERT NIELD asked the President of the Board of Trade whether any licence or other permit is necessary to enable civilian-owned aircraft to be exercised and flown; whether any regulations have been made with regard to the conditions under which such flying is authorised, and what, if any, security is required or other provision made for the payment of or indemity against damage to life or injury to persons or property resulting from accidents caused by the fall of aircraft or from anything dropped from aircraft while in the course of flight; and whether there is any and what provision for the identification of such aircraft in cases where the injury is caused by anything so dropped.

Major-Gen. SEELY : The conditions governing civilian flying are laid down in the Air Navigation Regulations, 1919 (Statutory Rules and Orders, 1919, No. 525). These regulations provide, inter alia, that all aircraft must be registered and bear a registration mark, that aircraft carrying passengers for hire or reward must be certified airworthy, and that all pilots flying aircraft must be licensed. There is no special provision in the Regulations as to liability in respect of accidents. Conditions are imposed as to the display of the registration mark with a view to facilitating the identification of aircraft. Damage caused by aircraft is recoverable by ordinary process of law as in the case of damage caused by any other means.

* * *

The following written answer was given on Aug. 8th :—

ANTI-AIRCRAFT STATION, SHIPBOURNE.

Mr. BENNETT asked the Secretary of State for War if there is now any necessity for the anti-aircraft station at Shipbourne, Sevenoaks; and if he will give instructions for its early removal, inasmuch as the huts and gun prevent the villagers from using the village green for cricket and other accustomed sports.

Mr. CHURCHILL : Instructions are about to be issued for the abolition of the anti-aircraft station at Shipbourne.

* * *

The following is taken from the "Times" :—

On August 4th Mr. RAPER asked the Under Secretary to the Air Ministry what steps he proposed to take to punish all persons in or connected with the Air Force, no matter what their positions, found guilty of corrupt practice in connection with the Air Force contracts by the Select Committee on National Expenditure, and whether, in view of recent disclosures, he would now, without further delay, form a small committee of two or three Members of the House having real business experience, and two or three other experienced business men outside the House to supervise the placing and execution of all future Air Force contracts.

Major-Gen. SEELY : Every possible step has already been taken and will be taken in future to bring to justice any person in, or connected with, the Air Force guilty of corrupt practices regarding Air Force contracts or in any other matter. I am not disposed to adopt the suggestion contained in the last part of the question. I intend to make a statement on the matter in the course of to-morrow's debate.

Mr. RAPER : Does the right hon. gentleman propose to take steps to prosecute those referred to in the report of the Select Committee?

Major-Gen. SEELY : Since I have been at the Air Ministry, wherever there has been any case of corruption I have at once given orders that a prosecution shall take place, if a prosecution can lie. I propose to continue that practice.

Mr. RAPER : Is it not a fact that, in connection with the instances mentioned in the report, the Government decided, for reasons of their own, not to institute proceedings?

Major-Gen. SEELY : No, sir. I presume my hon. friend is referring to two cases. One was the case referred to by Sir John Hunter, in which I gave instructions myself personally that a prosecution was to take place if a prosecution would lie. I gave these instructions precisely twice to Sir John Hunter, who was then acting under my directions. The Lord Advocate for Scotland decided that a prosecution would not lie. So far as the Air Ministry is concerned the facts are as I have stated, that wherever there has been the possibility of pro-

secution a prosecution has been ordered. The other was the case of Miss O'Sullivan, who made allegations of corruption. The very day these allegations were brought before the Select Committee, presided over by the right hon. baronet, the Member for the City of London, I ordered an inquiry to be held, which is now proceeding. If there is ground for prosecution—that is, of course, a legal matter—that prosecution will take place.

Mr. G. LAMBERT: May I ask the Leader of the House whether if, with Mr. Speaker's permission, this matter is raised to-morrow as to the prosecution of these officials in the Air Service, the Lord Advocate will be here to defend his somewhat inexplicable action?

Mr. BONAR LAW: I shall make inquiry, but I entirely agree with my right hon. friend that a discussion on that point would be very ineffective unless we hear the Lord Advocate's own explanation of what are his reasons.

Mr BILLING asked whether the officers named by Sir John Hunter were still in the employment of the Air Service, and, if so, what positions did they occupy.

Major-Gen. SEELY: I do not carry the facts in my mind, and I must have notice of the question as to the particular officers the hon. Member refers to. But I repeat that our policy has been throughout—mine especially—that wherever there could be any question of improper or corrupt dealings a prosecution is at once ordered.

Mr. BILLING asked whether, having regard to the fact that the only reason that these officers had not been prosecuted was owing to a technicality, the right hon. gentleman could see that if they occupied any position of trust they should be forthwith dismissed.

Major-Gen. SEELY: Certainly not. Are we to assume that a man is guilty before he is found to be so by a process of law? I cannot carry in my mind who all these people are, but in trying to do what is right in the interests of the State we must do right to the individual.

Replying to a question from Mr. BRIANT Major-Gen. SEELY said: The information I received from the Lord Advocate was that a prosecution would not succeed. When it was suggested to me that possibly it might bring into disrepute the representatives of either Sir John Hunter or any other officials, I said at once that that had nothing whatever to do with the case, but I confess I do not understand the particular point. The Lord Advocate is not present in the House, but no doubt it will be cleared up to-morrow. I say at once that such an idea never entered my head or the head of anyone responsible at the Air Ministry. All we want to do is to get at the truth.

Sir F. BANBURY: This matter was the subject of inquiry so long ago as March. No inquiry was granted until June, and then the inquiry was commenced, but was not finished, owing to the fact that Miss O'Sullivan had not signed her evidence, and no further steps were taken until it was made evident to the Air Ministry that inquiries were going on before the Select Committee, and it was then, and then only, on the 25th of last month, that an inquiry was instituted by the Air Ministry.

Major-Gen. SEELY: I have said again and again in this House that if in this matter, which affects what is called the "Douglas-Pennant case," any specific charge of corruption could be made, it would be at once inquired into. I have again and again asked for a specific statement. It was not given. The moment it was given in response to a question asked by the Select Committee, that very same day an inquiry was ordered.

Captain WEDGWOOD BENN: Who is the Secretary of State for Air, and why is he not here to answer these matters? Will he be here to-morrow?

Mr. BONAR LAW: He will certainly be here to-morrow, and I am quite sure my right hon. friend will be glad to have an opportunity of stating the policy of the Air Ministry in this matter.

Mr. STEWART: If there is any prosecution possible will it be under Scottish law or English law, and is the law of evidence the same in Scotland as in England?

No answer was given.

Mr. MacVEAGH: Will the right hon. gentleman, in the inquiry which he is now conducting, inquire into the conduct of the official who threatened to dismiss Miss O'Sullivan for making this report?

Major-Gen. SEELY: Yes, certainly.

Lord ROBERT CECIL rose, but the SPEAKER said that any further questions had better be left over for discussion to-morrow.

EXPENDITURE BY THE AIR MINISTRY.

"The Third Report from the Select Committee on National Expenditure" (No. 168, printed Aug. 7th, 1919) deals in the main with expenditure controlled by the Air Ministry. The inefficiency of various branches of that Ministry, well known to those behind the veil of official life, is revealed in some degree to the public in this paper. The two principal subjects dealt with by the Committee were the construction of aerodromes and the issuing of a contract for the supply of uniform to W.R.A.F. personnel.

In regard to the construction and laying out of aerodromes Sir John Hunter, K.B.E., lately Administrator of Works and Buildings, was examined. He stated that he had found much evidence of fraud in the carrying out of this work. "... He was of opinion [for instance] that no man who had been employed on the erection of aerodromes had earned the money he received." Speaking generally, he including the whole number employed—70,000 men—in this charge. At Renfrew he found evidence of conspiracy between a Government official and three of the contractors' men, and suspected that the contractor himself might also be involved. Four men were arrested and were held on bail for four months, "but the Crown authorities declined to prosecute and the men were freed from charge on June 7th." A civil action was being entered against the contractor concerned for about £50,000.

The Lord Advocate had refused to prosecute in the case above referred to because, he said, "There is no evidence at all that any of the accused applied to their own uses any of the money said to have been improperly obtained from the Ministry. This circumstance, though it does not in itself provide an answer to a charge of fraud, makes the insufficiency of evidence more formidable than would otherwise be the case. Further, a prosecution would reveal what appears to be inefficiency and absence of control on the part of the representatives of the Ministry on the spot."

Sir John Hunter, in a letter of protest to the Air Ministry in regard to the position adopted by the Lord Advocate, said:—

"I find it very difficult to understand how a criminal charge cannot be formulated and a conviction obtained, having regard to the admissions made, and in some cases signed by persons charged. It is admitted that the books or time-sheets were falsified by entering thereon the names of men said to be employed on the job, but who did not, in fact, exist. Wages were drawn regularly and charged to the Government as having been paid to these men. Where did that money go? The Lord Advocate says there is no evidence that any of the accused 'applied to their own uses any of the money said to have been improperly obtained from the Air Ministry.' But would not any jury on the facts above stated draw the obvious inference that the persons responsible for putting these 'dead men' on the books and drawing wages regularly for them from Government funds had, in fact, put the money in their own pockets? And is there not evidence that this was done with the connivance of the Clerk of Works?

"But I wish to carry the matter further and to point out that the position, if no prosecution is attempted, is in my opinion more serious for the Air Ministry than if a prosecution should be started and fail, and I wish to explain the position so that it may be put before the Lord Advocate. After a personal inquiry, on making the discovery of these irregularities, I informed the contractors that I would not authorise payment to them of commission in accordance with the terms of their contract, but would have the whole job measured up and pay them on such measurement on proper rates. Mr. Cowieson (the head of the firm of contractors), at an interview which I had with him and his law agent, agreed to this, and later agreed by letter. A firm of measurers were engaged by me, and their work is now practically complete, and it appears that already there is a sum of about £60,000 charged by the contractors to the job which cannot be accounted for."

Despite this protest the Lord Advocate still refused to prosecute and has not since altered his attitude in regard to the case.

Other references to dishonest practices were made by Sir John Hunter and his cross-examination was closed.

Miss O'Sullivan, Clothing Controller to the W.R.A.F., was examined as to the placing of contracts for W.R.A.F. uniform with a Manchester firm.

She said that a contract for 30,000 coat frocks and 30,000 overcoats was placed with this firm (Messrs. Cohen and Wilks), despite the fact a pattern uniform sent in by Messrs. Kenneth Durward had been selected by the Committee deciding these matters.

"11. She also stated that the deliveries of the article in question were dilatory and not up to sample, the garments being amongst other things badly cut."

"12. By direction of Miss Douglas-Pennant, who was then Commandant of the W.R.A.F., the Clothing Controller went to Manchester and she stated that the coat frocks were being cut on the bias instead of on the straight; this course, if pursued, would have resulted in the saving to the contractor of about three-quarters of a yard on each garment. According to the contract, payment was to be made for 3 yards 24 inches of cloth on each garment."

Various officers were cross-examined as to the placing of this contract, and as to the removal of Miss O'Sullivan from the work of inspection. The evidence given by two officers and the lack of evidence given by a third, who did not obey the Committee's request to appear before it, was regarded as unsatisfactory.

"28. The Sub-Committee examined Major-General Sir H. Trenchard (Chief of the Air Staff) and are of opinion that he is doing all that is possible to cut down expenditure while having due regard to the efficiency of his Department."

The rest of the report deals with the Finance Department, which "is very satisfactorily conducted," and to motor vehicles.

Too much stress should not be laid on the scandals revealed in this report. Irregularities small or great are bound to occur in a Ministry improvised during a great war from personnel the majority of whom have had but little experience of Government work and who all too frequently lack that stability and proved honesty which are the pride of the regular military and civil services.

THE CASE OF MISS DOUGLAS-PENNANT.

The Committee of Inquiry, which has been formed by the House of Lords to inquire into the dismissal of Miss Douglas-Pennant from the W.R.A.F., will consist of five members. Lord Kintore, Chairman of Committees in the House of Lords, Lord Askwith, Lord Gainford, and Lord Denbigh are four of the members.

It was unofficially stated on Aug. 8th that the Government has intimated its desire to be represented on the Select Committee.

NAVAL & MILITARY AERONAUTICS

GREAT BRITAIN.

FROM THE COURT CIRCULAR.

BUCKINGHAM PALACE, August 6th

The Prince Albert, attended by Major Louis Greig, was present at the Royal Air Force (South-Eastern Area) Athletic Sports at the Queen's Club, West Kensington, this afternoon, and afterwards handed the Prizes to the successful competitors

BUCKINGHAM PALACE, August 11th

Air Vice-Marshal Sir Hugh Trenchard, Chief of the Air Staff, had the honour of being received by the King this morning.

NAVAL

Lieut. C. Lansdowne, R.A.F., and Lieut. Marshall, R.A.F., were out on a bombing expedition over the Bolshevik lines on the Dvina on July 14th, when their seaplane was damaged by machine-gun fire and forced to descend.

They destroyed the seaplane, and started to swim back to the British lines, but had barely covered a mile when a Bolshevist patrol appeared and forced them to surrender. They were taken to the enemy headquarters at Puchega, and are reported safe and well.

* * *

The Air Ministry issued the official story of Major Sitwell's flight on August 7th, most of this having already been noted in THE AEROPLANE. The following would appear to be fresh information :—

Strong head winds were met with during the flight from Copenhagen to Reval, and as petrol threatened to run short a course was set towards Stockholm. On the west side of Gotland, however, a following wind was picked up, and the flight was continued to Reval, which was reached at 6.15 p.m. on July 20th.

On July 21st the last stage of the journey was flown in much improved weather, and the total journey of over 1,100 miles from Felixstowe to Helsingfors was completed in sixteen flying hours.

A very warm reception was accorded to the British flying officers and crew by the Finns. The Cross of the White Rose of Finland was conferred upon Major Sitwell and Captain Bailey.

Facilities were accorded for inspection of the flying-boat and demonstration flights were given each day to prominent Finns and representatives of the Finnish Press. Among those taken up were : Herr Castren, the Premier ; General Kivekas, Chief of Staff of the Finnish army ; Herr Holsti, the Minister of Foreign Affairs ; and the Ministers of Commerce, of Communications, and Aviation.

This flight is all the more interesting owing to the fact that the boat is three years old, having been built at Felixstowe during the late war.

The British inhabitants of Reval are stated to have been extremely pleased to receive newspapers which were merely two days old instead of nine.

* * *

The following has been received from the Danish correspondent of THE AEROPLANE :—

While the British flying-boats to carry out the Scandinavian circuit have long been expected, another F.5 N.90 turned up last Saturday, July 19th, establishing the first after-war non-stop flight between England and Denmark. Under the command of Major Sitwell, and with Captain Bailey as pilot, the flying-boat followed a course over Holland, Cuxhaven, and the Kiel channel, the Danish islands Lolland and Falster, and landed by the Naval Air Station at the Royal Dockyard in Copenhagen. She carried beside the two N.C.Os. a representative of the Foreign Office, as the flying-boat was on courier service to Finland. Having replenished the petrol tanks with 1,000 kg. fuel, F.5 N.90 started on Sunday, July 20th, duly arriving at Helsingfors *via* Reval.

* * *

The following has also been received from the Danish correspondent of THE AEROPLANE :—

The show flight to the Scandinavian capitals was started upon, F.5 N.4044 flying first from Felixstowe to Christiania, where it was to wait for a sister companion. It filled in the time with trips, the passengers including H.M. Queen Maud and Crown Prince Olav of Norway. On the next stage to Copenhagen a wire broke, so the craft landed at the Norwegian Air Station at Horten, stopping overnight, and, as the British Legation at Copenhagen was not informed, a fatal accident was feared, and Danish naval aircraft were preparing to go out to search in the Kattegat Sea, when the flying-boat turned up safely at noon, July 29th, at the Danish capital. N. 4044 is under command of Major Galpin, with Captain Scott as pilot, the crew including further one wireless operator and one mechanic. F.5 N.4044 will next proceed to Stockholm, returning to England *via* the Swedish Göta Canal and the Danish city Esbjerg. Demonstration flights are given in Copenhagen to various persons of the Press, the Army and Navy, and the mail service concerned with aviation.

* * *

On Aug. 3rd the British Naval flying-boat F.5/4044 (Major C. T. Galpin, D.S.O., R.A.F.), arrived at Stockholm from Copenhagen. Her arrival caused much excitement among the populace. On Aug. 5th the same boat left Gothenburg for Esbjerg on her return flight to England, having made a tour of Scandinavia. She arrived at Esbjerg at 8 a.m. on Aug. 6th, and left at noon for Felixstowe.

* * *

H.M.A. R.33 will very probably start to fly to India within the week. The route this ship will take was announced some little time ago.

* * *

The British Naval triplane flying-boat, known as the "Felixstowe Fury," was completely wrecked on Aug. 11th, whilst undergoing tests. Her crew at the time of accident was Wing Comdr. Fellowes, R.A.F. (in command), Squadron Leader E. R. Moon, R.A.F., and Flight Lieut. Scott, R.A.F. (pilots), Flying Officers Armitt and S. E. S. McLeod, R.A.F., Serjt.-Major Cockburn, R.A.F., and one Locker, whose rank is hitherto unstated. Flying Officer McLeod was drowned.

The boat had started from Felixstowe Aerodrome at 9.15 a.m en route for Portsmouth, and taxied towards Landguard Point. Then she turned into the wind. She narrowly missed fouling one of the buoys in the harbour and made a sudden stop.

An endeavour was next made to clear the river boat "Norfolk," and it was then she took a couple of leaps out of the water and finally struck the water with her nose and one wing and sunk, her tail sticking out. Flying Officer McLeod, who was strapped in, was drowned, and two others of the crew were injured. Later in the day motor launches towed the wreckage back to the aerodrome.

The accident took place within 500 yards of the aerodrome, and an eyewitness declared that the boat had only just lifted herself from the water when the mishap occurred. Another eyewitness said that she appeared to be too heavy, and side-slipped and dived into the water.

The inquest was held at Felixstowe the same afternoon on Flying Officer Samuel Evans Smith McLeod, R.A.F., aged 30, who was acting as wireless operator. It was stated the "Fury" left the slipways all right, but when about 15 ft. up she fell and submerged the crew.

Lieut. G. J. O. Mullane, R.A.F., stated that he witnessed the accident. The seaplane left the harbour and veered round to the wind, which was blowing due north. She was travelling about 40 miles an hour. She rose from the water twice to a height of about 15 ft., and on rebounding a second time the left wing dropped and caught the water, bringing her nose round to port. This caused her to dive. In witness's opinion, her hull was smashed and deceased was entangled in the wires.

Capt. Charles Langston Scott, R.A.F., who was on board, corroborated the last witness. The deceased had been a Felixstowe station six months. A verdict of accidental death was returned.

The "Felixstowe Fury" had five Rolls-Royce engines with a total of 1,800 horse-power. She was designed by Colonel J. C. Porte, C.M.G., R.A.F., and took two years to build. At the time of her construction she was the largest triplane in existence, and it was at first intended that she should cross the Atlantic. She was on her way to Portsmouth preparatory to flying to the Near East when the accident occurred.

MILITARY.

WAR OFFICE, August 2nd.

REGULAR FORCES ESTABLISHMENTS.—R.F.C.—Mil. Wing.—Flying Officers. —The appointment of Sec. Lt. M. McGall (5th R. Sc. Fus., T.F.) is antedated to April 15th, 1917.

The name of temp. Sec. Lt. William Armstrong is as now described, and not William Austin Armstrong as in "Gazette," April 18th, 1918.

Instr. in Gunnery.—Graded as an Equipment Officer, 1st Class.—Temp. Lt. A. W. Furbank, Gen. List, from an Asst. Instr. in Gunnery (graded as an Equipment Officer, 3rd Class), and to be temp. Capt. while so empld., March 30th, 1918.

Equipment Officer, 1st Class.—Temp. Capt T. A. Ross, R.E., from an Equipment Officer, 3rd Class, and to be temp. Capt. while so empld., Jan. 28th, 1918.

Overseas Forces.—Canada.—Quebec R.—The following temp. Lts. (actg. Capts.) cease to be secd. for duty with the Air Ministry, Dept. of Works and Bldgs., and relinquish the actg. rank of Capt.:—W J. Leslie, A. M. Hudson, Aug. 2nd

Western Ontario R.—Temp. Lt. (actg. Capt.) R. R. Pigott ceases to be secd. for duty with the Air Ministry, Dept. of Works and Bldgs., and relinquishes the actg. rank of Capt., Aug. 2nd.

Alberta R.—Temp. Lt. (actg. Capt.) B. Y. Jackson ceases to be secd. for duty with the Air Ministry, Dept. of Works and Bldgs., and relinquishes the actg. rank of Capt., Aug. 2nd.

Brit. Columbia R.—Temp. Capt. P. J. D. de Latour ceases to be secd. for duty with the Air Ministry, Dept. of Works and Bldgs., and retires in the British Isles, Aug. 2nd.

Nova Scotia R.—Temp. Lt E. J. Cronin ceases to be secd for duty with R.A.F., July 14th.

E. Ontario R.—Temp. Lt. N. G. Reynolds ceases to be secd for duty with R.A.F., July 14th.

2nd Centl. Ontario R.—Temp Lt. R A. Adams ceases to be secd. for duty with R.A.F., July 14th.

Sasckatchewan R.—Temp. Lt. J. H. Wensley ceases to be secd. for duty with R.A.F., July 20th.

Brit. Col. R.—Temp. Lt. R H. Schroeder ceases to be secd. for duty with the C.A.F., and also relinquishes grading as Flying Officer, July 17th.

Can. Forestry Corps.—Temp. Lt. D. Neil ceases to be secd. for duty with the R.A.F., July 14th.

Territorial Force.—Royal Garrison Artillery.—Lts. to be Capts.:—Temp. Capt, (R.A.F.) R. W A. de H. Haigh (Glam. R.G.A.), and to remain secd., Oct. 31st, 1918.

Infantry.—5th Bn. Somerset L.I.—Sec. Lt. S. D. Mason (R.A.F.) to be Adjt. and to be actg. Capt., with pay and allowances of Lt. whilst so empld., March 3rd.

War Office, August 5th.

Regular Forces.—Cavalry.—11th Hrs.—Lt. R. C. Williams (attd. R.A.F.) resigns his commn., Aug. 6th.

Infantry.—Yorks. L.I.—Capt and Bt. Maj. C. E. C. Rabagliati, M.C., A.F.C., resigns his commn., Aug. 6th.

War Office, Aug. 8th.

REGULAR FORCES.—R.F.C.—Mil. Wing.—Flying Officer.—The name of temp. Sec. Lt H. A. Leppan is as now described, and not L. H. Angus, as in "Gazette," May 10th, 1918.

Gen. List.—The name of temp. Sec. Lt. Hilton Angus Leppan is as now described, and not Leppan Hulton Angus, as in "Gazette," Oct 25th, 1917.

Memorandum.—Air Vice-Marshal Sir H. M. Trenchard, K.C.B., D.S.O., Chief of the Air Staff, to be Col. of the R. Scots Fus., July 13th.

War Office, August 9th.

REGULAR FORCES—Establishments.—Cavalry.—15th Hrs.—Capt. and Bt. Col. Sir F. H. Sykes, K.C.B., C.M.G., is placed on retired list on appointment to a permanent commission in the R.A.F., April 12th.

War Office, August 11th.

A despatch dated June 28th from Field-Marshal Sir Edmund Allenby, Commander-in-Chief, the Egyptian Expeditionary Force, has been received by the Secretary of State for War. The despatch summarises the campaign in Syria and Palestine, and the following reference is made to the work of the Royal Air Force. "... the superiority established by the air force over the enemy was one of the great factors of the successes of my troops.

Official Communiqués.

The War Office issued the following statement on August 5th.

General Maynard reports that a successful raid was carried out on August 2nd by combined forces of land, sea, and air, with the object of striking a surprise blow at the enemy's lake flotilla on Lake Onega, and of capturing the port of Talvuiski, 40 miles south-east of Medvyejya Gora.

The operation proved entirely successful.

The India Office made the following announcement on Aug. 8th:—

The Government of India have informed the Secretary of State that peace with Afghanistan was signed at 11 a.m., Friday, Aug. 8th.

AIR FORCE.

Air Ministry, August 1st.

R.A.F.—The attention of the officers named in this "Gazette" is directed to the Air Ministry Weekly Order, now in course of issue, relating to the grant of permanent commns. and to the new rates and conditions of pay and other emoluments.

The following are granted permanent commns. in the R.A.F. in the ranks stated, August 1st:—

Lieutenants.

R. I. Hartley (T.); C. F. Chinery (T.); E. H Rundle (T.); C. H. Potts (T.); H. H. S. Scott, D.S.M. (T.).

E. Whittlesea (T.); S. T. Littleton (T.); H. J. Brown (T.); P. Coyle (T.); J. Noonan, D.S.M. (T.), T. S. Jobling (T.); R. D. McE Hart (T.); R. G. Gore (T.); A. P. White (T.); C. O. Towler (T.) C. E. Whinney (T.); H. W. St. John, D.F.C. (O.); W. A. Coryton (A.); A. G. Quinnell (Ad.); R. Pyne (A.); H. K. Goode, D.S.O., D.F.C. (A.); J. Clover (O.); H. E. King (A.); W. J. Millan (A.); E. S. B. Clarke (A.); G. S. Taylor (A.); C. S. Gray (A.); R. Menzies (A.); J. Bradbury (A.); D. A. Cox (O.); G. A. R. Muschamp (A.); H. G. McKechnie (T.); W. K Rose (A. and S.); R. A. Whyte (A and S.); A. E Gooch (T.); F. A. Skoulding (T.); R. Jones, M.C. (A.); J. E. Kendrick, D.F.C. (O.); I. Whitford (A.); R. H. Haworth-Booth, D.F.C. (A.); J. A. G. Haslam, M.C., D.F.C (O.); J. S. Harrison (O.); E. G. Gaff (A.), V. Croome (A.); F. G. Prince (A.); J. A. Elliott (T.); O. G. Gregson (A.); C. A. Horn (O.); J. Blackford (A.); J. W. Lissett (A.); W. E. Dipple (A. and S.); H. E. Falkner (O.); F. T. Eades (O.); G. M. Lawson, M.C. (O.); D. S. Robertson (A.); W. S. Allen (T.); B. F. Deane (O.).

J. V Gascoyne, D.F.C. (A.); L. B. Duggan (A. and S.); J. Parsons (T.); H. J. Bradley (A. and S.); J. S. Nichol (O.); R. H. F. de V. S. Somerset (A. and S.); D. Wood (A.); G. W. Birkinshaw (A and S.); E. Brewerton (A. and S.); G. McCormack (O.); G. P. H Carter (A.); C. Walker (O.); K. L. Harris (A.); H Dawes, M.B.E. (S.O.); S. C. Black (A.); R. J. Willson (O.); J. Cafferkey (A.); M. C Trench (O.); F. K. Damant (A.); F. J. Smith, M.C., M.M. (O.); C. A. Spence (A.); E. B. Green, M.C. (O.); S. J. Smetham (S.); P. N. Melitus (O.); E. H. Searle (A. and S.); L. Smith (Ad.); A. G. Thackray (S.); C. S. Miller (O.); H. W. Pearson (A.), E. A Blake (A.); B. A Foord, M.C. (O.); W. H. Bowden (Ad.); A. G Pearce (A.); J. C. Foden, A.F.C. (A.); C. B. Dick-Cleland (Ad.); L. H. I. Bell (A.); L. G. Maxton (A.); A. H. E. Lindop (O.); A. S. Thompson (A.); C. R. Fenton (Ad.); C. F. Falkenberg, D.F.C. (A.); R. W Rayn (A.).

R.A.F.—The following temp. appointment is made at the Air Ministry:—Staff Officer, 1st Class (Air.).—Lt.-Col. A. S. Barratt, C.M.G., M.C., July 18th, vice Lt.-Col. G. F. Pretyman, D.S.O., O.B.E.

The following temp. appointments are made:—Brig.-Gen. (Staff).—Lt.-Col. C. S. Burnett, C.B.E., D.S.O., June 18th, and to be actg. Brig.-Gen. while so empld., vice Lt.-Col. (actg. Brig.-Gen.) P. L. W. Herbert, C.M.G.

Staff Officer, 1st Class.—(P.).—Lt.-Col. R. C. M. Pink, July 25th.

Staff Officer, 2nd Class—(T.).—Maj. W. R. Bruce, Feb. 22nd.

Staff Officer, 3rd Class.—(Q.).—Capt. G. L. Hunting, Feb. 25th

Staff Officer, 4th Class (Air).—1st Grade.—Lt. R. J. Slade, May 27th.

Flying Branch.—Lt.-Col. G. F. Pretyman, D.S.O., O.B.E., to be Lt.-Col. (A.), from (S.O.), July 18th

Maj. F. K. Haskins, D.S.C., to be graded for purposes of pay and allowances as Lt.-Col. while empld. as Lt.-Col. (A.), from May 1st to May 25th.

Maj. W. Pennefather to be Maj. (A'ship), from (S.O.), May 1st.

Capt. R. S. Smith to be graded for purposes of pay and allowances as Maj. while empld. as Maj. (K.B.), July 20th

H.R.H. Prince Albert, K.G., Personal A.D.C. to His Majesty the King, to be Capt. (A.), from (Ad.), July 31st.

Lt. P. D. Baker to be graded for purposes of pay and allowances as Capt. whilst empld. as Capt (A.), May 1st

Lts. (O.) to be Lts. (A.):—G. F. Fry, C. W. H. Moller, May 20th.

Lt. D. F. Fox to be Lt. (A.), from (S.O.), July 21st.

Sec. Lts. to be Lts.:—F. D. Kilby, Feb. 1st; A. G. Dickinson, June 7th.

Sec. Lt. G. R. Hunter to be Sec. Lt. (A.), from (O.), July 9th, 1918.

The following relinquish their commns on ceasing to be empld.:—Lt. S. B. Kington (Lt., W. Rid. R.), Feb. 4th; Lt. W. P. Harris (Lt., W. Ont. R.), March 10th; Lt. S. G. Harman (Lt., Welsh R.), May 6th; Sec. Lt. T. H. Barry (Lt., R.G.A.), May 23rd; Lt. R. A. P. Johns (Lt., Hussars), May 31st; Capt. C. L. Bath (Lt., temp. Capt., Can. M.G.C.), June 11th; Sec. Lt. (Hon. Lt.) W. P. A. Robinson (Lt., R.F.A.), June 21st; Lt.-Col. F. A. Wanklyn, M.C. (Maj., R.A.), June 24th; Lt. W H. Kilby (Lt., Manitoba R.), July 9th, Lt. L. Dobson, M.C. (Lt., S. Staffs R.), July 11th; Lt. G. Fieldon (Lt., Hussars), July 30th; Lt. W. R. Curtis is temporarily transferred to the unempld list, May 22nd.

Transferred to unempld. list:—Lt. R. J. W. Palmer, Feb. 19th (substituted for notification in "Gazette," April 18th); Sec. Lt. J. G. Munro, March 10th; Sec. Lt. R. H. Mills, March 11th; Lt. E. J. P. Penney, March 28th; Sec. Lt. L. J. Weatherall, March 31st; Sec. Lt. S. N. K. Jones, April 1st; Lt. E. N. Mais, April 3rd; Lt. G. M. Hopkins, April 6th; Lt. E. M. Heron, April 9th; Sec Lt. A. C. Hyde, April 10th; Sec. Lt. (Hon. Lt.) J. C. Howells, April 13th; Lt. H. H. Hall, Lt. G. S. Holloway, April 14th; Sec Lt. (Hon. Lt.) S. F. Parker, April 15th; Maj. D. Joy, Sec. Lt. R. C. Holdom, April 16th; Sec. Lt. J. Houldgreaves, April 18th; Lt. W. R. McCluskey, Capt. (actg. Maj.) P. R. Meredith, April 19th; Sec. Lt. C. B. Barton, April 21st; Sec. Lt. W. T. Laurie, Lt. R. W. Murray, April 22nd; Lt. F. C. Hoult, April 23rd; Sec. Lt. N. S. MacLeod, April 24th; Sec. Lt. S. Horsman, April 25th; Lt. P. K. Hobson, M.C., April 26th; Sec. Lt. R. K. Moore, Sec. Lt. A. G. Wyatt, April 30th; Capt. C. L. H. Hicks, Lt. R. C. Hume, Sec. Lt. J. C. R. Weeks, Sec. Lt. R. Williams, May 1st; Lt. E. C. Musson, May 2nd; Sec. Lt. A. E. Millar, May 3rd; Sec. Lt. H. A. Morley, May 6th; Lt. J. S. Wesson, May 7th; Sec. Lt. J. R. Barnett, Capt F. W. Mardock, May 15th; Sec. Lt. W. L. Winter, Lt. L. G. Taylor, May 19th; Lt. R. L. Houlding, Sec. Lt. H. Morrow, Sec. Lt. H. A. Neate, Sec. Lt. H. C. Traver, Sec. Lt. F. H. H. White, Sec. Lt. J. Williams, May 20th; Lt. F. Taylor, May 21st; Sec. Lt. G. W. Wadison, May 22nd; Lt. W. L. Collins, Sec Lt. E. B. Webster, May 24th; Lt. C. F. Weaver, May 25th; Lt. C. F. P. Haslegrave, Lt. J. W. Hogben, Sec. Lt. N. R. E. Mattingly, Lt. C. N. Wylam, May 28th; Sec. Lt. T. A. Hopkinson, Capt. A. M. West, May 29th; Sec. Lt. W. V. Thomas, Lt. G. V. Wheatley, Sec. Lt. A. Wren, Sec. Lt. J. T. R. Wynn, May 30th; Capt. N. Wallis, May 31st; Lt. M. Hyslop, June 1st; Lt. L. H. Weeden, June 2nd; Sec. Lt. A. G. B. Whittaker, June 6th; Lt. D. M. Hodgson, Lt. C. Malthouse, Sec. Lt. C. C. Hocy, June 7th; Sec. Lt. J. Redmond (King's L'pool R.), June 10th; Sec Lt. A. V. Hansford, June 11th; Lt. D. Widderburn, June 13th; Lt. (Hon. Capt.) L. E. Barry (substituted for notification in "Gazette," April 29th); Lt. C. L. Grimwood, June 14th; Lt. W. J. P. Woodhouse, June 15th. Sec. Lt. C. B. Tod, June 16th, Lt. J. C Ballard, June 18th; Lt F. T. Woods, June 19th; Lt. B. F. Wates, Lt. J. D. F. West, June 20th; Sec Lt. Wm. P. Watts, June 22nd; Lt. H. R. Davies, June 23rd; Lt. G. S. Wilkinson, June 25th; Sec. Lt. C. Walton, Sec Lt. C. H. White, June 26th; Lt. A. Hyland, July 2nd; Sec. Lt. D. H. O. Edmunds, Sec. Lt. F. J. Walton, July 4th; Capt. C. W. Hyde, Sec. Lt. D. M. Fleming, July 5th; Lt. V. Dreschfield, Lt. G. M. Eilcart, Sec. Lt. A. E. Gammon, July 6th; Lt. G. Clapham, A.F.C., Lt. Wm. B. Cochran, Lt. A. W. Day, Lt. G. E. P. Elder, Capt. H. M. Ferreira, Lt. A. E. Horn, Lt. C. A. Mulligan, July 7th; Lt. F. G. Wells, July 8th; Lt. B. V. Chinery, Sec. Lt. H. P. Dalwood, July 9th; Lt. J. C. Davison, Sec. Lt. A. B. C Emmett, Sec. Lt. S. O. Franks, Sec. Lt. E. Hazell, Lt. P. T. Hunt, July 10th; Sec. Lt. F. I. Atkins, Sec. Lt. J. B. Begin, Sec. Lt. L. J. Betts, Sec. Lt. G. W. Brown, Sec. Lt. J. W. Caines, Lt. N. E. Chandler, Capt. R. M. Clifford, Sec. Lt. A. Craig, Lt. D. McK. Darroch, Lt. J. D Davidson, Sec. Lt. O. J. Demers, Capt. M. C. Duboc, Sec. Lt. S. E. Edwards, Sec. Lt. R. H. Ellis, Sec. Lt. G. P. Emery, Sec. Lt. H. L. Erb, Sec. Lt. A. W. Field, Sec. Lt. L. Galibert, Lt. J. G. Gillanders, Lt. R. J. Gilroy, Sec Lt. A. V. Green, Sec. Lt. T. L. Jones, Sec. Lt. T. A. Lawrence, Sec. Lt. J. B. Little, Sec. Lt. F. M. Ramsay, Sec. Lt. A. V. Waters, Sec. Lt. J. R. Welsford, July 12th; Sec. Lt. S. G. Kiddie, July 13th; Lt. J. H. Crowe, Lt. P. M. Lindesay, Sec. Lt. J. E. Workman, July 14th; Maj. R. J. J. Hope-Vere, Sec. Lt. J. H. Moore, July 15th; Lt. W. T. Breach, Lt. R. C. B. Presland, July 17th; Sec. Lt. J. C. Gow, Lt. E. P. Holloway, Sec. Lt. F. G. Kilby, Lt. R. B. Loemore, D.S.O., July 18th; Lt. F. C. Craig, Sec. Lt. A. C. Whittle, July 19th; Sec. Lt. J. E. White, July 22nd; Lt. C. H. O. Strettell, July 23rd; Sec Lt. N. H. Muir, July 24th; Sec. Lt. C. S. Harrison, Lt. H. O. MacDonald, Lt. E. R. W. Millar, Lt. C. F. R. Price-Hughes, July 25th; Lt. L. Mortimore, July 26th; Lt. W. J. Corney, Lt. F. Nightingale, Sec. Lt. M. E. Noyce, Sec. Lt. P. S. White, July 29th; Lt. G. M. Wrentmore, July 30th; Sec Lt. C. A. Milner, Sec. Lt. H. S. Mills, Sec. Lt. C. N. Osborne, Sec. Lt. T. W. Osborne, Aug. 1st.

The following relinquish their commns. on account of ill-health and are permitted to retain their rank:—Capt. J. W. Somers (contracted on active service), July 21st; Lt. H. Fenton (contracted on active service), Lt. E. L. H Macleod (caused by wounds), July 22nd; Lt. C. C. G. Girvan (caused by wounds), July 23rd; Lt M Andrews (contracted on active service), July 30th (substituted for notification in "Gazette," March 28th); Sec. Lt F. T. Mollard, May 23rd (substituted for notification in "Gazette," May 9th); Sec. Lt. G. R. Newton-Bridle (contracted on active service), July 20th (substituted for notification in "Gazette," April 8th); Sec. Lt. S. C. Ridges, July 26th.

Sec. Lt. M. C. Burt relinquishes his commn. on account of ill-health, July 10th (substituted for notification in "Gazette," June 6th)

The initials of Lt. (actg. Capt.) E. C. Morris are as now described and not "E. E.," as stated in "Gazette," May 9th

The Christian names of Sec. Lt. Edmund Bernard Saunders are as now described, and not "Edward Bernard," as stated in "Gazette," Dec. 10th, 1918.

The surname of Sec. Lt. R. Kelley is as now described, and not "Kelly," as stated in "Gazette," June 24th.

The notification in "Gazette," March 28th, concerning Lt. J. A. Anderson (Brit. Col. R.) is cancelled

The notification in "Gazette," April 4th, concerning Lt. I. A. Peers is cancelled.

The notification in "Gazette," April 8th, concerning Lt. (actg. Capt.) P. B. Pattisson is cancelled.

The notification in "Gazette," May 20th, concerning Lt N. B. Arbuthnot is cancelled. The notification in "Gazette," May 27th, to stand.

The notification in "Gazette," May 27th, concerning Sec. Lt. (Hon. Lt.) W. Cooke is cancelled.

The notification in "Gazette," July 1st, concerning Lt. C. Miller is cancelled.

The notification in "Gazette," July 8th, concerning Sec. Lt. R. J. Palmer is cancelled.

ADMINISTRATIVE BRANCH.—Majs. to be Majs., from (S.O.) :—R. Honey, July 9th; H. E. Day, D.S.O., M.V.O., July 21st.

To be actg. Majs. whilst empld. as Majs. :—Capt. J. P. H. Hayes, Sec. Lt. (Hon. Capt.) C. Harvey, May 1st.

Capts. to be Capts. :—G. B. McClure, O.B.E., from (S.O.), July 9th; H. S. Edgar, from (T.), July 16th; A. W. Crombie, from (T.), July 21st.

Lt. E. P. Manson to be graded for purposes of pay and allowances as Capt. whilst empld. as Capt., from May 1st to July 1st.

Sec. Lt. (Hon. Lt.) A. G. Horlock to be Sec. Lt. (Hon. Lt.), from (O.), and to be actg. Lt. whilst empld. as Lt., from May 30th, 1918, to April 20th.

Sec. Lt. F. C. Matten to be Sec. Lt., from (T.), Jan. 1st.

P.F.O. S. S. Russell (late R.N.A.S.) is granted a temp. commn. as Sec. Lt., Sept. 7th, 1918.

The following are granted temp. commns. as Sec. Lts :—P. A. H. Anderson, July 28th; E. F. Elliott, July 30th

The following relinquish their commns. on ceasing to be empld. :—Capt. R. J. H. Purcell (Capt., K.R.R.C.), Feb. 27th; Sec. Lt. (Hon. Lt.) G. H. P. Whitfield (Lt., R. Irish Rifles), April 1st; Lt. P. L. Hogan (Lt., L'pool R.), May 28th; Sec. Lt. (Hon. Lt.) N. F. Penruddocke (Capt., R.A.S.C.), July 11th; Lt. P. H. Drake-Brockman (Lt., E. Surrey R.), July 15th.

Transferred to unempld. list :—Lt. F. A. Mildred, M.C., Feb. 19th; Lt. P. B. Pattison, Feb. 20th; Lt. W. R. Northbridge, March 5th; Capt. J. T. Pym, March 23rd; Sec. Lt. H. West, April 11th; Sec. Lt. H. L. Whitelaw, April 12th; Sec. Lt. C. V. Wheeler, April 15th; Sec. Lt. F. E. Wilford, April 16th; Sec. Lt. F. T. Wickwar, April 18th; Sec. Lt. A. E. DeGruchy, April 20th; Lt. A. Parrish, May 1st; Sec. Lt. W. E. Mayne, May 2nd; Lt. (Hon. Capt.) G. A. Hoghton, May 5th; Sec. Lt. A. G. Whittaker, May 14th; Sec. Lt. H. J. B. Sullivan, May 20th; Sec. Lt. B. T. Cato, May 21st (substituted for notification in "Gazette," May 16th); Sec. Lt. F. Harrison, May 24th; Sec. Lt. R. G. Lotter, May 29th; Sec. Lt. C. S. M. Weldon, June 9th; Sec. Lt. F. B. Morris, June 14th; Sec. Lt. A. K. Whiteman, June 25th (substituted for notification in "Gazette," July 15th; Sec. Lt. W. F. Mackenzie, June 26th, Capt. P. S. Hargreaves, July 6th, Sec. Lt. F. Hook, July 11th; Sec. Lt. H. Dove, July 12th; Sec. Lt. G. Weaver, July 13th; Capt. A. W. W. Pope, July 15th; Lt. E. K. James, July 18th; Sec. Lt. (Hon. Lt.) G. H. Heys, July 22nd.

The following Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank :—L. Curlewis, M.C. (caused by wounds), C. D. Taylor (contracted on active service), July 22nd

Sec. Lt. H. C. Thomas relinquishes his commn. on account of ill-health, and is permitted to retain his rank, July 22nd.

Sec. Lt. S. V. Daley to take rank and precedence as if his appointment as Sec. Lt. bore date May 1st

The notification in "Gazette," June 6th, concerning Sec. Lt. F. B. Morris is cancelled.

The notification in "Gazette," June 17th, concerning Lt. R. T. Kelly is cancelled.

The notification in "Gazette," July 11th, concerning Lt. J. T. Wright (Lt., R.N.) is cancelled.

The notification in "Gazette," July 15th, concerning Capt. G. A. Brown is cancelled.

TECHNICAL BRANCH.—Maj. V. C. Richmond, O.B.E., to be actg. Lt.-Col. while empld. as Lt.-Col., Grade (A.), from Aug. 1st, 1918, to March 31st.

Capt. E. P. Smith to be actg. Maj. while empld. as Maj., Grade (A.), from Aug. 1st, 1918, to Feb. 27th.

Capts. to be graded for purposes of pay and allowances as Majs. while empld. as Majs., Grade (A) :—A. K. Kendal, W. W. Tullis, May 1st.

Capt. P. D. Robertson, A.M., to be Capt., Grade (A.), from (A.) April 17th.

To be actg. Capts. while empld. as Capts., Grade (B.) :—Sec. Lt. E. P. Dampier, from April 1st, 1918, to April 30th (substituted for notification in "Gazette," April 30th, 1918); Lt. A. B. Macintosh, from Jan. 27th to April [illegible].

Lt. S. W. Davis to be graded for purposes of pay and allowances as Capt. while empld. as Capt., Grade (A.), May 1st.

Lt. A. S. Clark to be Lt., Grade (A.), from (A.), Dec. 31st, 1918.

Sec. Lt. M. Sheriff, D.C.M., to be Lt., Feb. 30th.

Sec. Lts. to be actg. Lts. while empld. as Lts., Grade (A.), from Aug. 1st, 1918, to March 31st :—C. Dollery, T. F. Emms.

Sec. Lt. (Hon. Lt.) L. A. Sturrock (Lt., I.A.R.O.) relinquishes his commn. on reversion to I.A.R.O., Aug. 1st.

The following relinquish their commns. on ceasing to be empld. :—Lt. C. B. Carr (Lt., Kent Cyclist Batt.), June 20th, 1918; Lt. T. S. Griffiths (Lt., R. Welsh Fus.), June 26th; Lt. C. H. Knight (Dorset R.), July 3rd; Sec. Lt. (Hon. Lt.) P. Anderson (Lt. (T./Capt.) A. and S. Highrs.), July 9th.

Transferred to unempld. list :—Capt. S. Watson, Feb. 3rd; Capt. F. J. Mussel-White, March 4th; Sec. Lt. (actg. Lt.) R. D. Whitt, March 16th; Lt. F. W. Webster, April 11th; Sec. Lt. (Hon. Lt.) (actg. Lt.) J. R. Jones, April 16th; Lt. W. R. Boag, Lt. F. J. Kayser, April 20th; Sec. Lt. A. W. Whistlecroft, May 8th; Capt. W. H. Mulville, May 15th; Sec. Lt. J. T. Williams, May 17th; Sec. Lt. G. Laughlin, May 20th (substituted for notification in "Gazette," May 23rd); Sec. Lt. J. H. Glew, May 26th; Sec. Lt. J. West, May 28th; Lt.-Col. F. R. G. Hoare, C.B.E., Lt. F. E. White, May 30th; Sec. Lt. (Hon. Lt.) C. W. Whitworth, May 31st; Capt. R. Whiddington, June 1st; Maj. C. W. C. Wheatley, June 3rd; Capt. H. C. Harris, June 5th; Lt. (Hon. Maj.) W. A. Webb, June 18th; Lt. J. E. Wight, June 24th; Capt. E. S. Davis, June 30th; Lt. D. W. Harvey, Capt. C. H. Waghorn, July 1st; Lt. W. L. Horwood, July 2nd; Capt. (actg. Maj.) D. R. Verey, July 6th; Sec. Lt. (Hon. Lt.) R. S. Haward, Sec. Lt. (Hon. Lt.) A. N. Pictor, July 8th; Sec. Lt. (Hon. Lt.) G. C. R. Hitchings, July 10th; Capt. W. A. Ogden, July 12th; Lt. F. D. Lugard, July 14th; Maj. C. H. Parkes, July 15th; Capt. W. T. Passmore, July 18th; Sec. Lt. (Hon. Lt.) C. W. Olliver, July 19th; Sec. Lt. A. K. Murray, July 22nd.

Lt. C. W. Ware relinquishes his commn. on account of ill-health, and is permitted to retain his rank, July 29th (substituted for notification in "Gazette," April 15th).

Sec. Lt. C. A. S. Brittenden relinquishes his commn. on account of ill-health, and is permitted to retain his rank, July 22nd.

The notification in "Gazette," July 18th, concerning Sec. Lt. (actg. Capt.) E. P. Dampier is cancelled.

The notification in "Gazette," May 23rd, concerning Sec. Lt. J. H. Glew is cancelled.

MEDICAL BRANCH.—Transferred to unempld. list :—Capt. J. L. Whatley, Feb. 29th, Capt. H. M. Holt, April 13th.

MEMORANDA.—The following are granted the actg. rank stated against their names :—Maj. A. H. C. Kearsey, D.S.O., to be actg. Lt.-Col.; Capt. H. I. Hanmer, D.F.C., to be actg. Maj.; Capt. A. H. S. Baker to be actg. Maj.; Capt. C. C. Treatt to be actg. Maj.; Lt. K. A. C. Creswell, M.B.E., to be actg. Capt., May 1st.

Lt. C. H. Tancred to be actg. Capt., May 27th.

The following Overseas Cadets are granted temp. commns. as Sec. Lts., with effect from Feb. 15th, and relinquish such commns. with permission to retain the rank, from the day following termination of the standardised voyage in the case of those claiming immediate repatriation, and from the day following demobilisation in England in all other cases :—184391 A. K. Askham, 184418 J. J. Anderson, 184282 C. J. Arnold, 183568 J. Baguley, 184205 L. Brown, 184298 A. Burl, 316817 J. M. Black, 316815 G. C. V. Buckley, 183878 N. Collett, 184398 J. J. Carlos, 184801 T. H. Cochrane, 184283 E. H. Cass, 316782 J. E. Dealey, 184488 H. P. Ealey, 316545 E. W. Flower, 316587 H. Faram, 183272 E. W. Foot, 183847 E. A. Fothergill, 183726 W. W. Florence, 316592 A. C. Goble, 316772 A. G. P. Gibbs, 184420 W. B. Geipel, 183615 G. S. Green, 184286 G. T. Godwin, 184457 C. Harvey, 183677 J. G. Hawtin, 136536 A. C. Hepburn, 75712 S. N. Honeyman (substituted for notification in "Gazette," June 13th), 184624 O. G. F. Joubert, 184568 J. Johnson, 184244 J. C. Jones, 316600 R. S. Jameson, 183926 F. T. Kean, 137040 R. A. King, 184463 D. L. Lundie, 184753 R. H. Last, 316601 A. P. Ledeboer, 316551 J. B. McGill, 316550 F. C. McDonald, 184862 R. Mitchelmore, 184465 R. F. Morley, 179164 A. D. Morris, 316813 M. D. Macbeth, 316555 W. E. Norton, 316554 I. A. Nicolson, 183034 D. M. Nesbit, 316609 M. E. Pennington, 316110 C. M. Plowes, 181913 M. B. C. Pettengell, 184315 F. A. Pragnell, 316190 E. H. Reeves, 100031 B. Ridges, 316557 E. C. Ruddenklau, 316558 O. P. Stanford, 184818 R. S. Simpson, 184290 W. J. Stone, 136710 R. Turner, 316620 A. W. Turrell, 310559 C. R. Williamson, 182925 N. A. C. Williams.

The following Cadets are granted Hon. commns. as Sec. Lts. :—137729 L. F. Firth, 26023 G. W. Shawcross, Jan 17th; 137670 R. H. Bromley, Jan. 21st; 309610 A. Horwood, Jan. 23rd; 140184 G. D. Ball, Jan. 27th; 15003 A. J. Balls, 12228 H. W. Bunning, S/90495 V. J. Dalby, Jan. 29th; 22233 A. E. Allen, 298668 A. P. Franklin, 315376 F. Gill, 178685 E. Hurley, 110718 R. D. O. Lewis, 032166 W. D. Watt, Jan. 30th; 650497 W. J. Maine, 5/10139 T. R. Merrishaw, S/22856 G. Walls, Jan. 31st; 217805 A. S. Baldwin, Feb. 1st; 210062 C. E. Collier, 156347 H. W. Hatfield, 156922 H. N. Nixon, Feb. 3rd; 137096 E. A. Reavell, 536069 J. Russell, Feb. 7th; 300500 P. A. Osbourne, 179269 W. Warren, Feb. 8th; 87075 E. S. Stead, Feb. 10th; 117044 W. G. Vaughan, Feb. 11th, 17946 E. T. Bailey, 137400 A. G. Honey, Feb. 15th; 137738 J. Hullah, 56234 R. Stephenson, 147989 R. Whitehead, Feb. 16th; 117856 A. Broadbent, 200600 M. Empswell, 254629 R. J. Morgan, 178874 E. W. Morris, 54576 T. L. McGowan, 38651 R. B. Tibbs, 175025 W. P. Wiltshire, 253280 E. Walker, 13759 N. Walker, Feb. 17th; 128637 G. Hamilton, 177597 G. R. Hunt, 106339 T. H. Mills, 128412 D. Nunn, 110316 N. J. White, Feb. 18th; 137184 G. N. Davies, Feb. 19th; 100049 N. L. Handley, 128869 C. Hulbert, 137607 E. G. Nance, 93097 A. Nuttall, 175021 W. H. Whitby, Feb. 20th; 66042 T. W. Pate, 137415 S. Pycock, 127549 H. C. R. Tuff, Feb. 21st; 137089 A. G. Alexander, 128283 R. O. Comnys, 128515 E. A. Dennis, 117976 H. W. Drinkwater, 70592 S. A. Eagles, 110190 L. Flexman, 301840 J. A. Harveyson, 0/156542 J. E. Jurdan 128327 A. D. Landin, 30357 J. L. H. Miller, 101468 W. S. Marston, 4829 H. E. Parminter, 12401 H. Sunderland, 176125 T. C. Sharwood, 137043 W. Woods, 30556 C. S. M. White, Feb. 22nd; 75335 B. Kennard, 26291 S. Makin, 248655 D. W. Service, Feb. 27th; 2/050601 S. Lockwood, 460809 F. S. Pullan, March 3rd; 97805 G. Calvert, March 4th; 100479 N. W. Lindsay, March 6th; 176406 W. S. Andrews, March 7th; 32244 H. Tucker, March 8th; 449215 P. Jones, March 13th; 190232 J. L. Taylor, March 14th; 110203 V. A. Blaker, 176108 R. L. Morgan, March 15th; 155448 F. Smith, March 17th; 729 A. Brown, 408485 A. Foote, March 20th; 137671 K. E. Buller, March 21st; 43290 A. F. Barrett, 128171 G. T. Bickle, 110871 H. G. Plumbridge, March 22nd; 15797 E. Algar, March 23rd; 95967 C. Dick, March 27th; 75235 N. Q. Hudson, 137101 G. R. Reynolds, March 30th; 221510 L. V. Lincoln, March 31st, 1862 J. H. Morley, April 1st; 241096 J. Dick, April 2nd; 321172 E. A. Hinxman, 133649 J. Littlejohn, 175070 H. Mitchell, 128678 R. W. McKay, 23868 H. H. L. Potter, 214453 J. R. Palfrey, April 3rd; 514411 G. H. Davy, 137348 A. J. Farrington, 175762 C. M. Miller, 170578 C. J. Price, 175153 B. F. Simpson, April 5th; 313557 R. H. J. Affleck, 244928 J. W. Archer, 176152 E. Belt, 179474 J. D. Grey, 180135 S. Hillier, 178715 G. R. Hart, 18641 H. Proctor, 179286 C. Selbie, 178795 G. Walker, April 10th; MS/4039 J. E. Beare, April 12th; 158027 G. W. Clarke, 27156 H. C. Lupton, 19421 W. G. N. Pritchard, April 16th; 78799 J. F. Moss, April 24th; 767400 P. Bacon, 203287 T. H. Harvey, April 30th; 137026 J. A. Nicholson, 192746 J. A. Potts, 137447 C. Powell, May 1st; 95595 W. T. Ruse, May 3rd, 52472 M. D. Black, May 20th.

Maj.-Gen. Sir F. H. Sykes, K.C.B., C.M.G., retires on ret. pay, April 1st.

Capt. E. G. Knox (Aus. Flying Corps) relinquishes his temp. supplementary commn. on ceasing to be empld., July 23rd.

The following relinquish their commns. on ceasing to be empld. :—Lt.-Col. R. J. Armes, C.M.G. (Maj. (Bt.-Col.), N. Staffs. R.), May 25th; Maj. J. St. A. King (Maj., Indian Army), July 7th; Temp. Hon. Lt. H. R. Tidswell, July 31st.

Transferred to unempld. list :—Maj. G. P. Myers, from (S.O.), April 11th; Lt.-Col. R. H. Mulock, D.S.O., May 16th; Lt. H. Hooper, from (S.O.), June 11th; Capt. A. E. Illingworth, from (S.O.), July 7th.

REGULAR FORCES ESTABLISHMENTS.—ROYAL REGIMENT OF ARTILLERY.—R.H. and R.F.A.—The following resign their commns. :—Capt. A. Christie, C.M.G., D.S.O. (temp. Lt.-Col., R.A.F.), Lt. D. D'E. Strickland, Aug. 2nd

AIR MINISTRY, August 5th.

R.A.F.—PERMANENT OFFICERS.—PROMOTIONS.—To be Air Commodores.—A. V. Vyvyan, C.B., D.S.O., P. W. Game, C.B., D.S.O., O. Swann, C.B., C.B.E., F. R. Scarlett, C.B., D.S.O., Aug. 1st; C. L. Lambe, C.B., C.M.G., D.S.O., J. M. Steel, C.M.G., C.B.E., C. A. H. Longcroft, C.M.G., D.S.O., A.F.C., T. I. Webb-Bowen, C.B., C.M.G., L. E. O. Charlton, C.B., C.M.G., D.S.O., D. le G. Pitcher, C.M.G., D.S.O., Aug. 5th.

To be Group Capts. :—C. R. Samson, R. H. Clark-Hall, T. C. R. Higgins, A. M. Longmore, I. M. Bonham-Carter, O.B.E., Aug. 5th.

The following appointments are made :—Directors.—P. W. Game, C.B., D.S.O., C. L. Lambe, C.B., C.M.G., D.S.O., R. M. Groves, C.B., D.S.O., A.F.C., August 1st.

Dep. Dir., 1st Class :—F. C. Halahan, C.M.G., D.S.O., M.V.O., Aug. 1st.

Dep. Dirs., 2nd Class :—I. M. Bonham-Carter, O.B.E., and to be Dep. Dir., 1st Class, Aug. 5th; E. R. Ludlow-Hewitt, C.M.G., D.S.O., M.C., C. L. N. Newall, C.M.G., A.M., C. L. Courtney, C.B.E., D.S.O., Aug. 1st.

The following temp. appointments are made at the Air Ministry :—Staff Officer, 2nd Class (T.) :—Capt. T. G. Skeats, Aug. 1st.

Staff Officer, 3rd Class (T.) :—Sec. Lt. C. V. Mitchell, Aug. 1st, vice Capt. T. G. Skeats.

The following temp. appointments are made :—Staff Officer, 1st Class (Air) :—Lt.-Col. G. M. Griffith, Mar. 31st.

Staff Officer, 2nd Class (P.) :—Maj. R. C. Lane, July 31st.

Staff Officer 3rd Class (P.):—Capt. H. R. Kavanagh, July 8th, vice Capt. L. A. K. Butt, Capt. A. J. W. Barmby, O.B.E., July 31st, from S.O.2.

Flying Branch.—Lt.-Col. (actg. Brig.-Gen.) P. L. W Herbert, C.M.G., to be Lt.-Col (A.), from (S.O.), and relinquishes actg. rank of Brig.-Gen., June 18th.

Lt.-Col. L. W. B. Rees, V.C., M.C., A.F.C., to be Lt.-Col. (A.), from (S.O.) July 25th.

Maj. R. B. B. Colmore, O.B.E., to be Maj. (A.), from (S.O.) May 12th.

Capt. E. C. Emmett, M.C., D.F.C., to be actg. Maj. whilst empld. as Maj. (A.), May 1st.

Capt. K. B. S. Greig to be graded for purposes of pay and allowances as Maj. whilst employed as Maj. (K.B.), May 1st.

Capt. F. Workman, M.C., to be Capt. (A.), from (T.) April 23rd.

Capt. A. J. H. MacColl to be graded for purposes of pay and allowances as Capt. whilst employed as Capt. (A'ship), March 5th.

Lt. J. P.-Morkham to be actg. Capt. whilst employed as Capt. (A.) Nov. 25th, 1918

Sec. Lt. H. E. Crane is antedated in his appointment as Sec. Lt. (A. and S.), May 11th, 1918.

The following relinquish their commissions on ceasing to be employed:—Sec. Lt. W. R. Gray (Sec. Lt., Shrops. L.I.), Aug. 9th, 1918; Lt. (Hon. Capt.) A. B. Fairclough, M.C. (Capt., Can. M.G.C.), Capt. J. H. Scandrett (Capt., Can. Fd. Art.), April 14th; Sec. Lt. (Hon. Capt.) H. E. Paquin (Capt., Quebec R.), April 19th; Sec. Lt. (Hon. Lt.) H. McA. Peacock (Capt., R.F.), April 23rd; Lt. (Hon. Capt.) G. W. Taylor (Lt., R. Can. Dragoons), April 27th; Sec. Lt. C. R. Fraser (Lt., Can. Engrs.), May 15th; Lt. W. A. Scott (Lt., Can Forestry Corps), May 31st; Sec. Lt. L. C. L. Cook (Sec. Lt., R.A.S.C.), June 7th; Lt. A. Grundy (Lt., Brit. Columbia R.), June 27th; Sec. Lt. E. H. D. Fowler (Lt., Midd'x R.), Lt. R. C. D. Oliver (Sec. Lt., R. Berks R.), July 1st; Sec. Lt. (Hon. Lt.), A. C. Lobley (Lt., E. Ont. R.), July 7th; Sec. Lt. (Hon. Lt.) P. R. Cook (Lt., R.F.A.), July 8th; Capt. W. A. C. Heyman (Lt., Hussars), July 24th; Capt. F. R. Alford, M.C. (Capt., Can. M.G.C.), July 27th.

Transferred to the unemployed list:—Lt. E. Plowman, Jan. 23rd; Lt. H. T. W. Manwaring, Jan. 30th; Capt. C. G. Bronson, Feb. 17th; Sec. Lt. G. H. Price, Feb. 22nd; Sec. Lt. R. D. Nicholls, March 7th; Sec. Lt. L. C. Spaven, March 25th; Lt. (actg. Capt.) R. G. Malcolm, Lt. J. A. Stretton, Lt. W. D. Stroud (R.F.A.), April 1st; Capt. (actg. Maj.) F. D. Till, April 3rd; Sec. Lt. G. J. Mortimer, April 4th; Sec. Lt. H. S. Izzett, Lt. J. L. Jewkes, April 8th; Sec. Lt. I. H. Jenkins, Sec. Lt. G. W. Shepherd, April 10th; Lt. B. R. Jillings, Sec. Lt. W. E. Johns, Lt. S. M. Johnson, Lt. S. G. E. I. Knox, Lt. H. F. N. Paull, April 11th; Lt. W. R. Healey, Lt. C. de B. Pequegnat, April 13th; Lt. O. J. F. Jones-Lloyd, April 14th; Lt. W. R. Eastman, Sec. Lt. E. V. Hunter, Sec. Lt. W. V. Tomlinson, April 15th; Sec Lt A. H. Burns, Sec. Lt. C. R. Jenkins, Sec. Lt. E. T. Jones, April 16th; Sec Lt. F. H. Joynes, April 17th; Lt. A. B. Hughes, Lt. H. J. Loughlin, April 18th; Lt. E. S. Duggan, Lt. P. G. du Val, Lt. N. K. Johnson, Lt. (Hon. Capt.) L. G. Loudoun, Sec. Lt. C. H. G. Pryor, April 19th; Lt. J. D. Reid, Sec. Lt. C. C. Stubbs, April 20th; Sec. Lt. W. A. Crich, Sec. Lt., F. J. Hunt, D.F.C., April 22nd; Lt. R. M. W. Louden, April 23rd; Lt. L. W. Hudson, Lt. P. C. Jenner, April 24th; Sec. Lt. A. W. Steward, April 25th; Capt. A. O. Jones, April 26th; Sec. Lt. (Hon. Lt.) F. M. Loly, D.F.C., April 28th; Lt. C. G. Jenyns, Sec. Lt. W. G. Lowcock, May 7th; Sec. Lt. E. Roberts, May 8th; Capt. (Hon. Maj.) A. M. Miller, D.S.O., May 9th; Sec. Lt. N. A. D. Cowan (substituted for the notification in the "Gazette" of May 20th); Sec. Lt. G. W. Lazenby (substituted for the notification in "Gazette," May 23rd), May 20th; Sec. Lt. A. D. Loughbrough, May 25th; Lt. A. G. Loton, May 28th; Lt. D. H. Jones, May 29th; Lt. F. D. Hobbs, May 30th; Sec. Lt. R. Jurgans, June 2nd; Sec. Lt. H. J. Smith, June 3rd; Sec. Lt. C. H. Jehan, Lt. C. F. Lodge, June 5th; Lt. W. P. Lester-Jones, June 6th; Sec. Lt. H. P. E. Jones, June 7th; Maj. C. H. R. Johnstone, June 9th; Sec. Lt. D. H. Jones, June 10th; Sec. Lt. H. A. Halliday, June 12th; Lt. A. W. Davison, Sec. Lt. J. K. Loud, Lt. C. R. Richards, M.C., Sec. Lt. J. Spooner, June 13th; Sec. Lt. (Hon. Lt.) W. Dougall, Sec. Lt. C. H. Senegal, June 14th; Capt. G. E. W. Hitchcock, June 20th; Lt. G. K. Deaker, June 23rd; Lt. A. Tomax, M.C., June 30th; Lt. A. M. Lomas, Sec. Lt. S. P. Tarrant, July 3rd; Sec. Lt. L. E. T. Burley, July 6th; Sec. Lt. E. V. L. Keating, July 7th; Capt. F. M. Kitto, M.C., July 8th; Lt. J. H. T. Carr, Lt. H. B. Davies, July 9th; Sec. Lt. J. A. L. Rogers, Sec. Lt. C. R. Stewart, July 10th; Lt. C. S. Stonehouse, July 11th; Lt. L. G. Cunningham, Lt. C. S. Dickinson, Sec. Lt. J. H. Douglas, Sec. Lt. S. W. Keston, Lt. J. Reekie, Sec. Lt. W. E. Rose, Lt. G. F. Sanderson, Sec. Lt. H. W. Scarnell, Sec. Lt. K. M. Skene, Lt. G. C. W. Sutcliffe, Sec. Lt. F. S. Tear, Sec. Lt. H. Thomas, Lt. J. W. Thompson, Sec. Lt. P. A. Timmons, Lt. R. C. Tyler, July 12th; Sec. Lt. W. H. A. Tedder, July 13th; Sec. Lt. J. W. Radcliffe, July 14th; Sec. Lt. J. C. Fraser, Sec. Lt. (Hon. Lt.) J. F. Scott, Sec. Lt. H. S. Spencer, Sec. Lt. E. J. Whitwell, July 15th; Lt. D. M. Deighton, July 16th; Lt. J. K. Arnold, Sec. Lt. G. A. Munro, July 17th; Sec. Lt. J. E. Sewell, July 21st; Lt. A. F. McGlasban, M.C., Capt. L. G. Sieveking, D.S.C., July 22nd; Capt. D'A. F. Hilton, M.C., July 23rd; Sec. Lt. W. Dowling, July 24th; Sec. Lt. A. P. Booth, Sec. Lt. T. J. Leighs, Lt. C. G. Ross, D.F.C., Sec. Lt. N. D. Spranger, Sec. Lt. H. Toms, Sec. Lt. G. B. Treadwell, D.F.C., July 25th; Sec. Lt. F. N. Quy, Capt. S. W. Taylor, M.C. (substituted for the notification in the "Gazette" of April 25th), Aug. 1st; Maj. B. C. McEwen, M.C., Sec. Lt. J. H. C. Norgarb, Lt. G. A. Penny, Aug. 2nd; Lt. O. E. McConnell, Aug. 3rd.

The following Capts. relinquish their commissions on account of ill-health, and are permitted to retain their rank:—C. Lawrence, R. E. Spear (contracted on active service), July 25th.

The following Lts. relinquish their commissions on account of ill-health, and are permitted to retain their rank:—S. F. Napper, June 15th (substituted for the notification in the "Gazette" of June 27th); W. G. Kewley (contracted on active service), July 5th.

Lt. L. F. Short (K.O.Y.L., T.F.) resigns his commission on account of ill-health caused by wounds, July 23rd.

Sec. Lt. R. C. Williams (Sec. Lt. Hussars) resigns his commission, and is permitted to retain his rank, Aug. 6th.

The initials of Sec. Lt. D. E. Waight (Northumberland Fus.) are as now described, and not "W. G.," as stated in the "Gazette" of May 20th.

The initials of Sec. Lt. C. A. Muir are as now described, and not "J. A.," as stated in "Gazette," June 3rd.

The initials of Lt. W. Partridge are as now described, and not "N.." as stated in "Gazette," June 27th.

The notification in "Gazette," Dec. 31st, 1918, concerning Sec. Lt. H. Brooks is cancelled.

The notifications in "Gazette," April 4th, concerning the following officers are cancelled:—Sec. Lt. J. Collins (Rifle Bde.), Sec. Lt. J. F. J. Peters.

The notification in "Gazette," April 29th, concerning Lt. R. Milner is cancelled.

The notifications in "Gazette," June 27th, concerning the following officers are cancelled:—Capt. F. W. I. V. Fraser, O.B.E., M.C.; Lt. W. H. S. Towell, Sec. Lt. (Hon. Lt.) L. S. Dell

The notification in "Gazette," July 4th, concerning Lt. N. B. Lovemore is cancelled.

The notification in "Gazette," July 15th, concerning 475312 G. C. Boyer is cancelled.

The notifications in "Gazette," July 29th, concerning the undermentioned officers are cancelled:—Lt.-Col. F. C. Shelmerdine, Lt. J. E. G. Mosby.

The Christian names of Sec. Lt. Edward Harry Sansom are as now described, and not "Edward Parry Sansom" as stated in "Gazette," Sept. 10th, 1918.

The notification in "Gazette," Oct. 25th, 1918, concerning 475312 G. Boyer is cancelled.

Administrative Branch.—Capt. N. A. Daniell to be graded for purposes of pay and allowances of Maj. whilst empld as Maj., May 1st.

Capts. to be Capts.:—A. Ridley, from (S.O.), June 2nd; J. W. Carter, from (T.), July 28th.

Lts. to be actg. Capts. whilst empld. as Capts.:—H. B. Dakin, May 1st; R. J. L. Gerard, July 22nd.

Lts. to be graded for purposes of pay and allowances as Capts. whilst empld. as Capts.:—I. Morgan, Jan. 12th; (Hon. Capt.) R. A. Shepheard-Walwyn, May 1st.

Lt. (actg. Capt.) I. Morgan to be Lt., from (K.B.), and to retain the actg. rank of Capt. (without pay and allowances of that rank) whilst empld. as Capt., Nov. 17th, 1918.

Lts. to be Lts.:—H. V. Lewis, from (A.), July 9th; L. E. M. Gillman, from (S.O.), Aug. 1st.

G. D'A. W. Oliver (Lt., Wilts. R.) is granted a temp. commn as Lt., July 20th, 1918

Sec. Lts. to be Lts.:—(Hon. Capt.) C. S. Burdon, April 2nd, 1918; J. H. Thompson, Dec. 21st, 1918.

Sec. Lt. F. C. Matten to be actg. Lt. whilst empld. as Lt from Jan. 1st to April 30th

Sec. Lt. J. Pughe-Jones to be Sec. Lt., from (A.), Feb. 3rd (substituted for notification in "Gazette," Feb. 4th).

The following relinquish their commns. on ceasing to be empld.:—Sec. Lt. (Hon. Lt.) L. S. Dell (Lt., R.F.A.), May 14th; Lt. W. H. S. Towell (T./Pmr. Sub-Lt., R.N.), June 6th

Transferred to unempld. list:—Sec. Lt. J. F. J. Peters, Feb. 23rd; Sec. Lt. (actg. Lt.) J. G. Macksey, March 3rd; Sec. Lt. H. C. Dernam, Lt. J. C. O'Reilly-King, Sec. Lt. H. Partington, March 6th; Sec. Lt. H. J. Foster, March 7th; Lt. (actg. Capt.) S. H. Preston, March 12th; Lt. R. Milner, March 21st; Sec. Lt. (actg. Capt.) F. Kooney, April 4th; Sec. Lt. W. M. Sinclair, April 9th, Sec. Lt. W. Rawson, April 10th; Sec. Lt. J. A. W. Smith, April 15th; Sec. Lt. J. G. Thompson, April 20th; Lt. T. H. Jones, May 8th; Sec. Lt. F. Jevons, May 22nd; Sec. Lt. J. E. Holden, May 30th; Sec. Lt. A. F. Judd, May 31st; Sec. Lt. J. Pughe-Jones, June 3rd; Lt. S. N. Jones, June 10th; Sec Lt. E. S. Robson, June 17th; Sec. Lt. P. C. Jones, June 27th; Capt. S. H. M. Donaldson, July 3rd; Lt. H. G. Bellamy, July 5th; Lt. B. W. Knuckley, July 6th; Capt. E. C. Blight, July 8th; Lt. A. E. Biggs, July 11th; Sec. Lt. J. R. Quinn, Lt. (Hon. Capt.) S. Snow, July 12th; Lt. G. D. Robin, July 13th; Lt. A. Reardon (Essex R., T.F.), July 14th; Lt. E. E. Stock, M.C., July 18th; Sec. Lt. G. E. Secker, July 19th; Lt. T. M. Jones, Lt. R. H. Wallace, July 22nd; Sec. Lt. (Hon. Capt.) H. Milman, Sec. Lt. W. F. Staniland, July 24th; Sec. Lt. A. Williams, July 26th; Lt. N. Nuttall, July 29th; Lt. W. A. B. Probart, Aug. 20th; Lt. V. J. Holland, Aug. 4th.

Lt. J. J. Coleman relinquishes his commn. on account of ill-health contracted on active service, and is permitted to retain his rank, July 25th.

Sec. Lt. H. V. A. Salter relinquishes his commn. on account of ill-health and is permitted to retain his rank, July 25th.

The notification in "Gazette," July 1st, concerning Lt. H. W. Sidley is cancelled.

The notification in "Gazette," July 29th, concerning Maj. R. B. B. Colmore, O.B.E., is cancelled

The notification in "Gazette," Nov. 5th, 1918, concerning Sec. Lt. H. G. G. Rawlings is cancelled.

Technical Branch.—Capt. F. R. Williams to be actg. Maj. while empld as Maj., Grade (A.), May 1st.

Capts. to be graded for purposes of pay and allowances as Majs. whilst empld. as Majs., Grade (A.):—T. Temple, April 1st; F. Workman, M.C., from (A.), May 1st.

Capt. E. R. Whitehouse to be Capt., Grade (A.), from (Ad.), April 11th.

Capts. to be Capts., Grade (B.):—F. Workman, M.C., from (A.), May 9th, 1918; A. J. Woodhouse, from (S.O.), May 20th.

Lts. to be actg. Capts. whilst empld. as Capts., Grade (A.):—L. E. Yeomans, Sept. 19th, 1918, T. G. S. Babb, from March 8th to April 30th; P. Burke, May 1st.

Lt. J. W. Gardner to be Lt., Grade (A.), from (Ad.), May 19th.

Lt. H. W. Sidley to be Lt., Grade (B.), from (S.O.), May 23rd.

Lts. to be graded for purposes of pay and allowances as Lts. whilst empld. as Lts., Grade (A.):—(Hon. Capt.) J. R. Cassidy, from Aug. 22nd, 1918, to Jan. 10th; T. G. S. Babb, from Feb. 24th to March 7th; J. V. Yates, March 8th

Sec. Lt. H. G. G. Rawlings (late Gen. List, R.F.C., on prob.) is confirmed in rank as Sec. Lt., Grade (B.), Nov. 1st, 1918.

The following relinquish their commns. on ceasing to be empld.:—Sec. Lt. H. A. Cole (Sub-Lt., R.N.V.R.), June 17th; Sec. Lt. (Hon. Capt.) W. W. Reilly (Capt., Connaught Rangers), July 29th

Transferred to unempld. list:—Capt. O. C. Morison, Sec. Lt. (actg. Capt.) T. Stevenson, March 8th; Sec. Lt. M. L. Metcalfe, April 2nd; Lt. T. B. Jones, April 3rd; Lt. D. Gordon, April 8th; Sec. Lt. C. Jones, April 9th; Lt. E. O. Johnson, April 15th; Lt. (actg. Capt.) F. R. H. Logan, April 30th; Capt. M. G. Jones, May 1st; Sec. Lt. (Hon. Capt.) E. R. Loder, Sec. Lt. I. N. Poyntz, May 9th; Lt. W. H. Hodson, May 30th; Sec. Lt. T. P. Jenkins, June 15th; Capt. E. A. Jackson, June 18th; Lt. D. Low, June 30th; Lt. E. E. Beaumont, July 6th; Sec. Lt. S. Reynolds, July 7th; Capt. J. M. Beddall, Sec. Lt. J. P. Standfast, July 12th; Sec. Lt. E. B. Kent, Sec. Lt. J. J. Thomas, July 15th; Lt. H. Pollard, July 16th; Lt. H. A. Dunningham, Sec. Lt. A. E. Elmes, Capt. J. D. Reunie, July 18th; Lt. H. N. Attwell, July 19th; Lt. J. Shields, July 23rd; Sec. Lt. H. R. C. Van de Velde, July 26th; Lt. A. A. Morris, July 29th.

Maj. C. L. Hope relinquishes his commn. on account of ill-health, and is permitted to retain his rank, July 25th.

The rank of Sec. Lt. (actg. Lt.) A. Morison is as now described and not Sec. Lt. as in "Gazette," Jan. 24th.

The notification in "Gazette," July 8th, concerning Sec. Lt. H. G. G. Rawlings is cancelled.

The notification in "Gazette," April 25th, concerning Lt. D. Gordon is cancelled.

Medical Branch.—Maj. A. Fairley (Surg.-Lt.-Comm., R.N.) relinquishes his commn. on ceasing to be empld., July 19th.

Transferred to unempld. list:—Lt. A. J. Swanton, Feb. 28th; Capt. J. Freeman, April 15th; Capt. C. C. O'Malley, May 13th; Capt. (Hon. Maj.) D. Wilson, July 14th; Lt.-Col. T. Philp, July 15th; Capt. A. Sutcliffe, July 16th.

Memoranda.—Lt.-Col. B. C. Fellows, C.M.G. (Bt. Maj., Remount Service) (ret. Ind. Army), is granted the hon. rank of Brig.-Gen., March 19th.

Sec. Lts. to be Hon. Capts.:—(Hon. Lt.) R. Blackith, Oct. 7th, 1918; F. J. Smith, Jan. 14th; W. Blake, May 29th.

The following Overseas Cadets are granted temp. commns. as Sec. Lts., with effect from Feb. 25th, and relinquish such commn., with permission to retain the rank from the day following termination of the standardised voyage in the case of those claiming immediate repatriation, and from the day following demobilisation in England in all other cases :—102854 T. A. Bailey, 50882 M. H. Bracey, 84003 M. C. Burns, 150935 M. H. Carne, 153543 W. E. C Jones, 183121 E. Kilroe, 506156 H. P. McDonald, 132522 S. W. Shaw, 154801 J. M. H. Shline, 302521 H. C. Vandereen.

The following Cadets are granted hon. commns. as Sec. Lts. :—16623 E. Fitzsimmons, Jan. 9th; 175129 J. V. Houlton, Jan. 10th; 175244 A. C. G. Burt, 137188 H. H. Dyus, Jan 11th; D. W. Warren, Jan. 12th; 50918 A. R. Johnston, 97222 E. Shaw, 137042 J. F. Wright, Jan. 16th; 313042 T. H. Marshall, 75029 T. H Spink, Jan. 17th; 117007 J. S. Barbour, Jan. 18th; 66912 J. P. Crawford, 175195 J. A Jemmett, Jan. 20th; 110606 L. A. Rowe, 65769 J. A. Turner, Jan. 22nd; 390050 C K. Sim, Jan. 23rd; 766962 F. Bradley, W. Eastwood, M2/104695 C B. Harris, 767062 W. Nadin, 100146 H. Richardson, 706660 F. Rolinson, Jan. 24th; 176112 A. F. Ehrhardt, 100123 J. McArthur, Jan. 25th; 100003 R. C. Bell, 175745 W. G. Henshaw, 95342 W. Mottram, 110749 R. A. D. Saunders, 110610 F. A. Strong, Jan. 27th; 176070 J. H. Barwell, 137134 H. I. Browning, 175577 E. E. Caffyn, 176653 H. E. Dallon, 137398 S. E. Hart, 117967 A. P. A. Rose, Jan. 28th; 128534 J. H. Jones, Jan. 30th; 50895 J. S. Cummins, 128100 G. L. B. Dufferin, 175190 R. A Heppell, Feb. 1st; 238802 J. Brooks, 175801 A. G. Burford, 100139 T. Clarkson, 128952 N. Dewey, 176178 J. H. Fenn, 176795 W. D. Jack, M2/204756 G. S. Lewis, 767356 S. H. Long, 8687 H. Woollin, Feb. 3rd; 70700 G. R. Barker, 110516 N. P. Bertie, 128509 P. R. Burton, 128958 A. Davison, 137588 J. Oliver, 175660 T. A. M. Roberts, Feb. 4th; 205119 P. R. Hedges, Feb. 5th; 205532 F. C. Jones, 117034 D. Ramsey, Feb. 6th; 128570 H. B. Cochran, 20668 F. W. Harte, 17338 W. E. Slater, Feb. 7th; 175678 T. D. Beat, W. E. H. Caddy, 32633 C. J. Colling, 62080 W. E. Durre, 117419 C. F. Marsh, 176119 F. A. L. Roberts, Feb. 8th; 2490 S. Bever, 117095 F. H. Johnson, 130702 F. R. Pitts, 220301 J. B. Taylor, Feb. 10th; 176654 W. H. Driscoll, Feb 11th; 46784 A P T. Ireland, Feb. 12th; 19/900 F. H. Brisby Feb. 14th; 17922 N. A Rhys, Feb. 15th; 89033 P. G. Bannister, 117166 R. Carr, 62466 H. R. Cooke, 128605 R. St. C. Edwards, 128846 S. Farrer, 23570 A. A. Gill, 128383 C. D. Howells, 345547 E. Jones, 4355 J. H. Loomes, 10028 C. Newbould, 110782 C. Rowbotham, 137717 A. H. Warren, 97212 J. W. Warrington, Feb. 17th; 175427 L. J. Brake, 14027 W. Tranter, 110772 B A. Walkley, Feb. 18th; 90978 V. Byrne, 6989 J. L. Connor, 40668 G. S. Dobson, 137728 R. G. Foden, 110568 W. J. Keates, 110449 W. H Loveland, 110887 G. M. Rhodes, 281195 S. C. Smethurst, 137133 H. C. Steele, 128925 T. H. E. D. Turner, Feb. 20th; 26532 E. O. M. Allen, 175730 W. J. Borrowman, 58537 J. Boyack, 302296 G. D. Clegg, 117252 V. C. Crowe, 137528 H. E. Dexter, 117147 L. C. Dixon, 28658 R. A. B. Jaffray, 117463 K. J. Key, 117272 T. N. Sumpter, 20943 L. F. B. Thompson, 137052 R. H Winsor, 110773 F. W. Wrench, Feb. 21st; W/1827 K. W. Andrew, M2/018850 N. L. H. Burchell. 100366 F. H. Booth, 341385 H. Bridgeman, 28564 T. D. F. Byass, M2/082826 R. P. Clegg, 137695 D. E. Fox, 137356 W. J. Gadwell, 10/10466 W. H. Hatt, 535046 A. Haynes, 175525 W. A. Heighton, 36853 H. C. Ireland, 128761 J. Jones, 355557 F. Linfield, 35682 R. J. Lloyd, DM2/169607 H Ord-Smith, 205406 E. Palmer, 156395 W. J. Pulley, 59127 E. L. Read, 117546 J. W. G. Snook, 117279 H. F. Taylor, 137045 R. G. Wright, Feb. 22nd; 117608 R. A Jones, 137108 L. Slater, M2/209309 H. E. Walker, Feb. 24th; 304179 N. S. Gaylard, March 9th; 3325 G. M. Fitzgerald, 300626 P. T. Mercer, 5/97250 E. S. Smith, March 10th; 128394 C. Kenney, 128402 C. V. Mann, March 11th; 50909 T. W. Barker, 100349 J. H. S. Smith, March 13th; 085912 D. N. Braid, 241163 A. E. Forsyth, 901570 R A. J. Mullarkey, 110146 F. N. Martin, March 14th; 117554 C. Belgrove, 25220 S. G. Barnes, 128574 H. Cahill, 57713 A. C. V. Meads, March 15th; 24142 F. Booth, 2208 T. E. Lightfoot, 5/96533 A. L. B. Lacamp, March 17th; 203670 H. G Pounds, March 19th; 95394 E. Carrington, 137001 J. A. Goodwin, 31035 N. Ion, March 20th; 175299 J. R. Beard, 36708 W A. Shorten, 137459 G. E. Shaw, March 21st; 58656 C. L. Allingham, 137742 E C. Barnard, 137156 F. P. Bramwell, 137190 G. R. C. Dunhill, 37728 R G. Roberts, 128543 H. C. Simpson, 10/90434 D. L. H. Williams, 137053 W. E. Wilson, March 22nd; 128308 B. G. Savage, March 27th, 175368 A. W. Buck, March 28th; 779 E. F. Gill, March 29th; 175124 H. Hartley, April 31d; 137687 J. E. Day, April 4th; 1377363 S. G. Hooper, 85610 A. F. A. Tilley, April 8th; 128969 W. D. A. Emery, April 9th; R. S. Ross, April 14th; 40229 H. S. Ball, April 17th; G. Moss, April 26th; 348029 I. Vedmore, May 6th; 175818 F. T. Hill, May 20th

The following gentlemen are granted hon. commns. as Sec. Lts. :—A. G. Bethel, W. A. Dunhill, H. M. Lane, G Mitchell, G. F. Mullin, H. L. Overton, B. S Ryrie, J. W. Shand, E. Roberts, Aug. 5th.

Capt. F. W. I. V. Fraser, O.B.E., M.C (Capt., Seaforth Highrs.) relinquishes his commn. on ceasing to be empld., June 12th.

Transferred to unempld. list :—Lt. J. W Jones, from (S.O.), Feb. 16th; Maj. E. Hogg, from (S.O.), May 1st; Lt. F. Jewell, from (S.O.), June 1st; Lt.-Col. F. C. Shelmerdine, O.B.E., from (S.O.), July 9th.

The following Capts. (actg. Majs.) relinquish their commns on account of ill-health, and are permitted to retain their rank of Maj. :—A. E. Hawker, Feb. 5th (substituted for notification in "Gazette," Feb. 4th); F. le G. Gribble, from (S.O.), April 19th (substituted for notification in "Gazette," July 15th).

Lt. W. E. Rubens (Essex R., T.F.) relinquishes his commn on account of ill-health contracted on active service, July 1st.

AIR MINISTRY, August 8th.

R.A.F.—PERMANENT OFFICERS.—PROMOTIONS.—To be Air Commodores.—R. M. Groves, C.B., D.S.O., A.F.C., E A D. Masterman, C.M.G., C.B.E., A.F.C., Aug. 8th.

To be Group Capts.—P. L. W. Herbert, C.M.G., J. G. Hearson, C.B., D.S.O., E. R. Ludlow-Hewitt, C.M.G., D.S.O., M.C., U. J. D. Bourke, C.M.G., C. L. N. Newall, C.M.G., A.M., A. E. Borton, C.M.G., D.S.O., A.F.C., Aug. 8th.

The following appointments are made :—Deputy-Directors, 1st Class.—Group Capt E. R. Ludlow-Hewitt, C.M G., D.S.O., M.C., Group Capt. C. L. N. Newall, C.M.G., A.M., Aug 8th

The following temp. appointments are made :—Staff Officer, 2nd Class.—Maj. J. Gaskell-Blackburn, July 1st, from (S.O.), 1.

Staff Officer, 3rd Class.—Sec. Lt. (Hon. Lt.) L. Miller, Jan. 13th.

Air Attaché.—Lt.-Col. R. A. Cooper, D.S.O., May 1st, vice Lt.-Col. C. H. Meares.

FLYING BRANCH.—Capt. J. H. Green to be graded for purposes of pay and allowances as Capt. while empld. as Capt. (A.), May 1st.

Capt. J. H. Green to be graded for purposes of pay and allowances as Lt. while empld. as Lt. (A.), Sept. 27th, 1918.

Sec. Lt. F. C. Rayson to be Lt., May 28th.

Sec. Lt. S. C. Paice (late Gen. List, R.F.C., on prob.) is confirmed in rank as Sec. Lt. (A.), May 1st (since killed) (substituted for notification in "Gazette," June 3rd).

H. C. Harris is granted a temp. commn. as Sec. Lt. "O," Nov. 4th, 1918.

Lt. E. H. P. Jolley (Sec. Lt. (temp. Lt.) I.A.R.O.) relinquishes his commn. on reversion to I.A.R.O., Aug. 7th.

The following relinquish their commns. on ceasing to be empld. :—Lt. V. S. Bennett (Lt. (actg. Capt.), R. Newfoundland R.), July 3rd; Lt. S. B. Nelson (Lt., E. Ont. R.), July 23rd; Lt. W. G. Jewitt (Lt., E. Ont. R.), July 24th, Lt.-Col. E. B. Gordon, C.M.G., D.S.O. (Maj. and Bt. Lt.-Col., North'd Fus.), July 26th, Lt A. Rose, M.M. (Lt., Alberta R.), July 29th; Sec. Lt. (Hon. Lt.) A. H. Bill (Lt., Sask. R.), July 30th; Capt. S. H. Long, D.S.O., M.C. (Lt., D.L.I.), July 31st; Maj. A. V. Holt, D.S.O. (Capt., R. Highrs.), Aug. 4th.

Transferred to the unempld. list :—Lt. F. L. McCreary, M.C., Jan. 28th; Sec. Lt. R. Sheppard, Feb. 7th; Sec. Lt. A. Hill, Feb. 15th; Sec. Lt. C. W. Powell, Feb. 21st; Lt. F. R Pearce, March 7th; Lt. T. M. Thomson, March 15th; Sec. Lt. (Hon. Lt.) R. J. Hunt, April 9th; Lt. T. M. Jones, April 10th; Sec. Lt B. W. Jackson, Lt. S. Jolley, M.C., April 11th; Lt. O. W. Jones, April 13th; Sec Lt. H. J. L. Jones, April 14th; Sec. Lt. F. Stuart-Jones, April 15th; Sec Lt. W. A F. Jackson, Sec. Lt. F. L. James, Sec. Lt. H. L. Jones, Sec. Lt. D'A H. Jones, April 17th; Sec. Lt. A. Hirschberg, April 18th; Lt. R. J. T. Wray, April 19th; Capt. W. S. F. Johnson, Lt. (actg. Capt.) S. G. Wingfield, April 20th; Sec. Lt. E. C. F. D. Jacquier, April 26th; Lt. R. W. Cross, Sec. Lt. (Hon. Lt.) F. H. Johnston, May 1st; Capt. A. F. E. Jacob, D.S.O., May 2nd; Sec. Lt. J. A. Stewart, May 9th; Sec. Lt. J. B. Pearson, May 10th; Lt. J. H. James, May 14th; Capt. H. H. Booth, Sec. Lt. C. Turner, May 17th; Sec. Lt. C. N. James, Lt. S. A. Mowat, May 20th; Lt. A C. D. Anderson, May 27th; Lt. J. T. Johnson, June 3rd; Sec. Lt J. G. Angus (H.L.I , T.F.). Lt. F. C. Wood, June 4th; Sec. Lt. G. C. Jenkins, July 3rd; Sec. Lt. R. J. Joubert, July 4th; Sec. Lt. F. W. Seed, July 5th; Sec. Lt. R. C. Van der Ben, M.C., D.F.C., July 7th, Sec. Lt (Hon. Lt.) E. C. Crosse, July 9th; Lt. J. E. Robbins, Sec. Lt. J. Ramage, Lt. J. L. Rowe, Sec. Lt. J. R. Stephens, Sec. Lt. D. N. Taylor, July 10th; Lt. W. G. Stewart, July 11th; Sec. Lt. W. L. E. Carroll, Sec. Lt. W. Riley, Sec. Lt. R. B. Robinson, Sec. Lt. E. W. Roesch, Sec. Lt. J. W. Rowley, Sec. Lt L. I. Sangster, Sec. Lt. A. B. Taylor, Sec. Lt. B. H. Travis, July 12th; Sec. Lt. C. Stubbs, July 13th; Capt C. W. Scott, D.F.C., July 15th; ec. Lt. L. M. Pickwick, July 16th; Sec. Lt. F. G. Watson, July 18th; Lt L. G. Macklin, July 19th; Lt. H. F. Birchal, July 20th; Lt. H H. Blackwell, Lt. R. K. Morris, M.C., July 21st; Sec. Lt. E. A. Thompson, July 22nd; Sec Lt. P E. Olley, Lt. W. A. Pritt, July 24th; Sec. Lt. J. J. Marks, Sec. Lt. L. E. Russell, July 25th; Lt. V. E. S. Kirkpatrick, Sec. Lt. (Hon. Lt.) T. A. Tindle, July 27th; Sec. Lt. G. W. Minto, July 28th; Lt. W. E. Neville, Sec. Lt. J. W. Sampson, July 29th; Sec. Lt. R. C. Knowles, July 31st; Lt. F. H. Humphreys, Sec. Lt. J. P. Mills, Aug. 1st; Sec Lt. D. P. Pogson, D.F.C., Aug. 2nd; Sec. Lt. G. D. Ilsley, Sec. Lt. L. Jacobs, Sec Lt. G. Leslie, Sec. Lt. L. L. Locke, Lt. J. W. S. Mellish, Sec. Lt. B. B. Nelson, Sec. Lt. G. B. Nisbet, Sec. Lt. M. G. S. Parker, Sec. Lt. R. A. K. Wiener, Aug. 7th.

Lt.-Col. C. E. C. Rabagliati, M.C. (Capt., Bt. Maj., K.O.Y.L.I.), resigns his commn. and is permitted to retain his rank, Aug. 6th.

The following Capts. relinquish their commns. on account of ill-health and are permitted to retain their rank :—W. D. M Bell, M.C. (contracted on active service), April 11th, 1918; J. A. Hutchison, May 20th (substituted for notification in "Gazette," Jan 24th).

The following Lts. relinquish their commns on account of ill-health and are permitted to retain their rank :—F. N. Grimwade, April 18th, 1918 (substituted for notification in "Gazette," Sept. 6th, 1918); R. Coop (caused by wounds), June 6th.

Lt. S. Carlin, M.C., D.F.C., D.C.M. (R.F., T.F.), relinquishes his commn. on account of ill-health contracted on active service, Aug. 7th.

Lt. W. L. C. White to take rank and precedence as if his appointment as Lt. bore date Oct. 1st, 1918.

The initials of Lt. F. P. O. Mann are as now described, and not "F. O." as stated in "Gazette," June 17th.

The notification in "Gazette," March 21st, concerning Sec. Lt. W. S. Vipond (Lt., Canadians) is cancelled.

The notification in "Gazette," April 8th, concerning Lt S. D. Morrison (Nova Scotia R.) is cancelled.

The notification in "Gazette," July 15th, concerning Capt. G. H. Morton (Brit. Col. R.) is cancelled.

ADMINISTRATIVE BRANCH.—Sec. Lt. (Hon Lt.) E. Meynell, D.C.M., to be actg. Capt. while empld. as Capt., May 1st.

Lt. H. Harker to be Lt., from (A.), July 25th.

F. R. C. Davidson (Lt., Montgomery Yeo., T.F.) is granted a temp. commn. as Lt., Aug. 1st, 1918, with seny. from April 1st, 1918.

The following relinquish their commns. on ceasing to be empld. :—Capt. (Hon. Maj.) H. R. P. Reynolds (Capt. (Bt. Maj.), R.E.), June 17th; Lt. J. E. H. Bibby, June 30th.

Transferred to unempld. list :—Sec. Lt. W. Price, March 21st; Sec. Lt. G. W. Arnold, April 20th; Sec. Lt. P. E. Jackman, April 30th; Lt. R. N. Preece, May 9th; Sec. Lt. C H. Rice, May 20th; Sec. Lt. A. N. Jackman, May 31st; Lt. G. G. Raphael (Lond. R., T.F.), June 21st; Sec. Lt. J. T. White, June 30th; Sec. Lt. J. Symington, Sec. Lt. C. I. Sandys-Thomas, July 10th; Sec. Lt. J. E. Belford, July 18th; Capt. P. Musker, July 24th; Lt. H. C. House, July 25th, Lt. W. T. Bassett, Sec. Lt. R. I. Philip, July 30th; Lt. R. G. Taggart, Capt. O. Williams, Aug. 1st; Lt. G. A. Kinmont, Lt. A. N. Nesbitt, Sec Lt. P. G. Pollard, Aug. 7th.

Sec. Lt. I. MacK. Lockhead relinquishes his commn. on account of ill-health, and is permitted to retain his rank, July 29th.

The rank of Lt. H. A. Maynard is as now described, and not Capt., as stated in "Gazette," June 17th

The notification in "Gazette," June 17th, concerning Lt. L. H. Hillier is cancelled.

The notification in "Gazette," June 22nd, concerning Lt. (Hon. Capt.) T. E. Gentles is cancelled.

TECHNICAL BRANCH.—Maj. S. S. Nevill, O.B.E., to be actg. Lt. Col. whilst empld. as Lt.-Col., Grade (A.), May 1st.

Lt. C. H. Boyle to be actg. Capt. whilst empld. as Capt., Grade (B.), May 29th.

Lt. L. H. Hillier to be Lt. (Grade (A.), from (A.), Sept 23rd, 1918.

Sec. Lt. J. Penrose to be Lt., without pay and allowances of that rank, Jan. 15th.

Sec. Lt. (Hon. Lt.) (actg. Capt.) F. McGuffie to be Sec. Lt. (Hon. Lt.), Grade (B.), and to relinquish the actg. rank of Capt., from (S.O.) March 5th (substituted for notification in "Gazette," July 29th).

Transferred to unempld. list :—Lt. J. L. Smith, M.C., Jan 27th; Lt. (actg. Capt.) W. F. Mytton, March 11th; Sec. Lt. (Hon. Lt.) A. K. H. Maitland, March 15th; Maj. J. W. K. Allsop, Sec. Lt. (actg. Lt.) H. Wilson, April 11th; Lt. D. J. A. O'Brien, April 17th; Sec. Lt. R A. Stoker, April 20th; Lt. S. Lynn, June 11th; Capt. G. E Quincey, June 27th; Lt. E. O. Jones, Sec. Lt. C. C. V. Roebuck, July 1st; Lt. R. G. Whitcombe, July 21st; Lt. J. A. Armstrong, July 24th; Lt. C. B. Loweth, July 27th; Lt. E. Mull, Aug. 1st

Maj. E. J. Parker, M.C., to take rank and prec. as if his appointment as Maj. bore date Oct. 1st, 1918

Sec. Lt. J. P. Clark resigns his commn., Aug. 9th.

The surname of Lt. H. W. K. Jennings is as now described, and not "Jellings" as stated in "Gazette," June 3rd.

The rank of Lt. E. P. Proud is as now described, and not as stated in "Gazette," April 4th

The notification in "Gazette," April 4th, concerning Lt. W. F. Mytton is cancelled.

The notification in "Gazette," July 1st, concerning Lt. J. Hooper is cancelled. The notification in "Gazette," July 11th to stand.

MEDICAL BRANCH.—Lt.-Col. H. E. South (Fleet Surgeon, R.N.) relinquishes his commn. on ceasing to be empld., May 19th.

Transferred to unempld. list :—Capt. T. H. James, June 22nd; Capt. (actg. Maj.) C. J. G. Taylor, Aug. 1st

RECRUITING IN THE ROYAL AIR FORCE.

It is now desired that in order to complete existing establishments in the Royal Air Force, an additional 15,000 skilled men should be enlisted within the next three months. The men selected will be of good character who will help to make the Royal Air Force the great Service it is intended to be in the future.

There are many reasons why men skilled in aeronautical trades should consider seriously the desirability of joining the Royal Air Force.

The pay offered is equal, if not superior, to that offered in civil life. The permanence of employment is assured with the certainty of an adequate pension to those who remain the allotted time in the Service. Food, clothing and medical attendance, expensive in civil life, cost nothing to those in the R.A.F.

The prospects of employment under present conditions in civil aviation are not good, and it is likely that many good men may, from lack of aeronautical work, drift into other trades totally unconnected with the Industry in which their interest lies.

Civil aeronautics will improve rapidly, and, in the course of a few years, there will be many opportunities of obtaining good positions in the Aircraft Industry for those who have used their time in the Royal Air Force to the best advantage.

THE BRITISH WAR MEDAL.

The Air Ministry made the following announcement on Aug. 10th :—

A preliminary issue of two inches of the riband will be made to all Air Force personnel who are entitled to the British War Medal, on the understanding that such issue does not confirm the title of the recipient to the subsequent award of the medal.

In view of the numbers entitled to participate in the issue, some considerable time must necessarily elapse before the issue is completed. Every effort is, however, being made to accomplish this as soon as possible.

Officers demobilised or invalided should make application to the Secretary, Air Ministry, stating full particulars of their services.

Discharged and demobilised airmen should apply to the Officer i/c Records, R.A.F., Blandford, as follows :—

(a) Those resident in Great Britain, Ireland, Channel Islands and Isle of Man, on the special R.A.F. post-card (F.S. Form 758) obtainable at any post-office.

The Army post-card (Army Form W 5100 A) will not be accepted, neither will any other form of application.

(b) Those resident abroad, by an ordinary letter giving full particulars regarding official number, rank, unit in which last served, and the address to which the riband should be sent.

Discharged and demobilised members of the W.R.A.F. should apply by letter giving full particulars of their service, to the Officer i/c W.R.A.F. Records, 15, St. George's Square, S.W.1.

Members of women's formations who have been employed under a direct contract of service with the R.A.F. Medical Service should apply to the Secretary (D.M.S.) Air Ministry.

Officers and men of the R.N.A.S. who were discharged prior to April 1st, 1918, and those who did not transfer to the R.A.F., will be dealt with in an Admiralty announcement which will be published in due course.

A FINANCIAL APPOINTMENT.

It is announced by the Air Ministry that the Marquess of Londonderry, Finance Member of the Air Council, has appointed Mr. E. F. Cliff to be his Private Secretary, vice Capt. Lord E. A. Grosvenor, R.A.F., with effect from July 22nd, 1919.

THE PIGEON SERVICE R.A.F.

The Air Ministry has recently issued an official handbook on the work of the pigeon service during the war. The handbook, which is entitled "The Pigeon Service Manual," is obtainable from any bookseller, and is a comprehensive book on pigeons.

Attention is once more drawn to the fact that owing to the use of messenger pigeons by the Royal Air Force it is exceedingly thoughtless—to say the least of it—of persons to shoot pigeons, and in the future, when commercial aircraft also use these birds, it will be still more so. The R.A.F. has no intention of disposing of its pigeons.

EVACUATIONS.

The Hotel Cecil, the only hotel now occupied by the Air Ministry, will be relinquished during the week. The offices at 5, John Street, Adelphi, were relinquished on Aug. 9th. Out of the 2,143 hired premises occupied by the Air Ministry at the Armistice 1,899 had been given up by Aug. 1st.

Major-General Seely states that between July 2nd and Aug. 6th this year one aerodrome, five seaplane stations, and 13 landing grounds have been given up, making a total of 52 aerodromes, 11 seaplane stations, and 147 landing grounds surrendered since the Armistice.

RUSSIA.

OFFICIAL COMMUNIQUES (BOLSHEVIK).

UNDATED.—In the Gulf of Finland, enemy aeroplanes dropped bombs on the Fortress of Kronstadt.

AUG. 9th.—Eastern Front.—Enemy aeroplanes have dropped 100 bombs on the town of Cherny-Yar.

PERSONAL NOTICES.

MILITARY.

MARRIAGES.

BELL-IRVING—PYBUS.—On Aug. 5th, at Vancouver, B.C., Major Allan Duncan Bell-Irving, M.C., Croix de Guerre, Gordon Highlanders and R.A.F., was married to Mary E. Keith Falconer, daughter of Commander H. Pybus, R.N.R., and Mrs. Pybus, Vancouver, B.C.

MATHER—WHITLOCK.—On Aug. 2nd, at St. Martin-in-the-Fields, Harry Mather, late Lieut., R.F.C., eldest son of Walter Mather, Esq., Brierfield, was married to Chôtee, elder daughter of Lieut.-Col. G. F. A. Whitlock, C.B.E., R.E., 30, Winn Road, Southampton, by the Rev. H. T. Matthews.

MAUDUIT—BROOKSBANK.—On Aug. 7th, at St. Andrew's, Middleton-on-the-Wolds, Capt. R. F. S. Mauduit, M.C., late R.F.C., son of Lieut.-Col. Mauduit, was married to Irene Helen Brooksbank, daughter of the late Capt. A. H. Brooksbank and Mrs. A. H. Brooksbank, of Middleton-on-the Wolds, by the Right Rev. the Bishop of Hull, assisted by Canon Blakeney and the Rev. E. T. Wilson, Rector.

SPENCER—PATTMAN.—On Aug. 6th, at All Saints', Scarborough, Lieut. Lionel R. V. Spencer, Aust. F.C., son of Mr. R. Spencer, of the Old White Hart Hotel, Melbourne, was married to Dorothy Cecelia, eldest daughter of Mr. G. T. Pattman, the eminent organist, and Mrs. Pattman, by the Lord Bishop of Aberdeen, assisted by the Rev. W. F. Ramsden.

ENGAGEMENT.

SHIRLEY—PARNALL.—The marriage arranged between Capt. J. L. Shirley, M.C., late 34th Squadron, R.F.C., and Miss Kathleen Parnall, of Rugby, will take place at the Parish Church, Rugby, at 12.30 p.m. on Tuesday, Sept. 16th.

AIR FORCE.

DEATHS.

HALL-SMITH.—Lieut. Phil Hall-Smith, R.A.F., who died on Aug. 1st as the result of aeroplane accident at Leuchars Aerodrome, Fife, was 30 years of age.

LUPINSKY.—A verdict of "Accidental Death" was returned at Doncaster on July 28th in an inquest on the body of Lieut. Lupinsky, a Russian flying officer, who was struck by an airscrew and killed on the Doncaster Aerodrome on July 26th, when preparing to return to Tadcaster.

ROBERTS AND IRELAND.—On July 31st, Sec. Lieut. W. A. Roberts, R.A.F., of Shirebrook, Derbyshire, the pilot, and Sec. Lieut. Edward Ireland, R.A.F., of Liverpool, the passenger, were killed at Cranwell Aerodrome, Lincolnshire, while flying a Bristol Fighter (250 h.p. engine, type unknown).

At half-past two o'clock they ascended for a flight to Liverpool, taking off against a slight head wind. When about 200 feet up the pilot banked at a steep angle, and before the machine could recover it side-slipped, crashed to the ground, and burst into flames.

The squad of men who had assisted in preparing the flight immediately went to the assistance of the aviators, but it was found impossible to extricate them. The machine was a complete wreck, and the death of the two occupants must have been instantaneous.

TONKS.—Capt. Adrian James Boswell Tonks, D.F.C. and Bar, R.A.F., who died on July 14th at Raseltin Hospital, Alexandria, from injuries in a flying accident, was the youngest son of Mr. and Mrs. Arthur George Tonks, 31, Addison Mansions, Kensington, W.14.

BIRTH.

BOOTH.—On July 18th, at Heathfield, Shortlands, to Winnie (née Cowen), widow of Sec. Lt. Sydney Edwin Booth, R.A.F., a daughter—Audrey Sydney.

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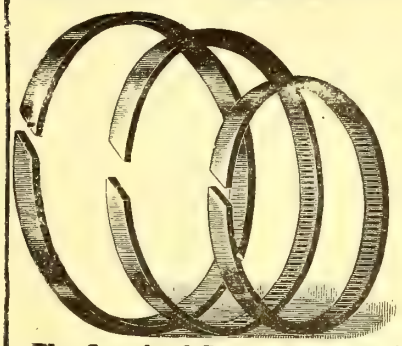

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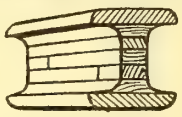
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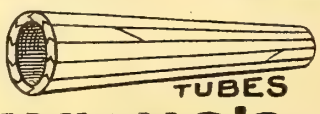
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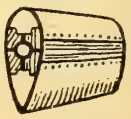
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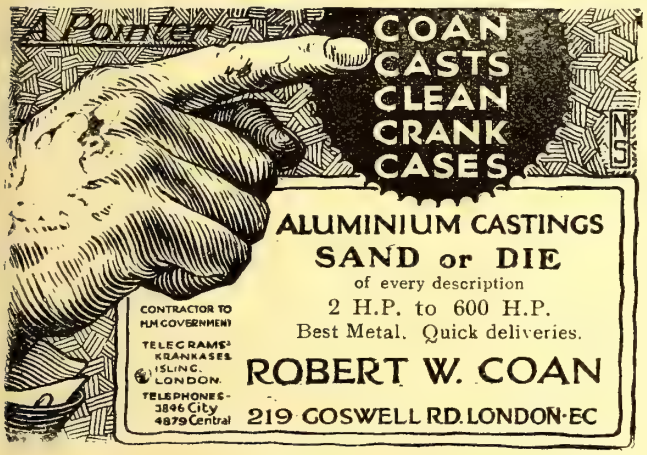

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Edited by C. Grey

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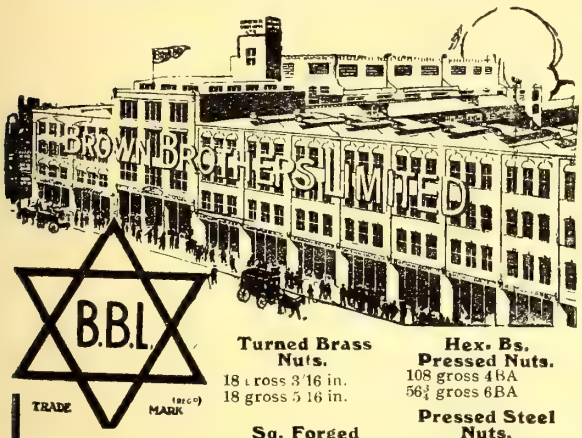

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D.H.4	**Observation day bombing**	**1191**	**842**
Spad	Pursuit	27	—
Le Pere	Service	18	—
Handley Page	Bomber	4	20
S.E.5	Advanced training	46	57
J.N.6-H	Advanced training	653	156
S.4-C	Advanced training	400	—
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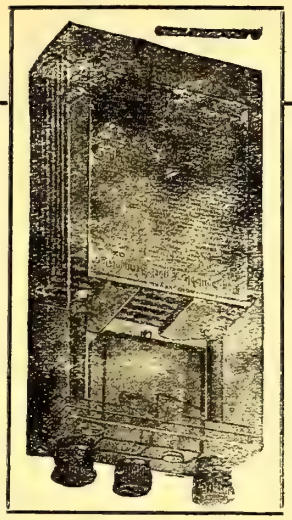

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AUGUST 20, 1919.

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ON THE HARMSWORTH PRESS AND THE R.A.F. VOTE.

Naturally none of us who is concerned with aeronautics sets much store by the opinions of Lord Rothermere, whose operations as our first Air Minister gave all of us a pretty fair measure both of his incapacity as the chief of a Government department and of the curious methods by which he conducts official business. Unfortunately, however, Lord Rothermere either directs or influences a good many newspapers, which by reason of their big circulation carry influence among the bulk of the unintelligent population.

One recalls that caustic remark of the *Morning Post* some years ago, when it referred to the period before the war "when Lord Northcliffe started the *Daily Mail* for people who could not think, and Lord Rothermere started the *Daily Mirror* for people who could not read." The people who cannot think or cannot read hold the majority of votes in this country, and consequently when Lord Northcliffe and/or Lord Rothermere set forth on a campaign—no matter how wrong-headed—there is grave danger of their unintelligent or illiterate followers enabling them by sheer weight of numbers to do great harm to the King's Services.

A Campaign of Misrepresentation.

At present it is believed that Lord Northcliffe is out of the country, therefore it seems fair to attribute to Lord Rothermere the campaign against the present Chiefs of the Royal Air Force which began in the *Times* on Aug. 15th and continued in the *Sunday Pictorial* of Aug. 17th. It would appear that the Harmsworth Press is starting another of its attempts to wreck a man or an institution on whom or on which the public weal depends.

The former paper protested against the sum of £25,000,000 per annum being voted for the R.A.F., and pointed out that this was only £4,000,000 less than the pre-war Army vote. To any moderately intelligent person this would appear as a complete *non sequitur*, in that the R.A.F. after the war bears no relation whatever to the Army before the war—especially in view of the fact that the Harmsworth Press was the most vigorous, at the time when the R.A.F. was being formed, in arguing that the Air Force must be quite independent from the Army and was in fact much more important. Indeed, one might quite easily quote the Harmsworth Press in favour of an argument that the R.A.F. Vote should be bigger than those of the Navy and Army combined.

Furthermore, the *Times* protested against Mr. Churchill's budgeting for his Departments on the assumption that £25,000,000 to-day is only worth what £12,000,000 was worth before the war, and suggested that Government Departments should base their finances on the pre-war value of money. One can scarcely imagine the *Times* of the late Mr. Delane publishing such a futile argument or displaying such lamentable ignorance of history, but it is scarcely worth while arguing with the Harmsworth Press of to-day on any subject requiring education either in history or economics. One may, however, inquire whether the *Times, Mail, Sunday Pictorial, Daily Mirror*, etc., operate on pre-war prices? If so, why do we pay a penny for a ha'penny *Mail* and threepence for a penny *Times*?

Lord Rothermere's Attack.

Lord Rothermere's personal part in the attack began in the *Sunday Pictorial* of Aug. 17th, in an article under his own signature. He stated therein that it was possible to maintain an Air Force of 20,000 men on a vote of £10,000,000 per annum, which would provide 25 squadrons each of 20 aeroplanes of the most modern type, "and there would be plenty of money left to build up a fine auxiliary service, similar to the R.N.V.R., from the many civilian airmen and mechanics."

In that one short paragraph Lord Rothermere exposes his lamentable ignorance of aviation, aircraft, finance, foreign policy, the British Empire, and the English language. One would willingly give a few years of one's life for the privilege of dealing faithfully with Lord Rothermere's statement in those numerous papers which are read by the uneducated majority of the King's subjects. As it is, one can only do so briefly in this paper, where one is preaching to the converted. Still, a few points may be useful to one's readers when they are drawn into argument with the ignorant.

How the Money Goes.

Firstly, 25 squadrons of 20 aeroplanes apiece means 500 aeroplanes. These entail 500 more in reserve. Which means 1,000 aeroplanes. At the moderate price of £5,000 apiece (to include big bombers and flying boats at £20,000 or £30,000 each as well as school machines at £1,500) that means £5,000,000 out of Lord Rothermere's ten millions.

Secondly, 25 active-service squadrons have to serve—both for sea and land, remember—all our Naval and Military stations abroad as well as at home. How would Lord Rothermere distribute 25 squadrons between India, Burmah, Hong-Kong, Mesopotamia, Syria, Egypt, Aden, Malta, Gibraltar, British East Africa, British Central Africa, Somaliland, the Soudan, West Africa, Nigeria, and a few other odd places where British troops are permanently stationed, and where, consequently, there must be detachments of the R.A.F.?

Also when he has distributed his 25 squadrons—apparently at the rate of about two machines per military station abroad—what is he going to do about air stations at home, and about R.A.F. detachments with the Fleet?

Cost of Upkeep.

At a very moderate estimate of post-bellum prices and rates of pay his 20,000 men are going to cost him £300 apiece for pay, and food, and uniforms and lodging, so that is another £6,000,000 out of the ten millions. Thus Lord Rothermere has already spent a million over and above his estimate before he has even begun on such things as administrative expenses, armament, petrol and

oil, transport, travelling, shipping, maintenance of aerodromes, or the pay and allowances of officers.

From this one may form some estimate of Lord Rothermere's capacity for managing any ordinary business, let alone one of the King's Armed Services on which the welfare of the Realm depends. One can only be thankful that his term of office as Air Minister was so short. Heaven knows, his Fleet Street methods did enough harm at the Air Ministry as it was, but only now does one realise how lamentable it would have been if he had remained in office.

That Resignation.

His resignation apparently saved the R.A.F. in the Field from utter disaster. When Lord Rothermere resigned his retirement was ascribed officially to an attack of bronchitis. A cynical official remarked at the time, "Bronchitis is sometimes caused by cold feet and exposure." Certainly no exposure could be so complete as that which Lord Rothermere has made of his own ideals and methods in that one brief paragraph in the *Sunday Pictorial*.

Peace and Retrenchment are excellent companions after a great and expensive war. But Folly and Meanness combined in time of peace—a peace in which over 20 wars are still raging—can only mean the ruin of the British Empire just when it is most necessary to maintain our prestige as a Great Power.

Underlying Motives.

In politics no weapon is too dirty for use, and it seems that all these attacks on the administration and organisation of the R.A.F. are part of the political game. Whether the attack is on Mr. Churchill in his dual capacity as War and Air Minister is not quite clear, but one thing does seem quite clear—namely, that Lord Rothermere is determined to undermine the position of Sir Hugh Trenchard, Chief of the Air Staff.

It will be remembered that Lord Rothermere's methods caused the resignation of General Trenchard early in 1918, but that Sir Hugh's public reputation and the esteem in which he was held by the personnel of the R.A.F. was greatly enhanced by the storm raised by his resignation, and that ultimately that same storm forced Lord Rothermere to resign. There seems, then, only too much reason for the popular impression that this present attack on the R.A.F. is influenced by a desire on the part of Lord Rothermere to "get his own back."

Perhaps this impression is unjust to Lord Rothermere, but it is evident that if the Air Force Vote is cut down owing to these attacks to a point at which it is impossible to organise an adequate and efficient nucleus Air Force—for it can be nothing more, even on £25,000,000 per annum—the Chief of the Air Staff and all those officers who are so loyally supporting his efforts must of necessity resign in order to save their reputations and to avoid being associated with what must obviously be a disastrous failure. If they go, the whole R.A.F. will fall to pieces, for nothing but the personal loyalty of the better-class officers to Sir Hugh Trenchard and his Staff is holding the Force together to-day. Then the Navy and the Army will have to start again from the beginning to build up their own air services, and the remains of the R.A.F. will become a mere mockery, and a very real waste of money.

An Unfortunate Connection.

The *Times* attack is accompanied by an unfortunate chain of circumstances which have given rise to another impression which should be removed as soon as possible. One mentions no names, because one has a high regard for the officers concerned, and though they will be recognised at once by those "in the know" it seems unnecessary to give their names to those who are outside.

The *Times* is advised on technical aeronautical matters by a distinguished officer who did much good organising work during the war, and was at one time closely associated with Lord Rothermere. His success in the R.F.C. was largely due to the high quality of the work which he did on the staff of a General Officer who was responsible for a very great share of the victory of the R.F.C., and later of the R.A.F. in the Field. It is somewhat natural, therefore, that those who only know so much should assume that the attack in the *Times* is influenced by a desire to further the interests of that General Officer.

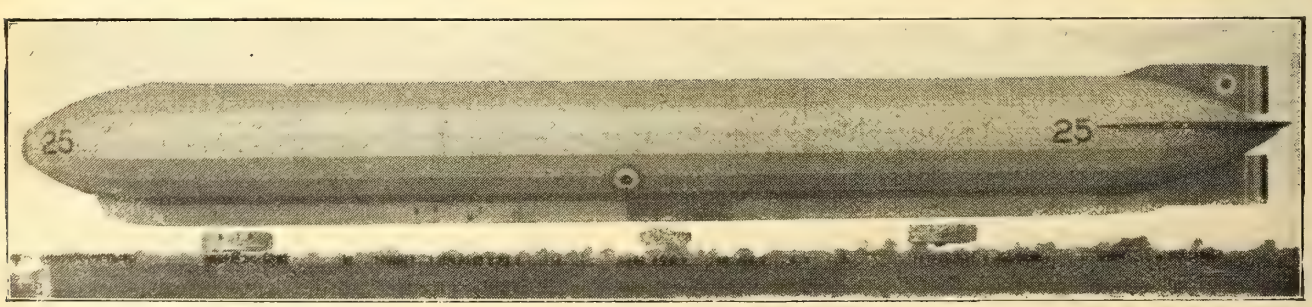
Knowing something of the loyalty of both these officers to the present Chief of the Air Staff in the old days, one personally refuses to believe that either of them would be a party to any attack which would make the task of organising the post-bellum R.A.F. more difficult than it is. But it would be well for both if it were made quite clear that the officer who has turned journalist disagrees entirely with the policy of decreasing the R.A.F. Vote in obedience either to political agitation or to personal influence inspired by individual animosity.

The position is one of very great difficulty, but there are times when a man has to sacrifice material benefits for the sake of his loyalty or of his personal honour. And this appears to be one of them. Otherwise people who are only partly cognisant of the facts are bound to impute to internal intrigue some of the responsibility for these latest attacks.

A Plea for Loyalty.

Those who wish well to the R.A.F. and its great chief can fight political agitators and personal attacks by outsiders (in whatever sense one cares to interpret the word), but a house divided against itself cannot stand. And if the R.A.F. is to exist as a separate Third Service it can only weather the present storm if all within it are loyal to the existing administration.

Personally, one still believes that for purely tactical uses the Navy and the Army should have their own Air Services and their own lines of supply of aircraft. But one realises that a separate Air Force is desirable for purely aerial operations. One believes that if this Empire is to retain its position in the world it must hold the Command of the Air as it held the Command of the Sea. And such Command can only be held by an adequate, an efficient, and a loyal Air Force. Let all those who have their King and Country at heart work together for that end.—C. G. G.



R25—A sister ship of R23, R24 and R26—of the external girder keel type.

ON AIRSHIPS.

Frankly one knows very little about airships. The work of editing this number of The Aeroplane has taught one far more about the design, construction, and operation of airships, and about the types of ships now in being, than one knew before. One hopes therefore that the readers of this paper, who are mostly concerned with aeroplanes, will find the contents of this present issue as informative as have the editorial staff. The thanks of the readers and the staff alike are due to the various airship firms which have contributed so much valuable information and so many interesting illustrations for the benefit of the world at large, and one hopes that the resultant publicity will help materially in making better known the claims of the airship on the attention of those who hope to develop aerial transport and travel.

The One Drawback.

There can be no disputing the fact that for long-distance non-stop journeys the airship has great advantages over the aeroplane. Personally one is not enamoured of the idea of hanging below or sitting on top of a mass of highly inflammable gas for several days at a time, especially when that mass of gas is driven by engines of a highly explosive character. Nevertheless the records of airships in the war go to prove that the double risk of fire from the engines and fire from the envelope is much less than might be imagined.

If and when helium gas can be produced on a commercial basis, and the common petrol engine has been superseded either by a heavy-oil Diesel-type engine or by an ammonia turbine, then the airship will be the ideal vehicle in which to travel. Long before the war the Zeppelins proved that an airship can be wrecked either in a forest or on bare rocks without harm to passengers or crew. The only genuine danger in airships is the danger of fire. When once that danger is abolished the airship will be the safest vehicle in the world.

The Task of the Scientist.

Therefore one advocates most strongly that those eminent scientists who are investigating and experimenting with airships should devote far more attention to these subjects than to the improvement of existing engines or to the production of fabrics which are impermeable to hydrogen. It will be better to abolish the causes of fire than merely to try to prevent its occurrence.

Till that has been done the airship will never be a commercial success. As soon as it has been done there will be no difficulty whatever in finding all the capital needed for the establishment of airship lines all over the world. When the non-inflammable airship has been produced airships will soon become as common as steamships, or even commoner, for they will cover the earth as well as the sea.

Blimp-Yachting.

The big airships will naturally be the property of the various States, or of big transport lines, for their cost will be too great for even a millionaire, but the small ships, of the S.S. Class, commonly known as "Blimps," and even the larger ships of the N.S., or the Italian M. Class, may very well appeal to the private owner who in these days keeps a yacht. In fact it is surprising that no well-to-do person has yet acquired a private airship, considering that they can be bought so cheaply from the Disposal Board.

Not long ago an eminent airship officer proposed quite seriously to try and form a "Blimp-yacht Club." His idea was that a number of fairly wealthy men should join together and buy one of the disused R.A.F. airship stations, such for example as Polegate—which is easily reached by road or rail from London. There they would keep a number of small ships and spend their week-ends "yachting" over the South Downs.

The prospect is distinctly alluring, for the small airship can do things which the aeroplane can not. The downland of England or the mountains of Scotland or Wales are about as interesting as the Fen Country when seen from a height at which it is safe for an aeroplane to fly over them. The airship, on the other hand, can paddle about just over the tree-tops, or along the middle of valleys, so that views can be seen from it which are unobtainable in any other way.

Even if an aeroplane pilot foolishly takes the risk of flying so low he must tear along at 60 miles an hour or more, whereas an airship can remain stationary over one point if so desired. Consequently as a pure pleasure vehicle the small airship combines all the pleasures of yachting and motoring without the discomforts of either.

As in the case of the big ships the only danger is fire. This danger must be overcome before Blimp-yachting can become popular, but even as things are, there is no doubt that a Blimp-yacht Club might be made a genuine success if taken in hand by energetic people.

In fact one believes that if a well-run business firm took the matter in hand and bought a number of disused Blimps, it could make a commercial success of a kind of combined Blimp-yacht Club and a "joy-ride" concern. Many thousands of those who have tried aeroplane joy-riding as a sport would try Blimp-yachting as a novel experience, and would find that actually it is a more pleasurable form of amusement than aeroplane flying, though obviously very inferior as a means of quick communication.

A Clear Future.

Admittedly airships are still in their infancy, though certainly a 600 ft. infant which travels to America and back is a fairly healthy affair. There are many developments to take place before we travel by airship in the same casual way as we travel by sea-ship. But those developments are plainly to be seen ahead, so the future of the airship does not depend on unknown factors, but simply on the energy, enterprise, and faith in aeronautics of those who are to-day responsible for airship development.—C. G. G.

R27.—The first of the R23X Class, British rigid ships without extenal keel. The centre car has been replaced by "wing" cars containing one engine apiece.

THE GOVERNMENT AEROPLANE COMPETITION.

The announcement made by Major-General J. E. B. Seely, C.B., C.M.G., D.S.O., Under-Secretary of State for Air, that the Department of Civil Aviation proposes to offer prizes to the aggregate amount of £64,000 for aeroplanes suitable for commercial purposes, with a special eye to the development of safe and comfortable machines, will naturally arouse some interest. Unfortunately no details of the proposed competition are vouchsafed, and it is impossible to judge of the results likely to be produced.

£64,000 is a useful little sum. Wisely expended in the form of rewards for good work, it may produce a very appreciable effect on the development of commercial aviation in this country; but by itself it will not keep the British aircraft manufacturers going for long. At best it can only be an encouragement.

Many of the readers of THE AEROPLANE will remember the Military Aeroplane Trials of 1912, upon which both British and foreign aircraft constructors spent much time, money, and trouble in the belief that a good showing there would secure substantial orders from the British Government.

In the result the late Mr. S. F. Cody reaped a well-merited, if inadequate, reward for his patience and perseverance, and the remaining competitors were the worse by approximately the cost of competing.

If the Department of Civil Aeronautics is to follow in the footsteps of its military predecessor of 1912, and if British aircraft manufacturers are to be treated in the same shabby way as they then were, one can expect no good to come of the competition.

If, on the other hand, the conditions are so drawn up as adequately to encourage the development of types of aircraft which shall really be valuable for commercial purposes, and if there is really an undertaking that the Department of Civil Aviation will take proper steps to assist competitors in securing some real reward in the shape of orders, the competition deserves every support.

It does not seem probable that the Air Ministry can itself give orders for commercial aircraft, but it may influence other people. It is surely not possible that Major-General Seely has succeeded in awakening the Postmaster-General, but he may do so by sufficient assiduity.

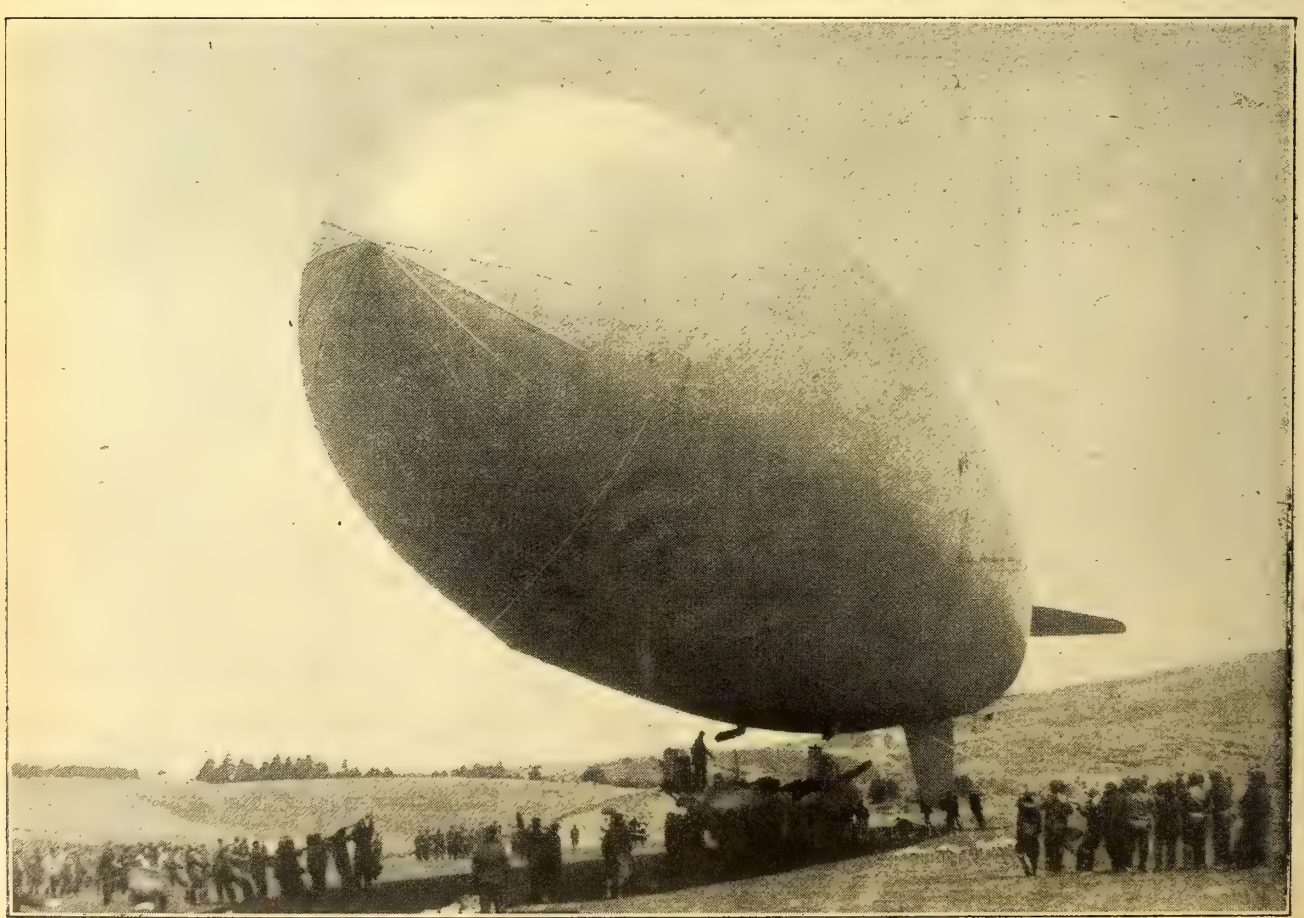
ANOTHER HONOUR.

All will rejoice at the further honour conferred on the Royal Air Force by the promotion of Sir Hugh Trenchard, Bart., K.C.B., D.S.O., to the rank of Air-Marshal. This promotion gives Sir Hugh equivalent rank to a Lieut.-General in the Army, and raises the R.A.F. to the dignity of an Army Corps of the Army.

The only fly in the ointment is the fear lest the present ill-advised campaign for economy—which appears to be degenerating into a war of personal interests—should leave the Air-Marshal without an Air Force to marshal, for if the Air Force Vote is to be reduced below £25,000,000 the Air Force is likely to become an organisation like unto the armies of Central American States, consisting of many Generals and a few sentries.

THE ABANDONMENT OF AIRSHIPS.

It is alleged that the whole airship construction programme is to be abandoned and that the existing airship stations and airships will carry on as best they can with "nucleus crews." This would be quite in accord with the best Lloyd-Georgian methods. As there is not likely to be any demand for airships in war during the lifetime of most members of the present Government, abolish airships and let posterity build its own. As a famous politician of the past is reported to have said:—"Damn posterity! What has posterity done for us?"



THE U.S. AIRSHIP SERVICE.—A "C" Class ship on the ground. The method of attaching the head-rope is noteworthy.

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AIRSHIPS IN THE WAR—AND THE FUTURE.

By Peter Geoffreys.

Before the war it was not unusual to regard the airship as something in the nature of an extravagantly impracticable mammoth, possessing a large and costly appetite, a delicate constitution and negligible utility. It was also thought that the airship, like the mammoth would meet an early termination of its existence as the inevitable consequence of misevolution. Nevertheless the airship is still with us.

The Naval Aspect.

In the naval side of the war to which the activities of airships have been generally confined, the results produced by airships in their proper sphere, have not only justified their existence, but have earned for them an established place in naval strategy, with possibilities for future development wider and very much more easily realisable than those in prospect for heavier-than-air machines.

Unhappily, during the war, the enemy enjoyed the advantage of preponderating strength in rigid airships capable of extended action with a fleet at sea, and hostilities ended just too soon to allow British effort to take effect.

For three years Germany was able to maintain almost unhindered aerial reconnaissance with Zeppelins over the North Sea, excluding coastal patrols. Lord Jellicoe in his book has indicated the extent to which this advantage might have assisted a more offensively inclined enemy.

In certain circumstances, Lord Jellicoe pointed out, a rigid airship may have the value of two cruisers. This comparison, one might add, refers to the highly developed modern cruiser in relation to the present type of rigid airship, which has scarcely passed from its teething stage.

In the Atlantic?

Naval warfare of the future, it may reasonably be supposed, will be subject to modification. The capital ship must always be a decisive factor, but it is probably correct to prophesy that the duties of the smaller fry of seacraft will be increasingly usurped by aircraft; primarily by rigid airships by virtue of their superior air endurance.

The rate of development, as regards airships, may be partially dependent upon a rather indeterminable factor—non-inflammable gas. According to official announcements in the United States, helium gas is already being produced in fairly large quantities in Texas. Whether supplies will be available for British airships, and whether other sources for its production, as yet unknown, may be discovered are questions for the future. Newspaper reports suggest that helium has been recently found in Canada.

The future of non-rigid airships in war is less easy to predict. The non-rigid type appears to have little value for any other naval or military purposes than submarine hunting, in military operations against semi-civilised tribes and to a limited extent for training the personnel of rigids. As it is possible that submarine warfare may in future be banned by the League of Nations, the most important of these functions may cease to exist. In any case, non-rigids can be built by one country as fast as another can turn out submarines. Possibly the development of a satisfactory system of towing non-rigids from seacraft might create a new and important function for small airships.

In peacetime, Service non-rigid airships may, it is proposed, be employed in connection with colonial photographic surveys, for which purpose they are very well suited. The field for activity in this direction is enormous. India alone among the Dominions and Crown Colonies has as yet received exact topographical survey, and incidentally, of the whole land surface of the world only about one-sixth has been exactly surveyed.

British Non-Rigid Development.

British progress in airship design has proceeded in two parallel lines, allied but virtually independent, in the development of the non-rigid and rigid types.

To those associated with the non-rigid school the more credit is due, for as a result of their work, conducted without contemporary assistance or influence, the British non-rigid is the finest for its size in the world, superior in many respects to the Italian semi-rigid vessels of considerably longer pedigree.

It has often been said, apropos of locomotive design, that when an English engineer sets out to improve his engine he contrives to take something off it, whereas the Frenchman devises something new to put on. The same principle has applied to airship design. Simplicity is the chief characteristic of the British types, while refined complexity marks the majority of Continental models.

The requirements of the anti-submarine patrol have demanded from our airships high speed, reliability and endurance, with which is included comfort for the crew; height has been an unimportant factor. There are the qualities which distinguish British non-rigids and generally speaking will respond to the needs of commercial air transport.

As the Admiralty has announced its intention of selling a number of non-rigid airships, one presumes that it is permissible to mention that during the war a new and highly satisfactory method has been developed for protecting the outer surface of non-rigid airship envelopes.

This process is applied in conjunction with the rubber proofing, and consists of depositing a mixture of rubber and aluminium powder on to the fabric in a thin layer, by means of a form of rotary printing machine. Most of the non-rigid envelopes are made of this aluminium-faced fabric, which, whilst combining the good qualities of impermeability and durability, requires no dope.

Imported Luxuries.

Whilst it is true that the lead of twelve years which Germany had gained with rigid airships has to-day been reduced to two, this achievement cannot be attributed to originality on the part of our rigid airship designers.

Extraordinary progress has nevertheless been made in constructional technique and in minor detail design, despite the limitations

IN AMBUSH: An S.S. "Twin" and two S.S. "Zero" Airships berthed in a mooring-out station.

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imposed by war conditions, and it is probable, therefore, that R33 and R34, launched since the Armistice, are superior to their prototype, the L33 brought down at Little Wigborough.

The previous British efforts, R9, R23, R23X and R31 classes, were not remarkable for any particular virtues. On the other hand, only one instance is to be recorded of an utter failure, and that was the result of defective material and the lack of time available for preliminary tests, rather than faulty conception. The plywood airship, R31, is that to which one refers.

Even though the early rigid airships failed to fulfil many hopeful expectations, they satisfactorily served the purpose for which they were rightly intended—that of training the multi-graded personnel in readiness for airships capable of Fleet work.

Altogether eleven rigid airships had been completed or were nearing completion at the close of the war. At the time of writing, May, 1919, it is freely reported that a new class of rigid airship has been laid down which will have a volume approaching 3,000,000 cubic ft. of gas. From comparative data, such an airship might be presumed to develop a speed of about 70 miles an hour, with an endurance of upwards of 8 days. With the German constructors reduced to a state of impotency, this new airship will be the largest existent.

War Records.

Figures relating to the work of the Airship Service have already appeared in the Press, and one's excuse for repeating them here is that they may be readily available for reference.

A sum total of 2,245,800 miles has been flown on service during the war, representing an air endurance of 87,700 hours; the bulk of this flying has been carried out over the sea, with a total loss of life from all causes of 16 officers and 32 men.

At the beginning of the war, seven airships, two only of which could be regarded as effective, were in commission. One airship station was in working order and another in an unfinished condition, excluding a few privately-owned sheds. The airship constructing industry in this country was to all intents and purposes non-existent.

On October 31st, 1918, 103 airships of all types were in operation, a chain of airship base stations and mooring-out stations had been created around the coasts of England and part of Scotland, and an almost continuous patrol was maintained over the War Channels from the Scillies to Scapa Flow. The British airship industry was in 1919 the most powerful of its kind in the world. Whether it remains so is a matter for Parliament and the Treasury to decide.

Allied Activity.

Italy.—Considering first the work of Italy, as befits the most insistent of our allies, it is interesting to observe that in Europe the Italians stand alone in maintaining a military airship service. Moreover, the Italian airship represents a striking power of considerable value against a neighbour ill-equipped with heavier-than-air machines. In addition to the military airships, a certain number of vessels are operated by the Italian Navy.

During the war numerous raids were carried out by Italian airships on Pola, Trieste, St. Marco Docks, and various points of importance behind the Austrian lines. Further, it is reported that the bombing operations of the airships during the big Italian retreat in 1917 contributed materially to the success of the withdrawal.

In design the Italians have adhered to the semi-rigid system, which has been brought to a high pitch of perfection in the M type.

The conditions underlying design in Italy are fundamentally different to those in this country. Height has been the primary object in view, owing to the necessity for evading hostile gunfire. Endurance has been a secondary consideration, because the raiding flights performed were seldom or never of long duration. That speed has been neglected is evident from the bulky unfaired cars and the multiplicity and length of rigging cables of most Italian craft. In Italy the winds are considerably less in average force than in Britain, and therefore a relatively high rate of speed has not been essential.

The Italian designers have sacrified all other qualities in order to increase the maximum ceiling of their vessels, and in this object they have been enormously assisted by the superabundance of skilled labour at their disposal, which has permitted extreme structural lightness to be obtained and, incidentally, truly Latin excellence of craftsmanship.

Contrary to popular belief, the Forlanini and Usuelli types have not been very extensively employed, although the Forlanini, at least, has well kept pace with contemporary progress.

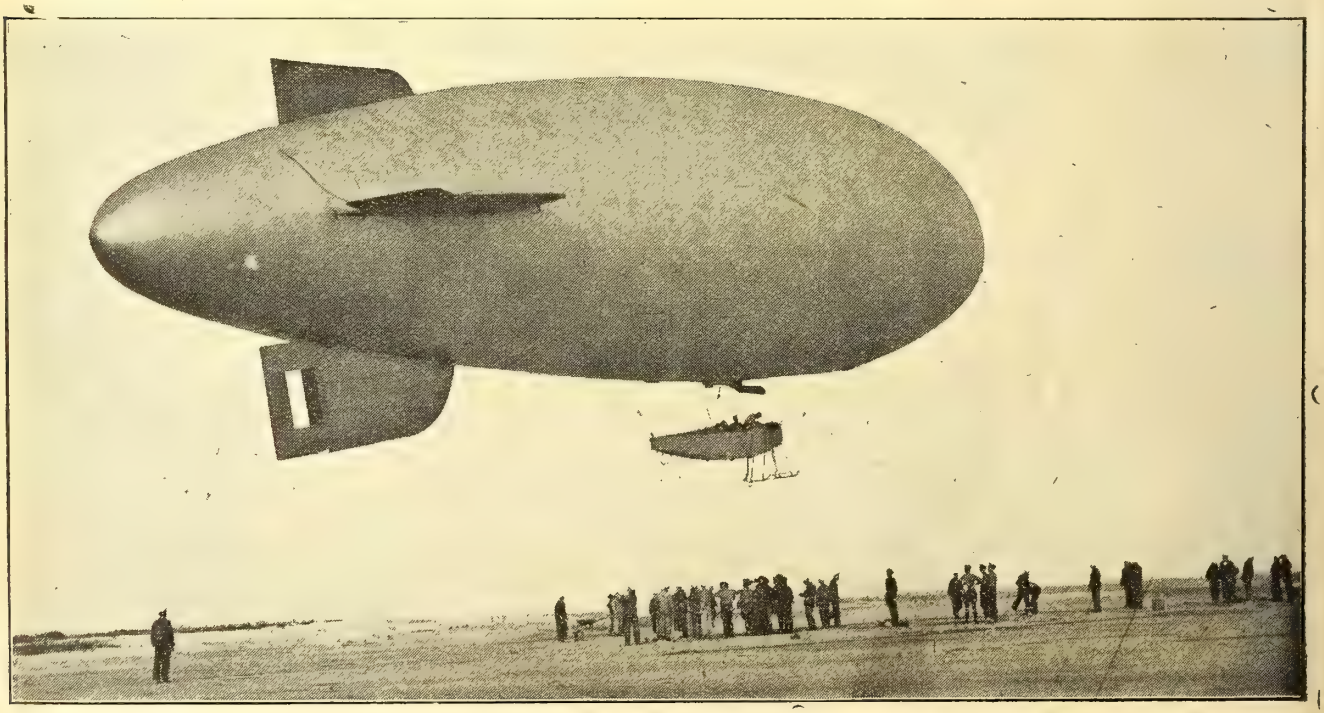
France.—French interest in the airship appears to have languished since the war proved the vulnerability of lighter-than-air craft in modern conditions of warfare on land against a well-armed enemy.

A useful type of non-rigid airship has been evolved with which to operate against enemy submarines around French ports, but the necessity for energetic measures has been less urgent, and comparably the progress of development has been less rapid than in this country.

United States.—The Americans can be congratulated on acquiring, amongst other valuable information imported into the United States during the past two years, the knowledge which has enabled them to produce helium and has given them the means of applying it with the best effect in practice.

It is presumably permissible to mention that numerous Americans have undergone training at Airship Stations in this country and in France, returning to the United States with complete information as to the manner in which years of experience direct that airship services should be conducted. Moreover, both British and French airships have been purchased and conveyed to America, where designers have had the opportunity of gleaning the latest ideas from Old World construction.

The American building programme, as disclosed to the Senate with the introduction of the Naval Estimates on Nov. 28th last year, provided for the construction of three large rigid airships, in addition to a host of non-rigid vessels. Possibly this scheme has since been modified, but there is reason to believe that America, in pursuance of her Naval policy and enjoying at present an important advantage as the sole producer of helium



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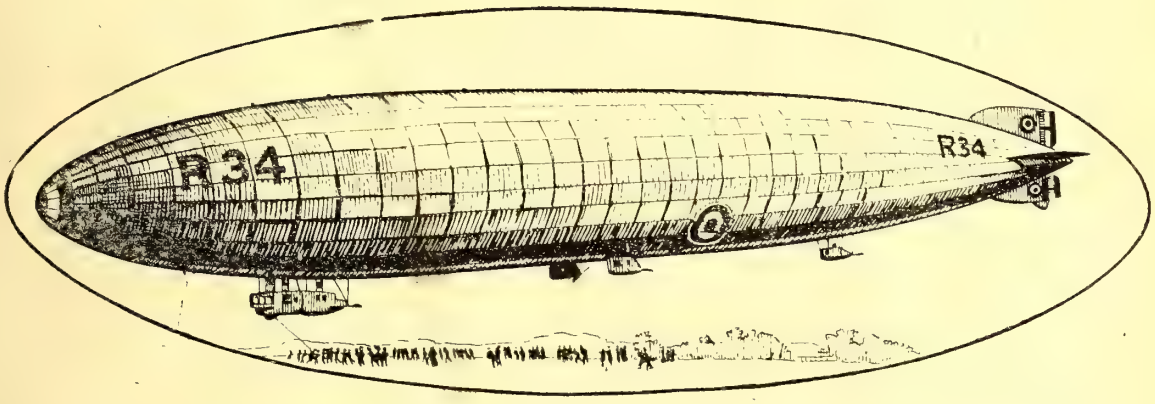

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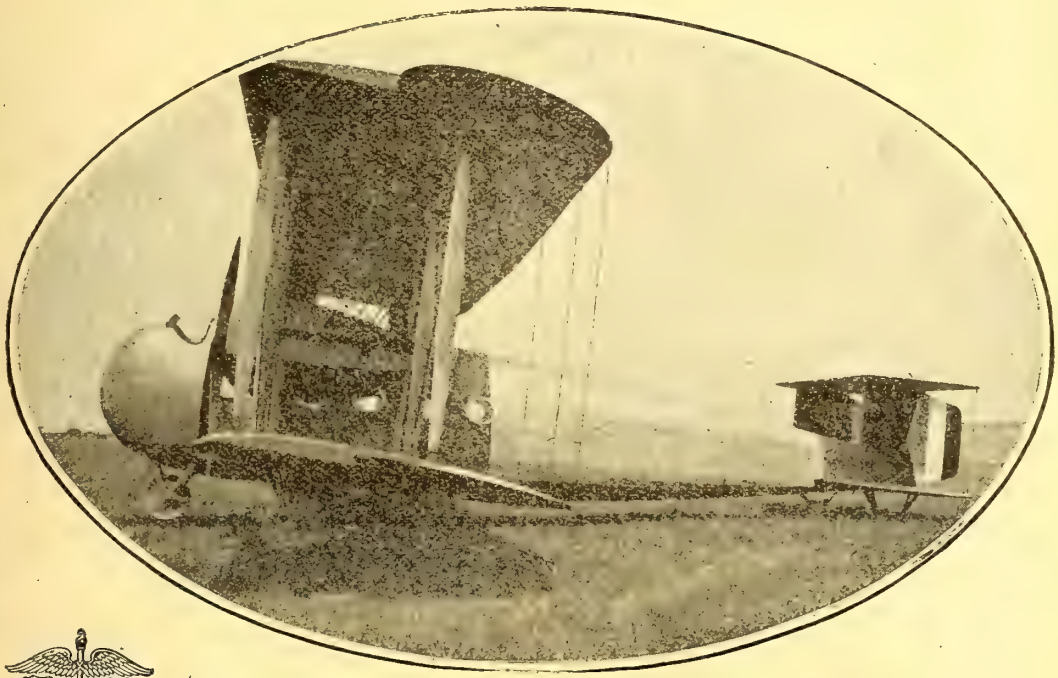

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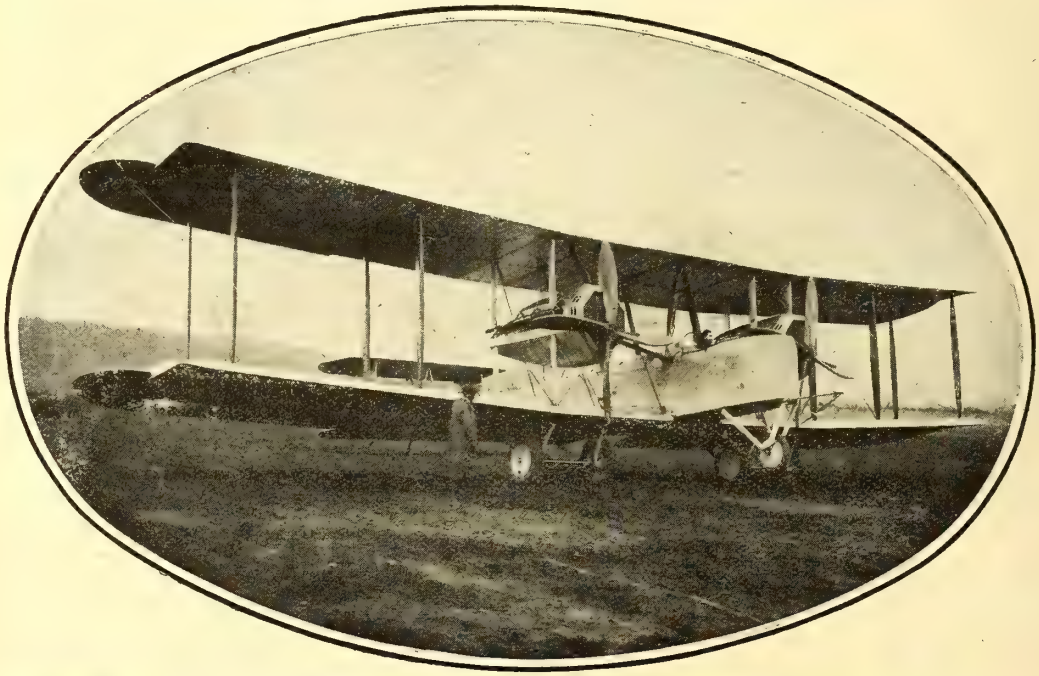

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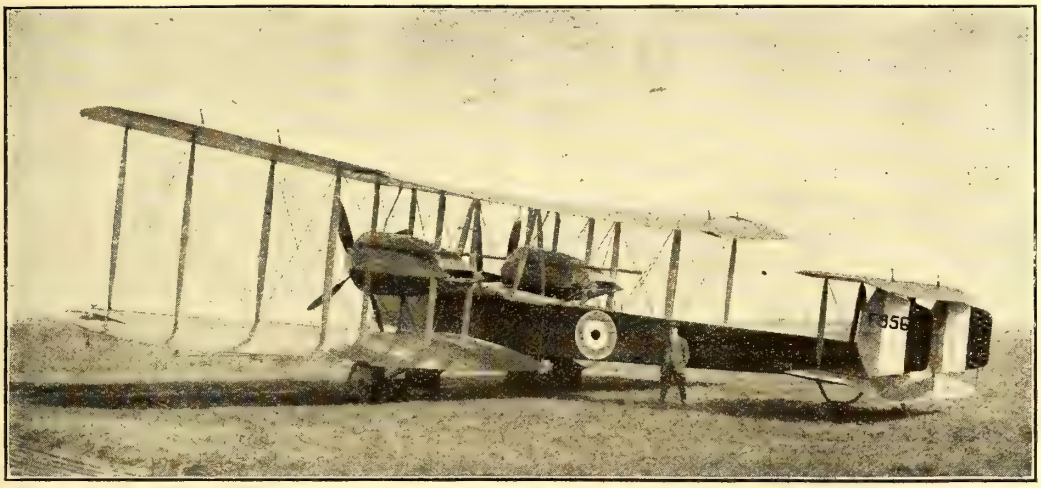

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gas, will make a strong bid for supremacy with airships, both in peace and war.

The Spiritual Home of the Rigid.

It is scarcely necessary to recount the work of the German airships in the war, beyond emphasising the importance of their activities as sea scouts. The development of the Zeppelin, however, is an interesting and little known subject.

Strange as it may seem when comparing the performance of the pre-war types with that of the latest airship of the L70 class, Zeppelin development has made apparently not more than four distinct advances since 1914, and only two of these have been accompanied by a material change in dimensions.

In 1916, the serial numbers of the "L" airships broke off abruptly at L24. This was not, as might have been supposed, an indication that the Germans intended to cease construction, for before long appeared the first vessel of a new and enlarged type with a capacity of two million cubic ft. This airship had a considerably improved form (closely similar in silhouette to the Schütte-Lanz) and six 240 h.p. Maybach engines, producing a maximum speed of 60-62 m.p.h.

Following upon this achievement, the German designers proceeded diligently to elevate and to improve the new model. Elevation was the principal object in order to enable the ships to rise above the range of anti-aircraft gunfire As a result, the next type, commencing at the beginning of 1917 with L40, came to be known as the "height-climbing" class—this is the type illustrated in the photograph elsewhere.

Broadly speaking, the dimensions, capacity and general arrangement of L40 were identical with those of L30. The hull structure was considerably lightened, smaller fish-form gondolas were fitted, and five engines were installed instead of the six in L30, involving the deletion of the "wing" propellers driven from the after car. These modifications not only raised the ceiling of the class to about 20,000 ft., but actually resulted in an increase in speed.

Next, towards the end of 1917, came the "long range" class of Zeppelin, probably beginning with L57. It may be remembered that L57 was the airship with which an attempt was made to fly from Transylvania to East Africa with medical stores. The "long range" class was slightly larger than its predecessors, containing approximately 2,200,000 cubic ft. of gas when full. Probably five 500 h.p. Maybach engines were installed.

Retiring once more to refine the new breed, the Zeppelin designers delivered the highly efficient L70, a ship more or less of the same tonnage as the L57, but equipped with seven 300 h.p. Maybach engines. This airship was reported to be capable of a full speed of more than 77 miles per hour and of a static rise to 21,000 ft.

From the beginning, the system of development has been thoroughly characteristic of the Teutonic mind. Each advance has been the result of laborious experiment. In fact, it may be said that each airship produced has been experimental.

This principle of step by step progression has been particularly noticeable in the design of the hull structure. Airships belonging to each separate class and built to the same general specification have rarely been identical in detail composition. Generally, the aim has been to lighten each successive ship to the uttermost degree, until indeed a point has been reached where a breakage in the air has necessitated restrengthening, and weight has again had to be added. As a means of rapidly attaining maximum practical efficiency, irrespective of other considerations, the system has much to commend it.

Airships in Commerce.

In the light of present knowledge, the question of the employment of aircraft in commercial or postal undertakings, as distinct from advertisement and ornamental displays and pleasure flying, is an uncertain one.

After the first rather hysterical manifestation of enthusiasm for air transport, there has appeared a realisation of the many difficulties which must be faced in developing commercial aeronautics.

So far as aeroplanes are concerned, it is generally considered that long distance communication over land constitutes the most fruitful field for activity, but even so it appears that the time is not yet ripe for extensive development. The use of seaplanes and flying-boats for overwater traffic is equally dependent upon advances being made, although less affected by competition from existing methods of transport than is the case with aeroplanes operating over land.

The position was summed up in a lecture, in May of this year, to the Liverpool Chamber of Commerce by Major-General Sir Fredk. Sykes, Controller-General of Civil Aviation, when he said, "There seems to be what I can only describe as a gap in front of us. We can mentally pick up the probable future curve of progress some little way ahead. But there is some very important missing link somewhere."

Turning to airships, General Sykes continued, "It is possible that the airship may help us to advance in many directions whilst the 'gap' is being bridged. At all events, both the heavier- and lighter-than-air types of aircraft have their appropriate places in aviation."

For long-distance flying over wide expanses of sea or land unsuitable for aeroplane traffic, the airship has many definite advantages, and this is certainly its appropriate function. Moreover, there are many arguments in favour of employing airships for journeys such as, for example, London to India and Australia, which are frequently considered to be the prerogatives of aeroplanes.

The large rigid airship, capable of flights of 2,000-3,000 miles carrying a commercial load, could lay a direct course, avoiding high mountains, of course, to any destination, without regard to the suitability of the intervening terrain for landing and refuelling purposes. India could be reached with one stop at Cairo. A prolongation of the flight, via Singapore, would take the vessel to Australia in one nearly straight line throughout the journey. Compare this with the suggested aeroplane route to the East, which involves the formation of scores of repair and re-fuelling depots, intermediate landing grounds and emergency alighting grounds in all sorts of inaccessible places, constituting the links of a deviously winding chain across three continents.

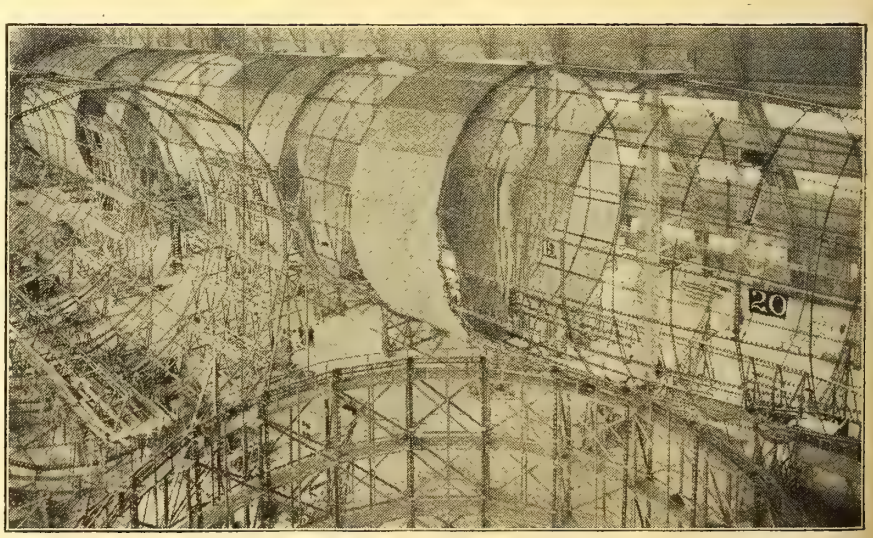
Considering the question of speed, the fastest type of aeroplane at all likely to be useful for load carrying would attain a maximum speed of 125 m.p.h. The Handley-Page machines are limited to approximately 95 m.p.h. It is customary service practice when estimating average ground speed to deduct at least 25 p.c. from the maximum air speed of a machine on account of adverse winds. Also, fully 10 p.c. can further be deducted for the time lost at stopping places. This allows a halt of 30 min. every 400 miles—certainly a reasonable amount. Therefore, 80 m.p.h. is probably the maximum speed now attainable with aeroplane transport.

On the other hand, the commercial airship would be designed to have a full speed of 80 m.p.h. and a cruising speed of 60 m.p.h. at half power. Her course would be direct, and in the aggregate the time for a long journey would not be so very much greater.

It would be ridiculous to pretend that the airship can never be so fast as the aeroplane, but the loads carried in comparison with the unit cost of machine, unit cost of man power engaged and unit cost of horse-power used, would be less, and this factor has a most important bearing on the question. It should be noted that the assumed costs referred to above are dependent upon the provision and use of a practical scheme of mooring rigid airships in the open; a certain development in the near future.

In connection with General Sykes' views as to the probable lines of future progress, it is important to remember certain basic laws which govern the development of airships and aeroplanes, and will exert an ever-growing influence on their future relations.

With airships we are on the threshold of great advances



SHORT BROS.' WORKS AT BEDFORD.—Showing R31 in the background, and the Frame of R32 in the foreground

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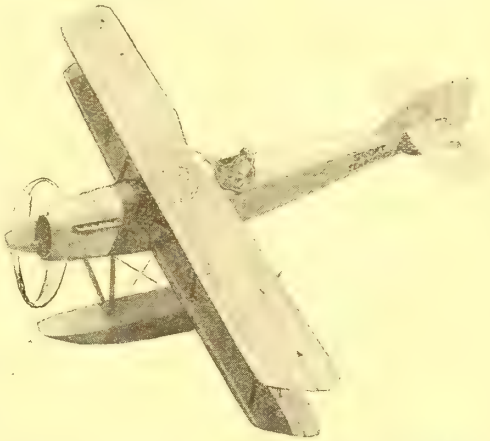

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Every increase in the size of rigid airships is accompanied by a very much greater proportionate increase in efficiency. Although a rigid airship of ten million cubic ft. capacity would have five times the gross lift and more than five times the useful lift of the present two million cubic ft. vessel, the dimensions of the larger airship would be only 70 p.c. greater, and the horse-power required to obtain the same speed only about three times greater. Accordingly, its prime cost would be less in proportion to unit lift, and its running costs would be less still in proportion to its load-carrying ability, or with the same running costs its speed would be greater as compared with the smaller airship of to-day. With aeroplanes, design upon present lines is nearing what appears to be a limit, and increase in size results in no automatic increase in efficiency. The proportion of horse-power required is nearly constant for all sizes, and structurally the weight of the aeroplane tends to become proportionately greater with increased dimensions, incurring a reduction of efficiency.

What is perhaps of greater interest in regard to commercial aeronautics is the fact that the airship will always retain the characteristic of safety, derived from its independence of engine power for support in the air, whereas the heavier-than-air flying machine will always be subject to risk from engine breakdown. Stress is often laid upon the risk of fire present in airships. One can only repeat the official statement that during the whole period of the war, in the course of some two and a half million miles of flying, only one airship was destroyed by the accidental outbreak of fire in the air. This was on the occasion of the trial trip of an experimental vessel, and the responsible cause was ascertained and eliminated.

Airship Mooring.

In view of the fact that the solution of the problem of mooring airships safely in the open will have more importance than any other development in increasing the utility of airships, the accompanying photograph is particularly interesting.

It depicts a small non-rigid airship anchored experimentally above the ground, by means of a " three-wire " mooring gear, during a period of severe weather in which the wind force reached 52 miles per hour. Attached to the wind scoop and trailing leeward is a fabric hose used for conveying air to the ballonets from an air blower on the ground, to maintain envelope pressure.

In the course of another experiment, made with a mooring mast instead of cables, a similar airship was exposed for an unbroken period of six weeks, during this time riding safely at her moorings through all weathers.

Experiments with small non-rigid airships, however, no matter what measure of success may be achieved, cannot in themselves be regarded as evidence that the same methods of mooring will be equally effective when applied to large rigid airships such as would be required for long-distance commercial flying.

The difficulties experienced in mooring rigid airships are more complicated. Not least among them is that of maintaining without large changes the buoyancy of the moored vessel, and with this is involved the problem of counteracting the effects of rapid rises in gas temperature due to the sun.

That the mooring of rigid airships is mechanically practicable was demonstrated so long ago as 1911 with the British rigid airship No. 1 (" Mayfly "), which was moored to a mast for many hours in Cavendish Dock, Barrow, and withstood, without mishap, winds attaining speeds of 36-45 miles per hour. Subsequent events proved the airship to be structurally weak, so emphasising, if emphasis is required, the soundness of the scheme employed for mooring.

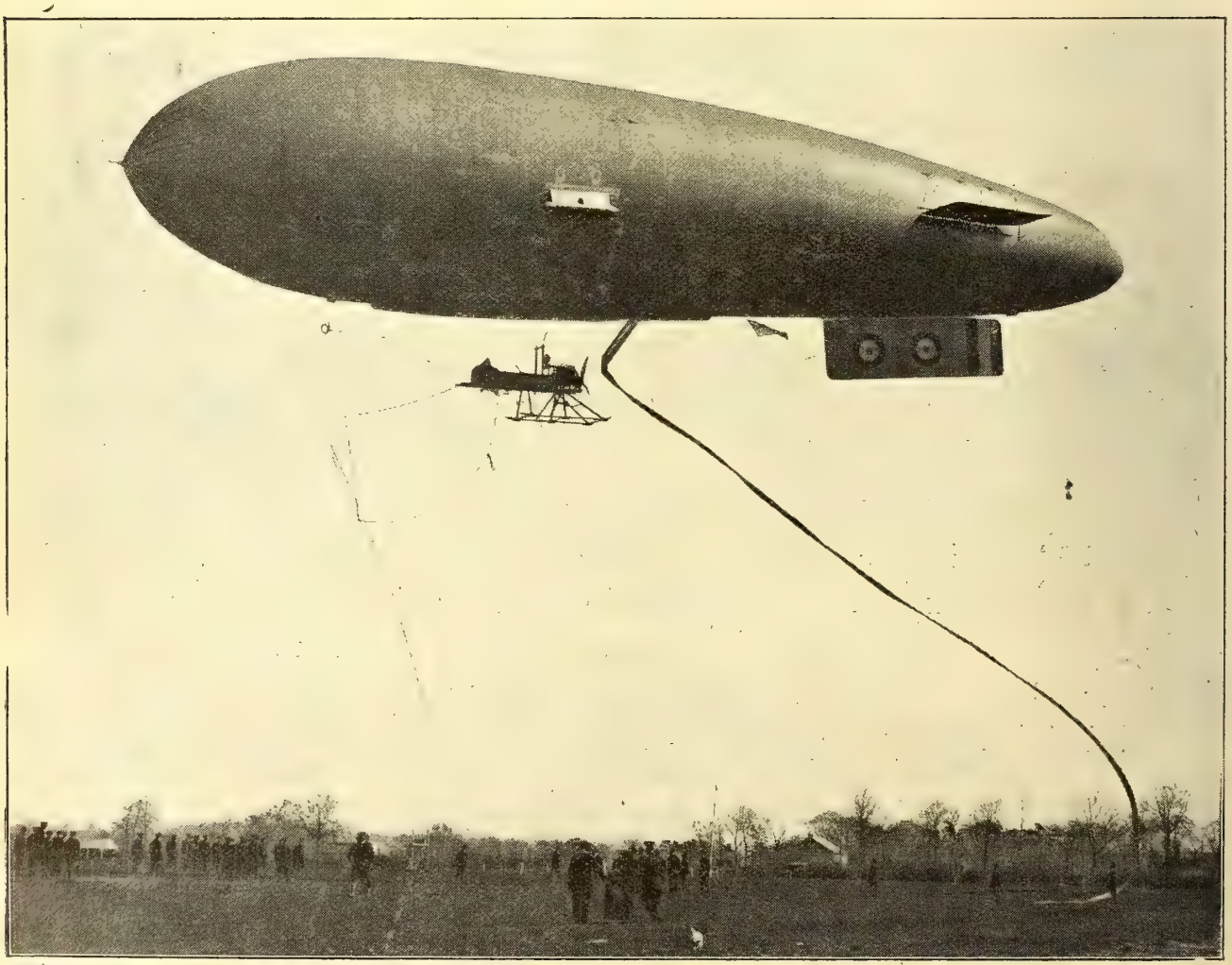
SALE OF AIRSHIPS.

Negotiations are not yet completed regarding the purchase of the complete non-rigid airships which the Admiralty offered for sale up to Aug. 12th.

AERODROMES FOR SALE.

The Disposal Board of the Ministry of Munitions at Charing Cross Buildings has several aerodromes in various parts of the country for sale. These include a seaplane station in the Shetland Isles which covers 12½ acres, and the Gullane aerodrome in Haddingtonshire, the area of which is 318 acres.

Information can be obtained from the Disposal Board at the address mentioned above.



AIRSHIP MOORING.—A small non-rigid airship anchored experimentally by means of a three-wire mooring gear.

The First Airship to cross the Atlantic—The Naval Airship R.34—was equipped with Sunbeam-Coatalen engines fitted with
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AIRSHIPS OF THE WORLD.

I.—BRITISH NON-RIGID AIRSHIPS.

A British Airship of the S.S. Zero Class. Note the petrol tank and parachute case on the side of the envelope.

Owing to the recent war and the continued existence of the Defence of the Realm Act and the Official Secrets Act, it is impossible to give full details concerning all types of airships in use.

The accompanying illustrations and particulars give a general idea of modern British airships, all of which have been from time to time exhibited to the populace of London and of other large towns, so it is unlikely that any undesirable person will derive from the illustrations any information which should not be known.

The details given concerning each airship are only such as can be published without doing a disservice to the King's Armed Forces.

THE S.S. P. CLASS.

An airship of small size, now used for training purposes, representing an intermediate stage of development between the original Blimp type S.S. and the more refined Zero type.

The nacelle is reminiscent of that of a pusher aeroplane, but considerably larger. The air pipe from the air ballonets is arranged to collect the slipstream from the airscrew, which is mounted at the rear of the nacelle, behind the engine. The landing skid underneath the nacelle is noteworthy.

Control is effected by a rudder and two elevators placed behind the stabilising fins.

Petrol is carried in cylindrical tanks, suspended in fabric slings, one on either side of the envelope.

THE S.S. "ZERO" CLASS.

The S.S. "Zero" followed the S.S., S.S.—M.F., and S.S.P in the genealogical sequence of the Submarine Scout class of non-rigid airships. The type was standardised for production and considerable numbers were built and put in commission during 1917 and 1918 for patrol duties.

The envelope is made of two-ply rubber-proofed fabric. The suspensory cables of the car are attached with stuck-on "Eta" patches, so called because they were first used on the military airship "Eta" in 1913.

To maintain pressure in the envelope and compensate for loss of gas volume, air is blown into two internal ballonets. When full, the ballonets contain a volume of air equivalent to about one-third of the total capacity of the envelope, which in normal conditions is sufficient to permit of a rise to about 8,000 ft. A sloping air scoop interposed in the propeller slip stream keeps the ballonets inflated at the required pressure.

Directional control is effected by a rudder placed behind the vertical fin and by a pair of elevators placed behind the horizontal fins.

A strongly-built boat-shaped car, having an engine mounted upon a gantry at the after end, is the chief distinguishing feature of the S.S. "Zero" airship. Foremost in the car is the compartment for the W./T. operator. Next is the pilot's cockpit. A wheel bearing on a transverse bar actuates the elevators and foot steering pedals operate the rudder. Within easy reach of the pilot's hand are the controls for the gas and air valves, controls for the "crabpot" valves in the air ducts and the tricing line with which the airscoop is raised out of the propeller slip stream. Arranged in front of the pilot are the necessary aerostatic and navigational instruments.

Behind the pilot's seat is a separate compartment for the engineer. A starting handle for the engine with chain and sprocket gear is so adapted that it may be utilised to rotate a hand blower for maintaining pressure in the envelope in the event of engine defect and consequent failure of the air supply from the propeller slip stream.

The S.S. "Zero" is normally capable of a flight of 12 hours' duration at full speed, and 24 hours at half-power (three-quarter speed). Two flights were made during the War of over 50 hours' duration with full war equipment.

CHARACTERISTICS.

Capacity	70,000 cu. ft.
Length	143 ft.
Width (overall)	32 ft.
Height (overall)	46 ft.
Engine	Rolls-Royce "Hawk," 75-h.p.
Gross lift	2.2 tons
Disposable lift	0.33 tons
Full speed	42 kts. (48.37 m.p.h.)
Cruising speed	30 kts. (34.5 m.p.h.)
Crew	3
Cost (war price)	£5,000

THE S.S. "TWIN" CLASS.

An airship produced during 1918, incorporating improvements suggested by experience with the S.S. "Zero" type.

No attempt has been made to depart from the simple characteristic principles of the preceding S.S. airships, either as regards th eenvelope design, "Eta" patch suspension, or air pressure system. In the "Twin," however, the ballonets are duplicated and dual air ducts and scoops are fitted—a feature by which it may be readily recognised.

The car contains accommodation for a crew of five, and two engines are installed in outrigger bearers on either side.

The S.S. "Twin" has a full speed of 50 kts. (57.5 m.p.h.) with petrol capacity for 12 hours at this speed. At the cruising speed of 37 kts. (42.5 m.p.h.), the endurance is estimated to be 30 hours.

CHARACTERISTICS.

Capacity	100,000 cu. ft.
Length	165 ft.
Width	35 ft. 6 in.
Height	49 ft.
Engines	Two 75 h.p. Rolls-Royce "Hawk."
Gross lift	3.12 tons.
Disposable lift	1.00 ton.
Full speed	50 kts. (57.5 m.p.h.).
Cruising speed	37 kts. (42.6 m.p.h.).
Crew	4
Cost (war price)	£8,200

"COASTAL" CLASS.

A medium-sized airship of the Astra-Torres type, with an envelope of trefoil section. The suspensory rigging is attached along the lines of intersection of the top and side lobes and passes through the bottom of the envelope to the car.

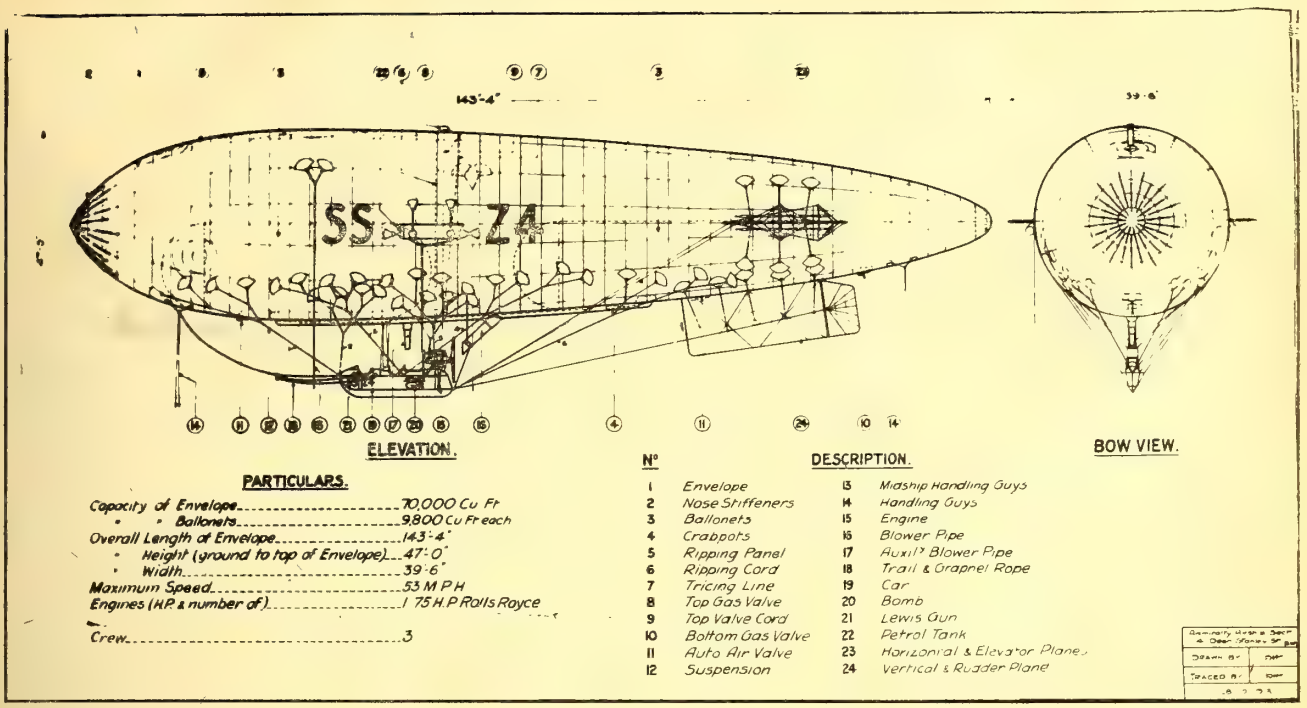
The air bollonets are inflated by the propeller slipstream through the large metal pipe to the rear of the car. In addition, an auxiliary power-driven air blower is installed in the car.

The vessel is driven by two large four-bladed airscrews driven by independent engines, which are placed respectively at the bow and at the stern of the car.

The controls are the ordinary arrangement of fins, rudder, and elevators. A machine-gun platform is placed on top of the envelope.

An Airship of the S.S. Twin Class landing. Later models are equipped with a circular section car of ply-wood construction.

View looking aft above the navigating car of an N.S. Class airship, showing the arrangement of the two 260 h.p. Fiat engines and interposed Engineers' cabin.



General arrangement diagram of the British S.S. "Zero" class of airship, showing clearly the arrangement of the rigging.

CHARACTERISTICS.

Capacity	170,000 cu. ft.
Length	196 ft.
Width (overall)	39 ft. 6 in.
Height (overall)	52 ft.
Engine and h.p.	2—150 h.p. Sunbeam
Gross lift	4.94 tons.
Disposable lift	1.6 tons.
Speed (full)	52 m.p.h.
Crew	5.

THE C. STAR CLASS.

In accordance with a custom of Naval terminology, the designation "C. Star" indicates a modification of the "C.," i.e., the Coastal type of airship. Airships of this class were intended primarily for convoy escort duty over greater distances than could be undertaken by the S.S. Zero craft.

The envelope is rigged on the Astra-Torres tri-lobe principle, and is practically a replica on a smaller scale of the N.S., which made its advent at an earlier date.

The capacity of the C. Star is 210,000 cubic feet, as compared with the 170,000 cubic feet of the Coastal, producing an increase in lifting power of approximately one ton and a quarter.

The car remains substantially the same as the Coastal car, but is fitted with engines of a different type. A Berliet of 110 h.p. is installed in the forward mounting, where the efficiency of the propeller is impaired by the large car in its wake, and a 260 h.p. Fiat is placed in the mounting aft. Both these engines are designed on the lines of the Mercédès, and are remarkably reliable.

No gun-platform is fitted on the top of the envelope, as in the Coastal.

In order to assist in distributing the weights evenly along the envelope and to reduce the tensions in the car suspensory cables —some of which are acutely inclined forward and aft—the petrol is carried in tanks suspended inside the gasbag.

The equipment of a C. Star airship includes W/T. installation, emergency power-driven air blower, floatation bags, and a collapsible lifeboat, to be inflated with air, as well as the usual airship grapnel, drogue, and signalling appliances.

CHARACTERISTICS.

Capacity	210,000 cu. ft.
Length	218 ft.
Width (overall)	49 ft. 3 in.
Height (overall)	57 ft. 6 in.
Engines	One 110 h.p. Berliet forward, one 260 h.p. Fiat aft.
Gross lift	6.46 tons.
Disposable lift	1.8 tons.
Full speed	50 kts. (57.5 m.p.h.).
Cruising speed	35 kts. (40.3 m.p.h.).
Crew	5.
Cost (war price)	£12,750.

THE N.S. CLASS.

The "North Sea" type airship, which was designed for long range reconnaissance, perpetuates the "Astra-Torres" principle in a vessel of considerable size. It is most readily recognised from the "C. Star" type by the large enclosed car and the arrangement of the twin engines behind the car, and placed side by side. Conspicuous also are the large twin air pipes which scoop the slipstream from the airscrews to the air ballonets, along big air ducts running fore and aft.

The vessel has no landing carriage, but floats are provided for alighting on the water if necessary. The control planes are of conventional type.

Petrol is carried inside the envelope in cylindrical tanks suspended at intervals from the internal rigging girdles at the top "ridges" of the envelope. This method of suspension results in more equitable load distribution, relieving the envelope of the stresses that would be set up were the weight of petrol concentrated in the car, and so reducing the liability of the envelope to lose its longitudinal alignment at low pressure. As petrol is consumed from various tanks, air may be blown into contiguous ballonets to trim the ship.

In the latest model of the N.S. airship, the car has the same height from end to end to give head room.

An engineer's cabin is situated in the space between the engines at the rear. Sleeping bunks and means of heating food by the engine exhaust are provided.

Many notable duration flights have been performed in the course of patrol duties by N.S. airships, including a non-rigid endurance record of 101 hours, 50 minutes.

CHARACTERISTICS.

Capacity	360,000 cu. ft.
Length	262 ft.
Width (overall)	56 ft. 9 in.
Height (overall)	69 ft. 3 in.
Engines and h.p.	Two 260 h.p. Fiat
Gross lift	10.85 tons.
Disposable lift	3.8 tons.
Full speed	50 kts. (57.5 m.p.h.).
Cruising speed (½-power)	37 kts. (42.6 m.p.h.).
Crew (two watches)	10.

"The engines worked

The wonderful achievement of R 34 in making the double journey across the Atlantic affords ample proof of the efficiency of Sunbeam Coatalen Aircraft engines and machinery. This was no single flight of a few hours' duration, but a voyage of 183 hours. Never before have any aircraft engines had to withstand such continuous strain.

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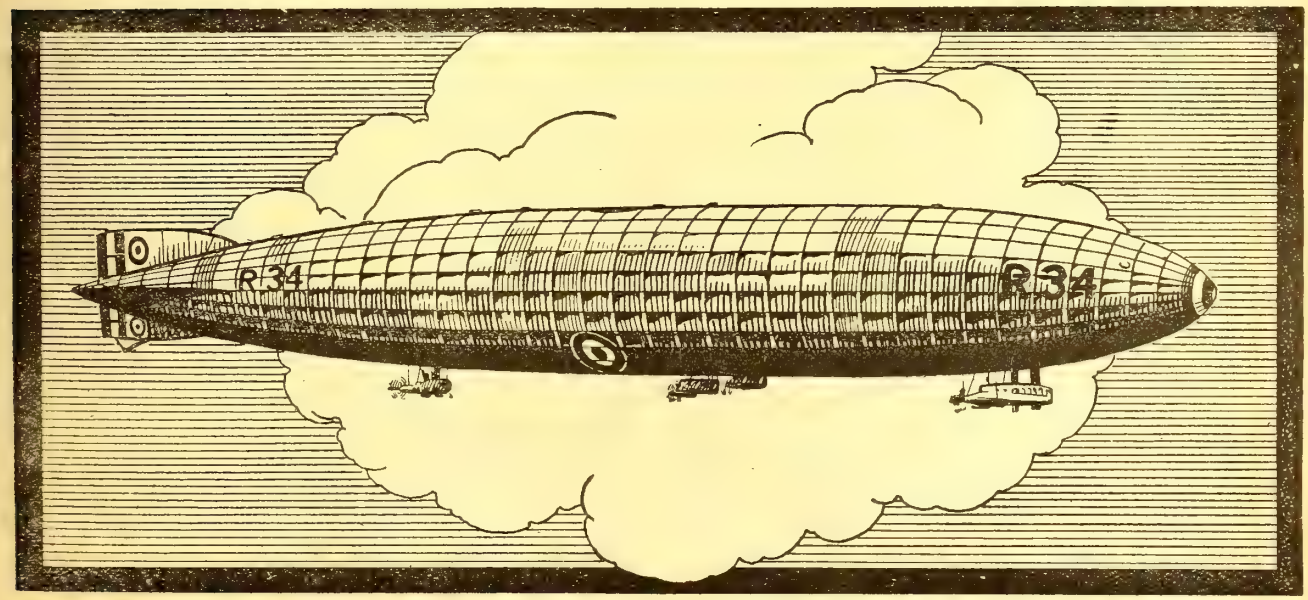

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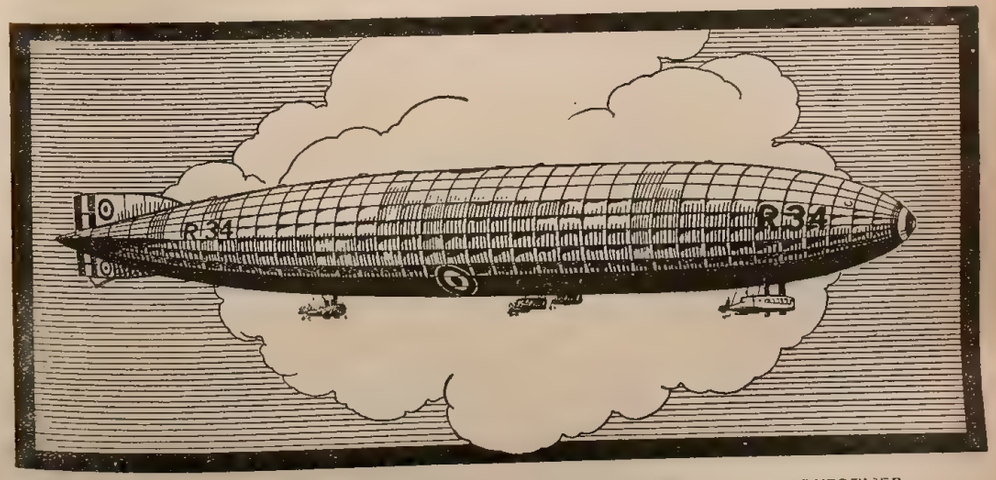
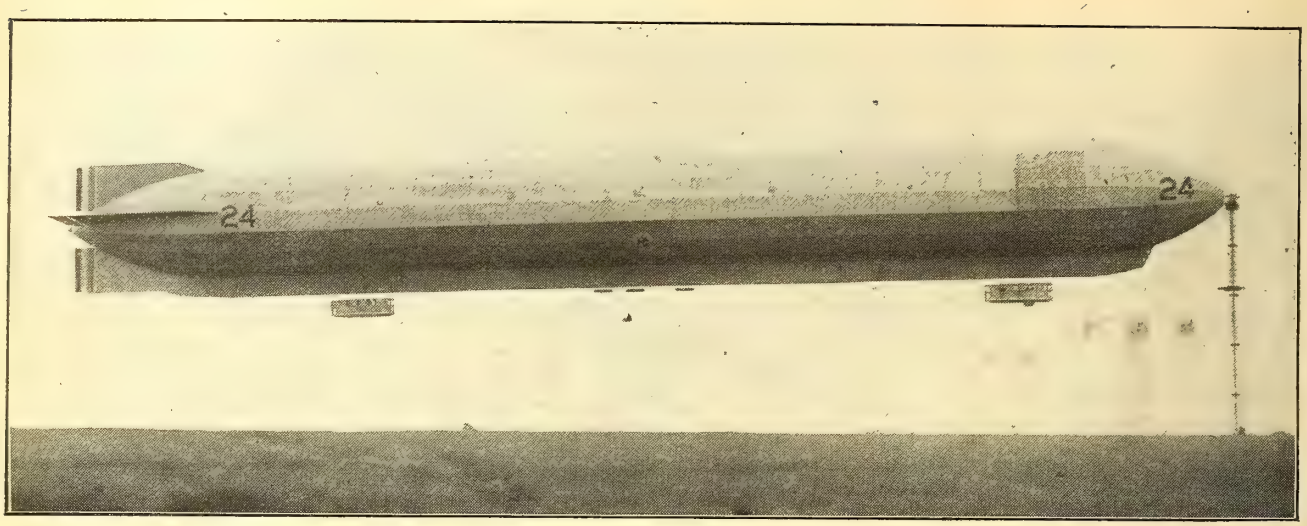


II.—BRITISH RIGID AIRSHIPS.



R24—one of the early British rigids—moored out to a mast during recent mooring tests.

THE RIGID 23 CLASS (R23—R26).

R23, designed and constructed by Messrs. Vickers, Ltd., was put into commission in 1916 as a training airship.

R24 (built by Wm. Beardmore and Company), R25 (built by Armstrong, Whitworth, Ltd.), and R26 (Vickers Ltd.), followed in 1917, and were also utilised for training and experimental purposes.

The hull, composed of Vickers type duralumin lattice girders, is divided by transverse frames into 18 gas compartments, the gasbags containing a total of 942,000 cubic feet of gas when full.

A V-section keel, built of duralumin and steel tubes, extends under the hull from near the bows to join the lower vertical fin at the tail. A portion of the forward half of the keel is widened to form a cabin, in which the W/T cabinet and quarters for the crew are located.

Each gasbag is fitted with one automatic gas valve discharging to one side and a top manœuvring valve actuated from the control cabin.

The outer cover is of doped linen.

As originally produced, the forward and aft gondolas were each partitioned into two compartments, a control cabin, and an engine room. The main control position was in the leading gondola. Each of these gondolas was equipped with a 250 h.p. Rolls-Royce engine, driving a pair of 4-bladed swivelling propellers through suitable gearing.

Subsequently the after gondola was removed and its place taken by a light power-car containing an engine with direct transmission to a single 2-bladed propeller.

The car suspended amidships accommodates two engines, also of the Rolls-Royce 250 h.p. type, each coupled through bevel gearing to a 4-bladed propeller on either side of the car. Swivelling gear is not provided for these propellers.

Above the bows of the airship is a gun platform, which is reached by a climbing shaft passing between gasbags two and three.

Cruciform stabilising fins are fitted, and balanced rudders and elevators of high aspect ratio.

Judging from the standard of the more modern rigid airships, the performance of the R23 Class is poor. The best flight which has been accomplished is one of slightly over 50 hours. The value of the class has been principally manifested in the experience afforded to those concerned with its construction and operation.

CHARACTERISTICS.

Capacity	942,000 cu. ft.
Length	535 ft.
Diameter	53 ft.
B.H.P.	1,000.
Gross lift	23.6 tons.
Disposable lift	5.8 tons.
Maximum speed	45.2 kts. (52 m.p.h.).
Cruising speed	35 kts. (40 m.p.h.).

THE R23X CLASS.

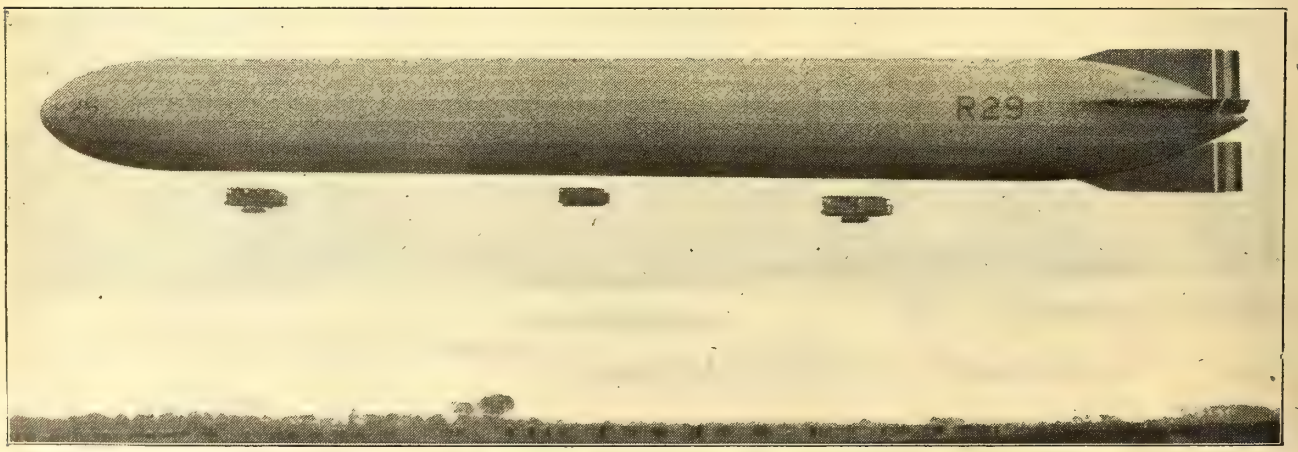
This class comprised two airships, R27 and 29, constructed in 1917-18 to Admiralty design by Messrs. Wm. Beardmore and Co. (R27) and Messrs. Armstrong, Whitworth and Co. (R29). It was originally intended to build four airships of this type, but as a result of the acquisition of L33, R28 and R30 were cancelled.

In many essentials the R23 X class airships are similar to R23. The dimensions are nearly the same, and the only obvious point of difference is the omission of the keel.

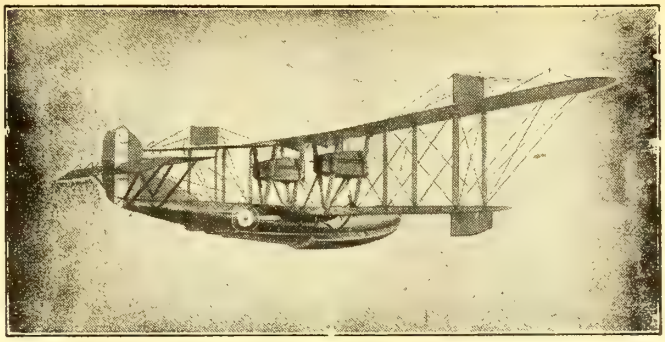
It should be understood that the function of the keel in rigid airships is primarily that of distributing the weights of petrol, oil and water-ballast between the transverse bulkheads of the hull, and, as a rule, it contributes little more than 5 per cent. to the total strength of the hull structure.

In the R23 X class, these weights are concentrated at the bulkheads, where they are suspended from the radial wiring which maintains the polygonal shape of the hull. A keel is therefore unnecessary, and a considerable saving of weight is secured.

To enable the crew to pass from one gondola to another, a ∩ shaped corridor of light tubular construction is carried through the interior of the airship, and the gasbags are shaped to fill the sur-



R29, sister ship of R27, of the keelless R23X Class.



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rounding space. In all other details, these airships follow closely the lines of R23. The gondolas and power plant are arranged similarly to those of R23 as first designed, with swivelling gear for the forward and aft propellers.

CHARACTERISTICS.

Capacity	990,600 cu. ft.
Length	539 ft.
Diameter	53 ft.
B.H.P.	1,000
Engines	Four Rolls-Royce "Eagle," Mark III, 250 h.p.
Gross lift	30.1 tons
Disposable lift	8.5 tons.
Maximum speed	48 kts. (55 m.p.h.).
Cruising speed	37 kts. (42.75 m.p.h.)

THE R31 CLASS.

R31 and R32 were constructed by Messrs. Short Bros., at Bedford, to designs based upon "Schütte-Lanz" principles furnished by the Admiralty. Owing to the effects of dampness on the plywood used in the construction of R31 this airship has been condemned.

It is to be noticed that the construction of the hull bears no resemblance to that of the pre-war "Schütte-Lanz" trellis system, and is analagous to the Zeppelin arrangement, which was adopted for the later S.L. ships.

Each of the principal girders in R31 consisted of three plywood sides, lightened with slots at regular intervals, which were glued to spruce angle-members more or less of V section. The triangular girder thus formed was strengthened internally by plywood diaphragms. This method of construction was used for all varieties of girders, including square and rectangular sections.

Casein cement, known as Kaltleim, was adopted as an adhesive.

The gasbags, 25 in number, were made of rubber-proofed cotton fabric, lined with goldbeaters' skin.

A keel corridor extended from end to end inside the bottom of the hull, serving to support and distribute the weights of petrol, water ballast, etc.

The control car under the bows of the airship was divided into three compartments; forward the navigating cabin, next the wireless room, and aft the officers' sleeping quarters.

As initially tested, R31 had six boat-built power gondolas, arranged in pairs. Subsequently, however, one of the rear gondolas was removed and the remaining one slung parallel with the centre line.

Each gondola contained a 250-h.p. Rolls-Royce engine, driving through clutch transmission a two-bladed propeller. Reversing gears were fitted to those amidships.

CHARACTERISTICS.

Capacity	1,553,000 ft.
Length	615 ft.
Diameter	65.5 ft.
Engines and h.p.	5—250-h.p. Rolls-Royce (1,250)
Gross lift	47.1 tons
Disposable lift	16.4 tons
Maximum speed	65 m.p.h.
Cruising speed	46 m.p.h.
Crew	21

THE R33 CLASS.

Two airships of this class, completed in 1919, were constructed by Messrs. Armstrong, Whitworth & Co. (R33) and Messrs. Beardmore & Co. (R34). The designs were prepared by the Admiralty from data acquired from the wreck of Zeppelin L33, brought down at Little Wigborough in 1916.

The hull, streamlined over the greater part of its length, has the sectional shape of a 25-sided polygon, and is composed of 20 main circumferential girder frames and 25 longitudinal girders, one at each corner of the polygon. An auxiliary circumferential frame is interposed between each pair of main frames, and the whole is braced diagonally by high tensile steel wire. There are 19 gas chambers.

At each bulkhead, radial wires of steel wire rope are connected centrally to an axial plate, and a jackstay runs from plate to plate, bracing the bulkheads together longitudinally.

Along the inside of the bottom of the hull is a keel-corridor, formed of A-shaped girder frames. As well as accommodating the petrol, water ballast, and bombs, the keel provides means for the crew to pass from one gondola to another, for which purpose a walking-way girder is interposed between the two lower longitudinals of the hull.

A top gun platform is situated above the third main frame, near the bows, and at the after end of the airship a lightly built prolongation of the corridor gives access to a gun-pit at the extremity of the stern.

The tail fins and control surfaces are cruciform in arrangement and constructed of duralumin girders, covered with doped linen.

The gasbags are shaped to fill as completely as possible the interior of the hull, surrounding the sides of the corridor when full. They are made of a single thickness of rubber-proofed cotton fabric lined with goldbeater's skin; finished weight not more than 160 grams per square metre. An automatic gas release valve is fitted to each bag, discharging near the bottom through exhaust shafts running to the top of the airship between each alternate pair of gasbags. Certain bags are also furnished with hand-controlled manœuvring valves.

The outer cover is made of doped linen, tightly stretched between each pair of main circumferential frames.

The forward gondola, although apparently homogeneous, is built in two parts separated by a small gap. In the leading section are the controls and wireless cabinet, and in the section behind is an engine coupled through a clutch to a propeller at the rear.

Approximately amidships, two small "wing" gondolas are attached to the hull side by side, each one housing an engine. Reversing gears, for use in braking the airship whilst landing, are fitted between the engines and propellers in these cars.

The sternmost gondola accommodates two engines, geared to drive one large propeller. In this respect, the R33 Class airships are similar to the German L40, and differ from L33 by the omission of the shaft-driven "wing" propellers and one of the three engines installed in the after gondola of that ship.

CHARACTERISTICS.

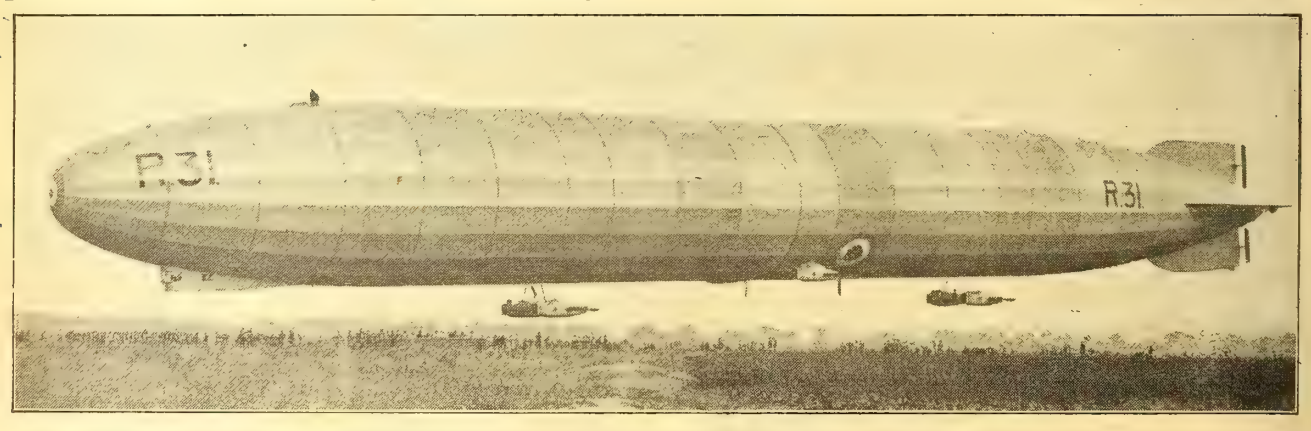
Capacity	1,950,000 cu. ft.
Length	643 ft.
Maximum diameter	78.75 ft.
Engines and h.p.	5—250 h.p. Sunbeam "Maori" (1,250).
Gross lift	59.2 tons.
Disposable lift	30 tons.
Maximum speed	62 m.p.h.
Cruising speed	45 m.p.h.
Crew	22.

THE R80.

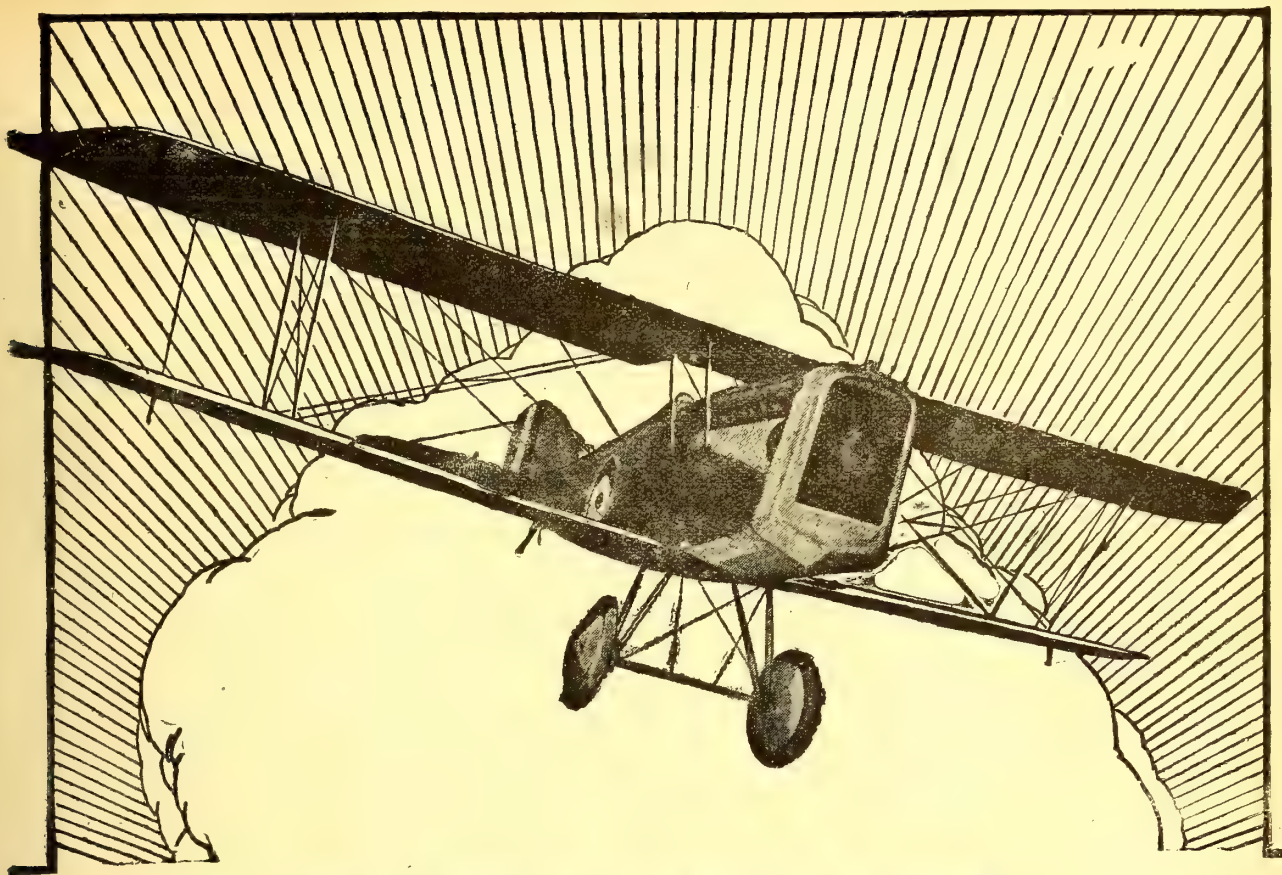
A rigid airship designed and put into construction in November, 1917, by Messrs. Vickers, Ltd., at Barrow. It is to be completed during the latter half of 1919, and, unless employed for commercial demonstrations, will probably be taken over by the Admiralty.

Compared with contemporary rigid airships it is small in size, having a gas capacity of 1,250,000 cubic feet. It is, however, designed on up-to-date lines, and may be expected to prove highly efficient within the limitations imposed by its small dimensions.

An advance upon other rigid airships is the shape of the hull, which has no parallel portion amidships, but is a symmetrical



R31—the first of the two wooden airships built by Short Bros—with the original twin-power cars aft, which have since been replaced by a single car.



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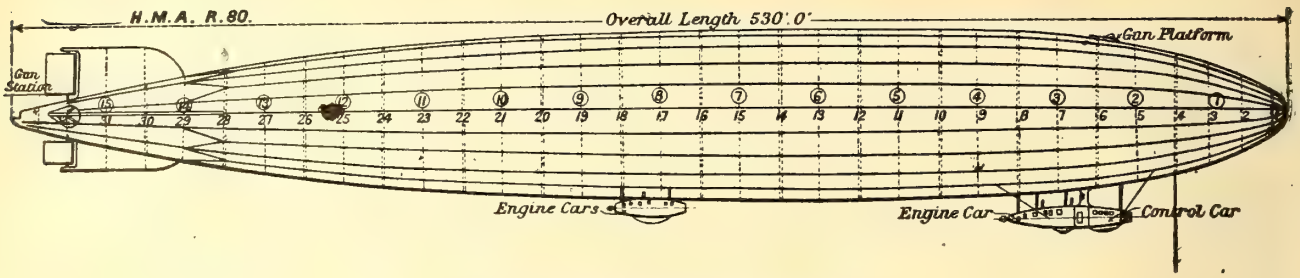


The R80. A Vickers ship of the latest type.

streamline form throughout its length. The construction and general arrangement of the hull, including the internal keel-corridor, conforms generally with the recognised principles of rigid airship design, but incorporates several minor improvements in detail devised by Messrs. Vickers. Patent bow mooring attachments are fitted.

The gasbags are 15 in number. Cruciform tail fins and balanced elevators and rudders are fitted and two gun positions, one above the bows and one in tip of the stern, these features are reminiscent of the practice in R33.

A point of recognition is the arrangement of the gondolas, of which there are three—one large gondola forward and a pair of "wing" power cars approximately amidships. The fore gondola is composed of two sections, flexibly connected, the leading section containing all the controls for the airship and the W/T cabinet.

Four 240 h.p. Wolseley-Maybach engines provide propulsive power, two engines being installed en echelon in the after section of the forward gondola, and one each in the twin "wing" cars. A propeller is mounted at the rear of each gondola, and the transmission is such that the forward propeller can be driven by either of its two engines separately or both together, whilst the "wing" car propellers may be reversed.

It is stated that R80 will have a full speed of over 60 miles per hour, and be capable of crossing the Atlantic. The endurance at cruising speed of 45 m.p.h., with a maximum load of fuel, will presumably be about 75 hours.

CHARACTERISTICS.

Length	535 ft.
Diameter (overall)	70 ft.
Capacity	1,250,000 cu. ft.
Engines and h.p.	Four 240 h.p. Maybach
Gross lift	36.5 tons.
Disposable lift (estimated)	15 tons.
Full speed (normal)	60 m.p.h.
Cruising speed	45 m.p.h.
Crew	20.

R35—R40 (PROJECTED).

Beyond a statement in the House of Commons to the effect that six rigid airships of improved types are being built to the order of the Admiralty, little official information has been vouchsafed as to the size and capabilities of the new vessels.

From reports which have appeared in the newspapers, however, it is to be deduced that two airships, R36 and R37, are being built of practically the same type as the R33, each with a capacity of about 2,000,000 cu. ft., and three larger vessels.

Since no mention is made of a possible R35, it appears that this number has not been allocated, or has been cancelled. Thus, the total of six airships presumably comprises R80, R36 and 37, and a new class R38, 39, and 40.

The "R38 Class" is referred to in the official "Notes on Airships for Commercial Purposes," in which it is stated that the capacity will be 2,720,000 cu. ft. and that the cruising endurance at 45 miles per hour is estimated to be 211 hours, or 34 hours greater than the German L70.

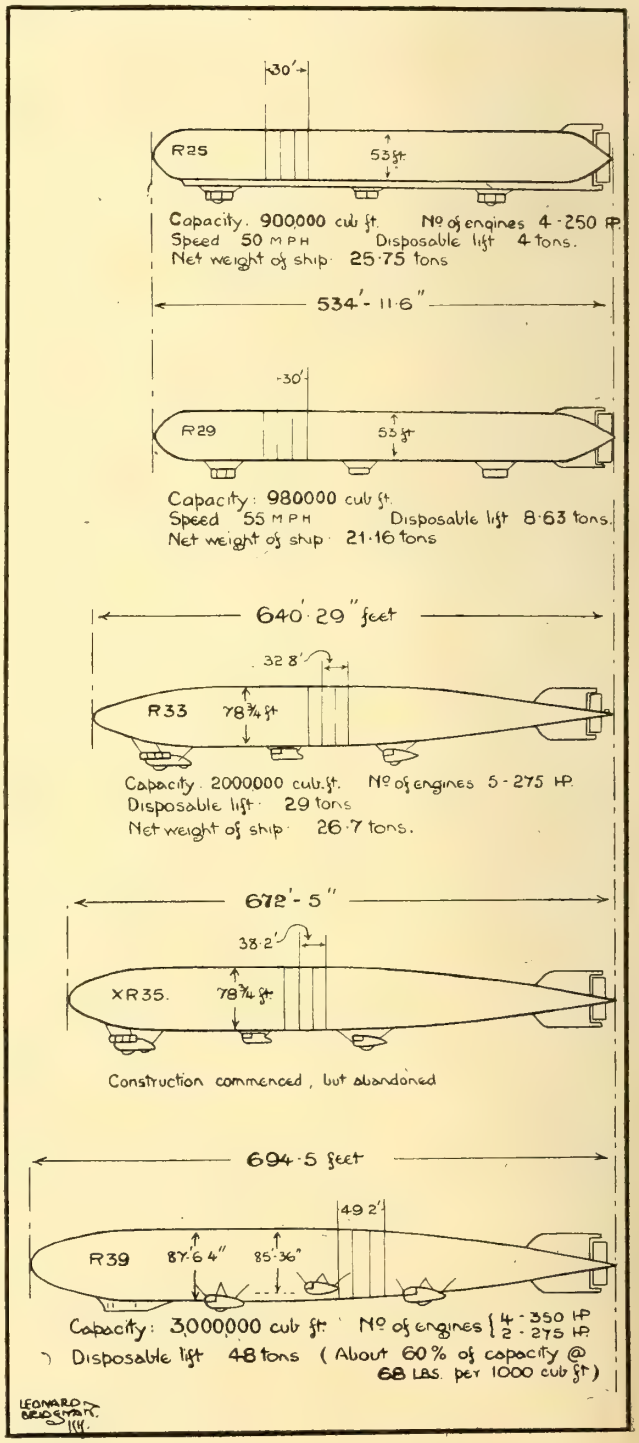
Some figures relating to the dimensions and lifting capacity of these new airships have been published in the Press, and these, supplemented or checked by obvious calculations, furnish the following details :—

CHARACTERISTICS (R38 CLASS).

Length	695 ft.
Diameter (overall)	87.6
Capacity	2,720,000 cu. ft.
Engines and h.p.	Four 350 h.p. Sunbeam "Cossack" Two 275 h.p. Sunbeam "Maori"
Gross lift	82 tons
Disposable lift (estimated)	50 tons
Speed, full (estimated)	70 m.p.h.
Crew (estimated)	30

In connection with the specifications given above the attached diagram, reproduced by courtesy of Sir W. G. Armstrong, Whitworth and Co., Ltd., and representing to a uniform scale the airships so far built by that firm, gives a graphic idea of the evolution of British-built rigids in the last two years.

(Continued on page 750.)

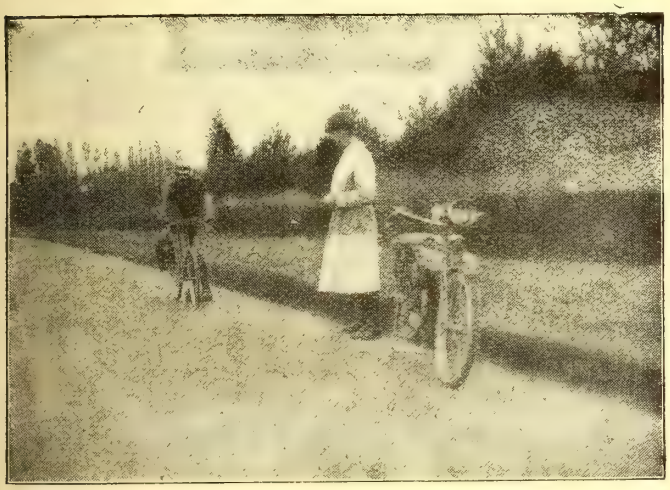


Are Motorists Lazy?

A well-known writer says:

"The A.A. is helping to make them so."

"Speaking as one who has never looked for a salute from A.A. patrols, but who has invariably received it, I have always appreciated their unfailing courtesy and willingness even to go out of their way to assist,



and that is, I think, the experience of most road users, but all the same, I confess to a feeling that in wanting to do so much for the motorist in roadside repairs and tyre changing, the A.A. is quite unconsciously helping to make motorists the laziest people on the road."

The above paragraph, taken from a motoring article in a London daily paper, though acknowledging the efficiency of the Automobile Association's Road Service does not do justice to its comprehensive character.

The khaki-clad A.A. patrol also gives reliable road information, warns members of bad road conditions and indicates alternate routes, renders first aid to man and machine, recovers property dropped on the road, procures replacements, and generally assists member in road difficulties.

The Roadside Telephone Service—of which the A.A. was the pioneer and remains the sole provider—includes a telephone installation in each patrol's sentry box which is at the service of any member passing.

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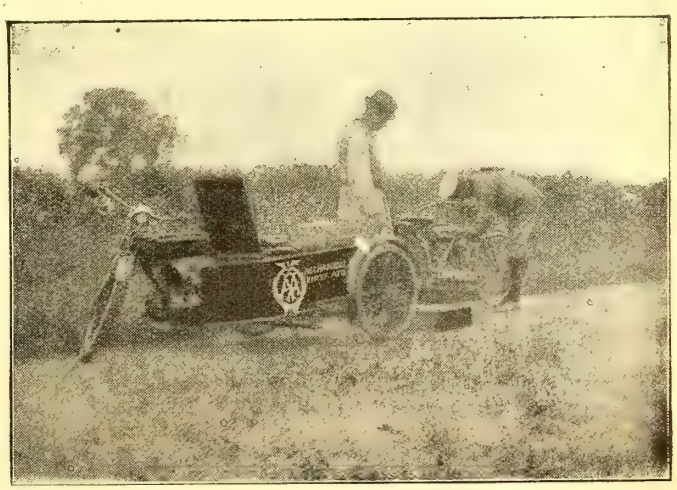
Whether the above privileges tend to make motorists lazy is a debatable point, but there is no denying the fact that they are of great benefit to and much appreciated by members of the Automobile Association.

If you are not a member of the A.A. send a post card to-day to the Secretary, The Automobile Association, 41, Fanum House, Whitcomb Street, London, W.C.2. for a free booklet and other information which will show you how to motor in comfort and safety.



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THE WEEKLY COMMENTARY.

The present number of "Aeronautical Engineering" is entirely devoted to articles dealing with the design, construction, and use of airships.

An article contributed by the airship department of Vickers, Ltd., deals with the prospects of airships for long-distance commercial transport. This contribution gives detailed estimates of the cost of long-distance airship passenger and mail services, together with technical details as to the type of ship suggested.

A description of the war productions of Vickers' Aircraft Department is also given.

By courtesy of Sir W. G. Armstrong, Whitworth & Co., Ltd., a description of the methods which have been adopted in the assembly and erection of large rigid airships at their Selby works is given. Some idea of the magnitude of the task and the difficulties overcome by British airship builders may be gained therefrom.

Sir Wm. Beardmore & Co., Ltd., have supplied a description of the actual process of building the trans-Atlantic airship R.34.

Short Bros., Bedford, have supplied a description of H.M.A. R.32, a rigid airship built entirely of wood, and also a description of a novel airship of their design.

Airships, Ltd., describe the uses of non-rigid airships.

An article by Major P. L. Teed gives a summary of the methods employed to compute the lift of hydrogen used in airships under varying conditions of purity, temperature, and pressure.

AIR TRANSPORT SERVICES.

A DISSERTATION ON THE POSSIBILITIES OF AIRSHIPS IN COMMERCIAL AERONAUTICS.

[The following paper has been produced by the Airship Department of Vickers, Ltd., of Barrow-in-Furness.—Ed.]

SECTION I.

SUMMARY OF THE MOST IMPORTANT CONCLUSIONS.

The outstanding and peculiar advantage of the airship for air transport is its capacity for making non-stop voyages of long duration. On account of inherent limitations, the aeroplane will probably never—unless some radically new principle of design is discovered—be capable of carrying a passenger load for greater non-stop distances than 2,000 miles, and for economical operation will probably never be used for non-stop flights of more than 1,000 miles; whereas, on the other hand, the only limit to the non-stop length of flight that can be made by an airship is determined by the size of ship, and 10,000 miles is quite practicable.

An airship of the size described in this paper, of a capacity of 3,500,000 cubic feet, which could be built immediately and be housed in existing sheds, can carry 15 tons of passengers, mails, etc., for an air distance of 4,800 miles, at a speed of 60 m.p.h., and it would be quite a practicable proposition to build a rigid airship to carry 50 tons of passengers and freight for a non-stop voyage of 10,000 miles, at a speed of 80 m.p.h. It therefore may be definitely accepted that for voyages on which it is necessary to make a non-stop flight between points more than 2,000 miles distant the airship is the only means of aerial transport possible, and it may also be safely stated that the airship will always be the most economical means of transport for non-stop voyages of more than 1,500 miles. It therefore is inevitable that the airship will hold the field for long-distance cross-oceanic air voyages.

COST OF OPERATION.

As a basis for comparative figures, the direct non-stop passenger voyage from London to New York (a minimum distance of 3,000 miles) has been considered, and an analysis made of the cost of operating a service of two crossings in each direction per week, giving a carrying capacity of 30 tons of passengers, mails, etc., in each direction. Details of this cost analysis are given in Section V.

The results may be summarised as follows:—Capital required, £2,600,000. Allowing 10 per cent. on capital, and a high rate of depreciation and insurance, etc., the cost of operation would be as follows:—Carrying passengers from London to New York, £48 per head, which is equivalent to 4d. per passenger mile. The rate for mails, etc., would be 3d. per ounce. The time taken for the journey would be two-and-a-half days from London to New York by the southerly route, and two days from New York to London by the direct route.

It is impossible to run an aeroplane service direct from London to New York, but with the largest and most efficient machines at present considered practicable, it would be possible to run a London to New York service with the intermediate stops in Ireland and Newfoundland for replenishment of fuel, etc.

An analysis of the cost of running an aeroplane service on this basis is given in Section XII, from which it will be seen that to give the same service as the airships proposed, the capital required would be £3,850,000, and the cost of operation on the same basis as the airships would be: Passenger rate, from London to New York £115, which is at the rate of ninepence per passenger mile. Mails at the rate of 7½d. per ounce.

The time taken, allowing for stops in Ireland and Newfoundland, would be two days.

It is therefore seen that for a regular and established service, the cost of Atlantic transport by airship is less than half of that by aeroplane, and the time taken practically the same.

It must, however, be pointed out that if the airship stopped at the intermediate points as necessary for the aeroplane, a considerably greater amount of passenger load could be carried, and the relative cost by airship would be further decreased.

With the development of airship transport to the most distant centres of the world, it is conceivable that no important city will be further from London than 10 days' journey, and the following table gives the times that would be taken to reach several important cities when airship ocean routes are in operation:—

TIMES FROM LONDON IN DAYS.—To New York, 2-2½; San Francisco, 4½; Cairo, 1½; Colombo, 4½; Perth, 7; Nairobi, 3½; Capetown, 5½; Rio de Janeiro, 4.

As the maximum distance of direct flight between intermediate stations required to get to any of these centres is not more than 3,500 miles, it would be practicable to run these services with the size of airship described in this paper, and the cost of operation for a regular service would be approximately as for the Atlantic service, i.e., passengers at the rate of 4d. per mile, and mails at the rate of 3d. per ounce, and with the development of large airships carrying greater loads, the cost of operation would be even more economical.

It is probable, in view of the immense benefits that would be conferred on civilisation by the great saving in the time required

for travelling, that the various Governments will be prepared to subsidise the development and operation of the airship services in their initial stages until a fully operated service could be established.

Incidentally, the commercial use of airships for passenger flights was demonstrated in Germany before the war, when the Hamburg-America Steamship Company ran a series of passenger airships for purely pleasure purposes at a profit, and carried 17,000 passengers without a single accident or mishap.

From the description of the type of airship proposed in Section VII, it is apparent that every reasonable provision can be made for comfort of the passengers, and suitable sleeping accommodation provided for the long journeys.

For the operation of airship services, aerodromes are only required at the terminal stations, and landing places with mooring-out towers need only be provided 3,500 miles or more apart.

The necessary amount of work in constructing the stations and preparing for the operation of an airship service is relatively small, whereas a long distance aeroplane service is only practicable if aerodromes can be provided every 1,000 miles, and for safety it would be necessary to have suitable landing grounds for use in case of forced landings no further apart than 100 miles.

The preparation and cost of all these aerodromes and landing grounds would represent a large amount of preparatory work required to be done before long distance aeroplane service could be put into practicable operation.

The problem of landing and housing the airship in stormy weather has now been solved by the use of the mooring mast or tower to which the airship is moored by the nose, and able to ride out in any weather clear of the ground. Arrangements are also provided whereby the airship can easily be moored to, or released from, the tower in any wind up to 60 miles per hour without difficulty. The passengers can get into or out of the ship by means of a lift in the tower. There consequently will be no need to put the airship into a shed except for periodic overhaul and refit.

SECTION II.

General Remarks.

Although no claim is made that airships will seriously compete with ordinary transport services at present satisfactorily served by railway and ocean liners, there is no doubt that a sufficient number of passengers would be prepared to pay relatively higher rates for the great saving in time taken for long distance journeys, particularly for long sea journeys, and also to get a direct and fast service to important centres which are not at present served direct by railway systems or ocean transport.

The demand would mainly be for passenger traffic to serve the requirements of business men who require to get from centre to centre in the shortest possible time, and also for the carriage of express mail matter.

Other services on which large airships would be particularly useful would be :—

For carrying freight of high intrinsic value, such as transporting valuable ores and other commodities of high intrinsic commercial value from places otherwise inaccessible, or not provided with other means of direct transport.

In making preliminary exploration of large virgin tracts of country for the purpose of constructing railway tracks, etc., a great amount of laborious exploration work would be eliminated.

There are also great possibilities of obtaining a profitable return by running airships for pleasure trips from seaside or other resorts in the summer months, where an almost unlimited number of people would pay a good price for airship cruises.

A particular instance for which it is thought such services could be profitably run would be at Blackpool, where pleasure cruises could be run to the Isle of Man, or to the Lake District.

There might also be a limited demand from private owners for a small non-rigid airship, to carry two or three passengers, which could be run at much the same cost as a small yacht.

It is probable that in order to meet the requirements of these various purposes for which airships conceivably will be utilised airships will be designed of three classes, viz. :—

First, the airship of moderate size and high speed, for carrying express mails and passengers.

Secondly, the passenger liner for passenger traffic, of a large size, and high speed.

Thirdly, large airships of comparatively slow speed and large carrying capacity, for general transport.

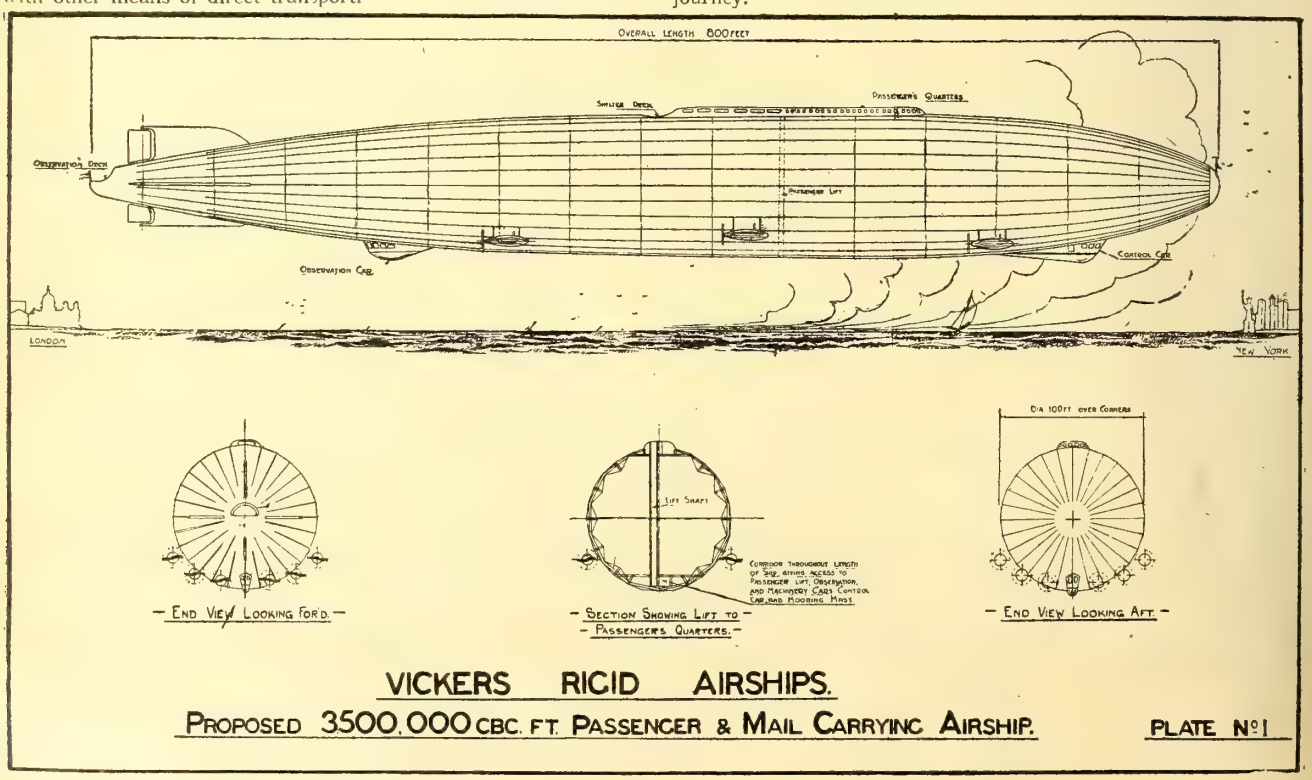
The small non-rigid airship will hold the field for use for private purposes.

The rigid airship is as yet only at the beginning of its development, particularly as regards size and carrying capacity. The airship of 3½ million cubic feet capacity—the size proposed in this paper—for immediate use on the fast passenger services, which would have a maximum speed of 75 m.p.h., and would carry a useful load of passengers of 15 tons, for a distance of 4,800 miles, could be built immediately and could be housed in sheds at present available. As, however, the lift and speed efficiency of a rigid airship increases rapidly with increase of size, it will be advantageous to use the largest airships that can be economically operated, and a rigid airship able to carry 50 tons of passengers and freight for 10,000 miles, at a speed of 80 m.p.h., is quite feasible, and the design and construction of such an airship could be undertaken immediately it would be justified by developments in the demand for air transport.

Passenger cruises on a commercial scale were operated in Germany for about four years before the war by the Hamburg-America Steamship Company, and it is understood that companies have been formed in Germany for Zeppelin airship services from Berlin to Constantinople, and notices have recently appeared in the Press that the German Zeppelin Company is now actually building airships for the Berlin-New York service and other routes.

Notices have also recently appeared in the Press to the effect that the Spanish Government have decided to make inquiries into the possibilities of running trans-Atlantic services from Spain to the United States of America.

It is conceivable that by the development of aerial transport no important city will be further from London than 10 days' journey.



VICKERS RIGID AIRSHIPS.

PROPOSED 3500,000 CBC. FT. PASSENGER & MAIL CARRYING AIRSHIP. PLATE No I

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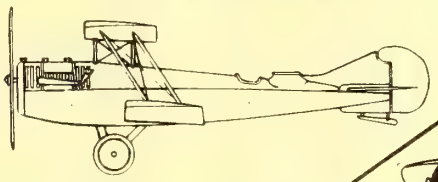

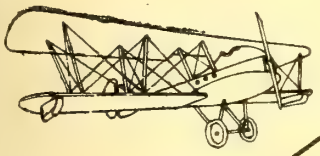

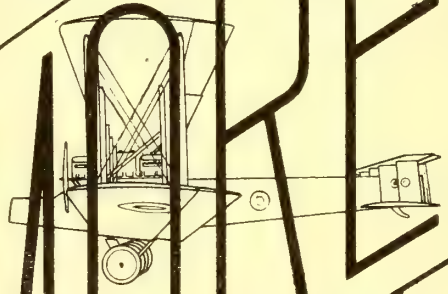

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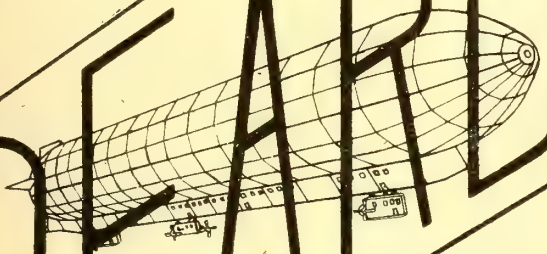

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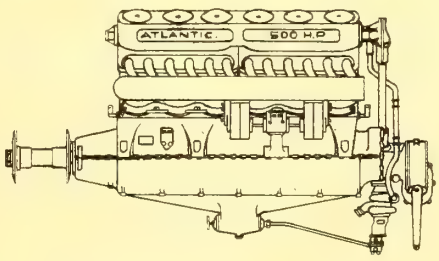

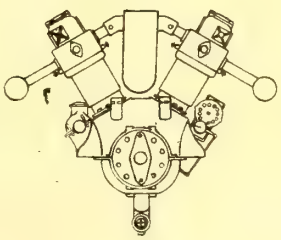

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SECTION III.

Proposed Services and Routes.

The advantages of airship transport will be most apparent for long ocean journeys, and it is believed that the best route for the first service would be between London and New York, as this is the route on which there is the greatest demand for a saving in the duration of voyage, and a large amount of passenger traffic would be immediately available once the advantages of the service were demonstrated.

London to New York.—This is dealt with in detail in Section IV.

After the establishment of the Atlantic service, other services on which airship transport would effect great economies in time would be the following:—

London to India and Australia.—London to Cairo, 2,050 miles; Cairo to Colombo (*via* Aden), 3,400 miles; Colombo to Perth (Australia), 3,150 miles.

At an average speed of 60 m.p.h., and with a stop of 12 hours at each station for re-fuelling, etc., the times taken would be the following:—London to Cairo, 34 hours, or 1½ days; London to Colombo, 34 plus 12 plus 58 hours equal 104 hours equal 4½ days; London to Perth, 104 plus 12 plus 52 hours equal 168 hours equal 7 days.

By train and mail steamer the journey to Ceylon at present takes 15 days, and to Australia takes over 30 days.

Cairo to Capetown.—Cairo to British East Africa (Nairobi), 2,100 miles equals 35 hours; British East Africa (Nairobi) to Capetown, 2,200 miles equals 37 hours. Total time from Cairo to Capetown, allowing stop for twelve hours at Nairobi equals 84 hours, or 3½ days; or from London to Capetown, 5½ days.

Further than the saving in time in the actual journey, there is the saving by using an airship service in the elimination of the time taken for trans-shipping and waiting at the various ports, etc., where the aerodromes could be situated quite close to the terminal stations.

Owing to the variation in weather conditions, there would be, of course, some latitude in the time of arrival at the destination, but in those cases where there is a saving of several days in the total journey the variation of a few hours in the time of arrival would not be of much account.

Size of Airship Required for the Above Services.—It will be noted that the maximum distance of voyage required for any of the services stated above is 3,500 miles, which at a speed of 60 m.p.h. would require a ship able to fly at this speed for a minimum of 60 hours, and in order to allow for loss of time on the way, owing to adverse weather or other reasons, it is considered that an airship able to do 80 hours' flight at a speed of 60 m.p.h. would meet all the conditions.

It is proposed that the airship should have a full speed at maximum power of 75 m.p.h., but she would generally only fly at reduced power, giving a speed of 60 m.p.h., the additional power being held in reserve to enable the additional speed to be utilised for getting through storm areas or going against adverse winds.

SECTION IV.

Proposed London to New York Service.

1. Specification of Proposed Airship (see Plate I.):—

(A complete specification is given in Section VII.).

The main particulars to be as follows:—

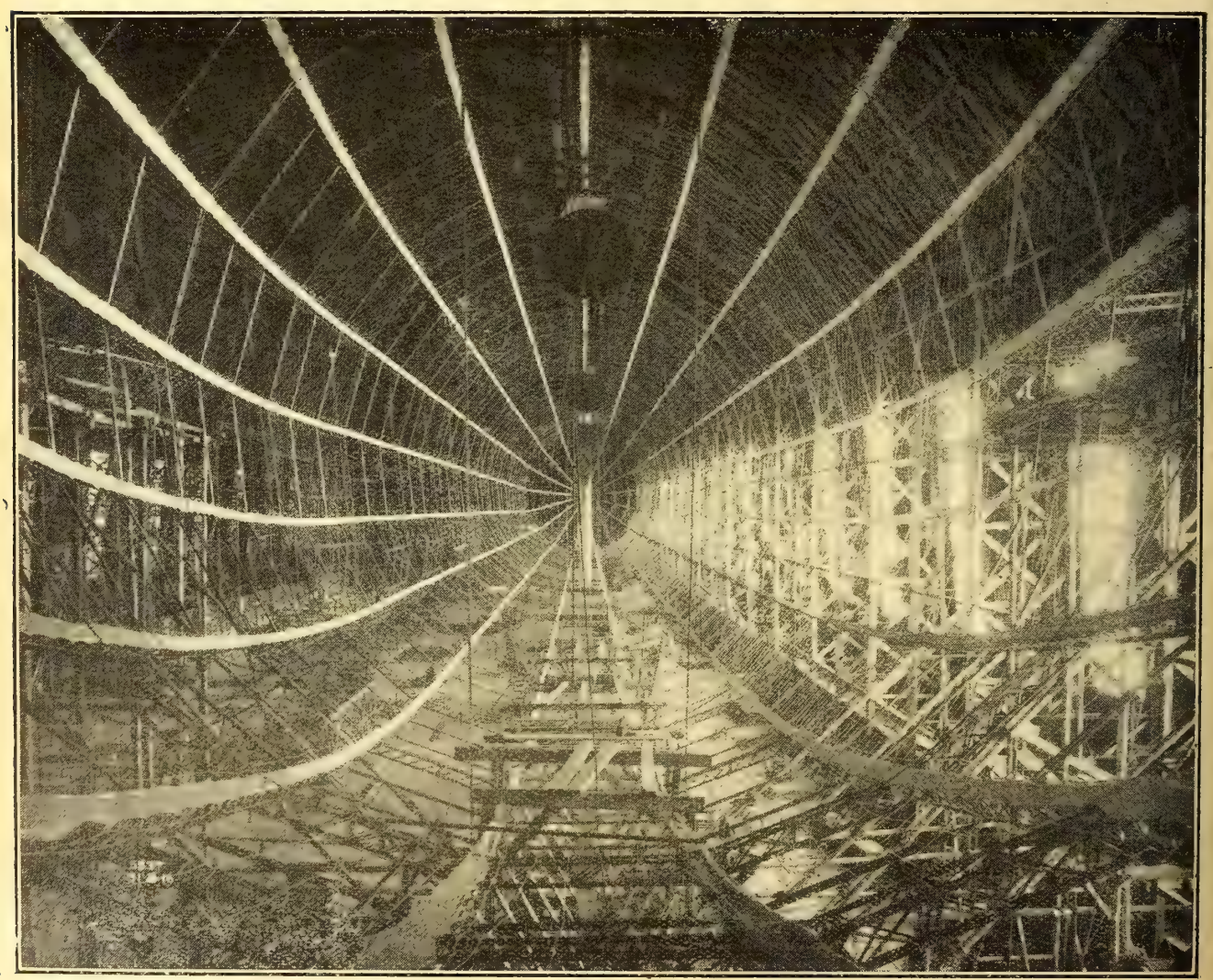
Gross gas capacity	3,500,000 cubic feet
Normal total lifting power	105 tons
Disposable lift	68 tons

(The "disposable lift" is that available for fuel and oil, stores, crew, passengers, and mails.)

Total engine power	3,500 b.h.p.
Speed at full power	75 m.p.h.
Normal flying speed with 2,000 b.h.p.	60 m.p.h.
Consumption of petrol	0.5 lbs. per b.h.p./hour
Consumption of oil	0.03 lbs. per b.h.p./hour

2. Proposed Crossing Routes.

Prevailing wind on the direct route (London to New York) is almost always from west to east, which would of course always favour the east-bound journey, but is unfavourable to the west-bound journey.



View inside the skeleton of a rigid Airship at the Vickers' Airship Works, Barrow-in-Furness. External keel type.

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It is proposed, therefore, that the crossing eastward from New York to London should be made by the more direct route, and thus take advantage of the westerly winds; the distance direct by this route is 3,000 miles.

By making the west-bound journey by a southerly route, via the coast of Portugal, Azores, and on 35° N. parallel of latitude across the Atlantic, and then to New York, the voyage is made in a region where the prevailing westerly winds of the higher latitudes are absent, and only light winds are encountered, which are generally of a favourable direction.

The distance by this route, however, is about 3,600 miles, but with a ship speed of 60 m.p.h. it would be quicker to make the west-bound journey by the direct route if the westerly wind did not exceed 10 m.p.h. If the wind were greater than this, it would be quicker to go west by the southerly route *via* Azores. For information regarding prevailing winds, reference should be made to Section V.

As a basis for the times taken, the journey from London to New York via Azores is taken.

Although the speed of the airship at maximum power is 75 m.p.h., the crossing normally would be made at a speed of 60 m.p.h., which only requires 2,000 h.p. and is thus much more economical in fuel. The full speed, however, can be used whenever the ship has to voyage through any storm areas against strong head winds. By the southerly route, the time taken for the journey of 3,600 miles at a speed of 60 m.p.h. is 60 hours, but to allow for delays owing to adverse weather allowance is made for the airship always carrying 80 hours' fuel at 60 m.p.h.

The distances and normal times for the journey would therefore be as follows:—London to New York, *via* Portugal and the Azores, 3,600 miles; time taken, 60 hours, or 2½ days. New York to London by the direct route, 3,000 miles; time taken, 50 hours, or just over two days.

3. Service:—

It is proposed to have four airships for use on the cross-Atlantic service.

Two airships would only be in service at a time, and the other two standing by, so that each airship could lay up alternate weeks for overhaul and refit, etc.

As the time of journey etween London and New York will vary between 50 to 60 hours, each airship will therefore easily make two crossings or one double journey per week, thus giving a service with two airships of two "sailings" each way per week. The average time-table might therefore be as follows:—

Leave London.	Arrive New York.
Monday, a.m.	Wednesday, p.m.
Thursday, a.m.	Saturday, p.m.
Leave New York.	**Arrive London.**
Monday, p.m.	Thursday, a.m.
Thursday, p.m.	Sunday, a.m.

From available weather records, it is considered that crossings would be practicable on at least 300 days in the year, or 82 per cent. of the total days, so that it is probable that a total of 200 crossings in the year could be maintained.

It is probable that until weather conditions have been further studied, so that advantage can be taken of the best possible routes, that a regular service of two crossings each way per week could probably only be maintained at first in the months of May to September, and that the crossings in October to April would probably be irregular, the actual day of sailing being dependent on the weather conditions.

4. Crew Required:—

Two watches would be carried, who would take duty in eight-hour shifts, and both watches on duty when leaving or landing.

Each watch: Navigating officer, steersman, elevator man, four engineers, signalman for w.t. (eight men), also two stewards, commanding officer; total crew, 19 men.

Four crews would be in service between the airships, so that each crew would only make two crossings per week.

Weight of crew at 160 lbs. per man; personal effects at 20 lbs. per man; food at 10 lbs. per man per crossing; total weight, 190 lbs. per man. Total weight for crew, 190 × 19 = 3,600 lbs.

5. Passengers and Mails Carried:—

Weight per passenger:—Weight of man at 170 lbs., personal effects at 50 lbs. per man; food, etc., for journey at 15 lbs. per man; total, 235 lbs. per man.

Distribution of disposable weight for journey:—Crew and effects, 19 men at 190 lbs., 1.5 ton; fuel and oil for 80 hours at 60 m.p.h., 38 tons; starting ballast for 2,000 ft., 6.5 tons; emergency ballast, 5 tons; available for passengers and mails, 15 tons; total, 68 tons.

Fifteen tons would carry 140 passengers and effects, or 10 tons mails and 50 passengers.

SECTION V.

Estimated Cost of Running the Proposed Atlantic Service, London-New York.

The cost of running the service would be that necessary to cover the following charges, viz.:—(1) Interest on capital required, (2) allowances for depreciation, (3) insurance premiums, (4) operating expenses, (5) repairs and maintenance. Dealing with these items in detail:—

1. Capital Charges:—	Amount.
Four airships of 3,500,000 cubic feet capacity at £400,000 each	£1,600,000
Two double airship sheds at £300,000 each	600,000
Land for two sheds and aerodromes at £30,000 each	60,000
Workshops, gas plants, and equipment	150,000
Working capital, including spare parts, stores, etc.	170,000
Wireless equipment	10,000
Miscellaneous accessories	10,000
Total capital required	£2,600,000
Annual charge, interest at 10 per cent.	£260,000

2. Depreciation:—

(a) Airships.—Useful life, say 3 years. Obsolete value, say £20,000 per ship. Total depreciation per ship equals £380,000 in 3 years. Average total depreciation per annum for 4 airships for 3 years equals £507,000.

(b) Airship Sheds.—Useful life, say 30 years. Obsolete value in 30 years, 10 per cent. Total annual charges equal £18,000.

(c) Workshops and Plant.—Depreciation at 5 per cent. per annum equals £3,500.

(d) Land for Sheds and Aerodromes.—Value would probably increase owing to use as airship station, but is assumed as remaining constant.

Total annual charge for depreciation, £530,000.

3. Insurance Premiums:—

(a) On airship value at 10 per cent. per annum, average per year for 3 years	£110,000
(b) On sheds and plant at 2 per cent. per annum	13,500
Total annual insurance charges	£123,500

4. Annual Establishment Expenses:—

(a) Salaries of officers and crew:	
4 airship commanders	£4,000
8 airship officers	6,000
Total number crew hands equals 64	16,000
	£26,000

Girls at the Vickers Works making up Airship girders.

B.T.H. Magnetos

all-British in design and workmanship, were used **on the first Airship to cross the Atlantic, the R. 34,** on the aeroplanes which secured the British altitude record, and the first and second prize-winners of the Victory Aerial Derby at Hendon.

The above performances add to the record of B.T.H. Magnetos, and support the high opinion in which they were held by pilots during the war for reliability in service.

The British Thomson-Houston Co., Ltd.,
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B T-H

(b) Salaries of establishment:	
(i) Management and staff	£5,000
(ii) Workshop hands, storekeepers, etc., 50 at each shed (total 100)	£20,000
	£25,000
Total annual establishment expenses	£51,000
5. Repairs and Maintenance :—	
(a) Sheds and plant—annual charge, say	£5,000
(b) Repairs and overhaul of airships	£20,000
Total charge	£25,000
Totals of Annual Charges :—	
1. Interest on capital	£260,000
2. Depreciation	530,000
3. Insurance	123,500
4. Establishment expenses	51,000
5. Repairs and maintenance	25,000
Total annual charges	£990,500
Say	£1,000,000

Cost Chargeable per Crossing :—

The amount chargeable per trip comprises :—(1) Proportion of annual charges, (2) cost of fuel and oil per trip, (3) cost of hydrogen used per trip, and (4) cost of food for crew and passengers.

Taking the number of crossings per year as 200, London-New York :—

1. Proportion of annual charges per crossing	£5,000
2. Petrol for trip, 30 tons at £25 per ton (1s. 6d. per gallon)	750
3. Oil per trip, 2 tons at £40 per ton (2s. 6d. per gallon)...	80
4. Hydrogen used, 750,000 cub. ft. at 10s. per 1,000 cub. ft.	375
5. Cost of food per trip for crew of 19, and 100 passengers..	400
Total charge per crossing, London-New York...	£6,605

This is at the rate of 38s. per ship mile flown.

Carrying passengers, the rate would be :—London-New York, £48 per head, which is equivalent to 4d. per mile per passenger.

Rate for mails would be :—London-New York, £425 per ton, or 3d. per ounce.

It will be seen from the above that the direct running cost is 25 per cent. and the overhead charges 75 per cent. of the total cost.

SECTION VI.

Financial and Working Arrangements, and Government Subsidy.

It is considered probable that proposals for Government support for the establishment of airship services would be favourably considered, as the constant use of airships for commercial work would be the best possible means of developing and improving the design, as suggested by the constant experience obtained in service.

It would offer a means of keeping in constant training officers and crews who would be available for Naval service.

The type of airships used for passenger and mail transport could also be very well adapted for use in the Naval services should occasion require.

From the analysis of working cost in Section V, it may be justifiably be expected that airship services, when fully established and patronised, will be able to show a good working profit. It would probably require considerable financial support before the service will be so established as to ensure full support from passenger and mail traffic when it would be able to be run on a paying basis.

To establish and work trans-oceanic airship lines, it would be desirable to form a joint syndicate with a shipping company (e.g., the Cunard Line), who would undertake the organisation of the operation of the service and the necessary publicity; Vickers, Ltd., to build the necessary airships and provide the necessary technical staff and facilities for maintenance.

The Government subsidy to the airship companies would probably be on the following terms :—

1. Loan of airship sheds and flying grounds by the Government, free of charge, until the experimental stage is passed and the company is in a position to obtain the necessary capital for providing the requisite sheds and landing grounds for new services.

2. The loan of Naval airship crews and handling parties, until the service was established as a paying concern, and until officers and crews could be trained by the airship company.

3. The Government to pay a substantial subsidy for the conveyance of express mails.

4. It is also possible that the Government would be prepared to share or undertake all the financial risk of the insurance of the airships until the security of the service was so established as to warrant underwriters giving reasonable rates.

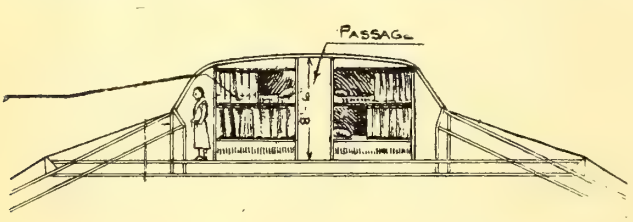
It is understood that the German Airship Passenger Company, which was run by the Hamburg-America Steamship Company, was subsidised by the German Government to the extent of being provided with crews and handling parties of the Army and Navy Airship Services under training.

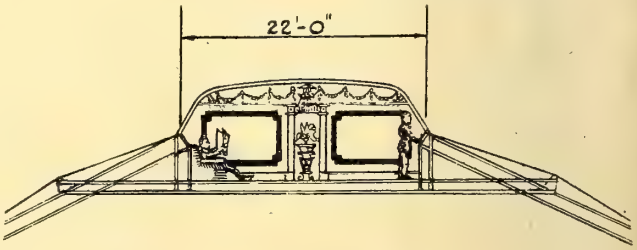
SECTION VII.

General Specifications of Proposed Airship for Transport Services.

General particulars :—

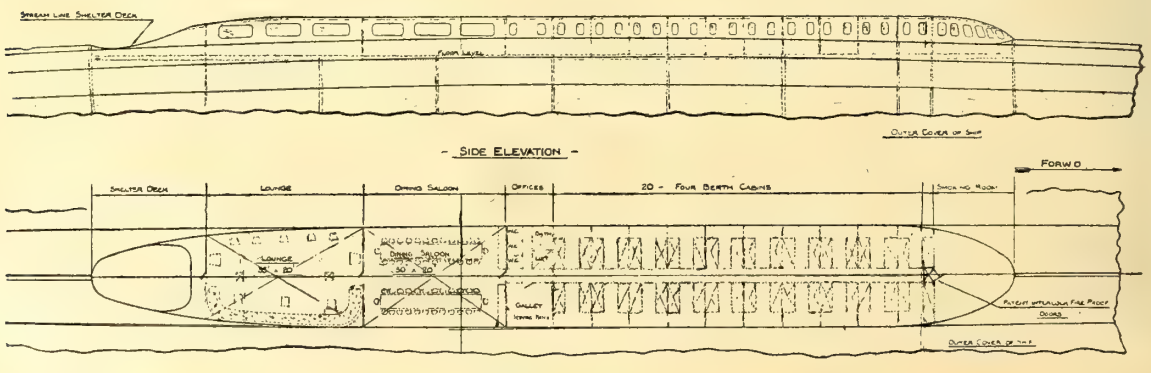
Gross gas capacity	3,500,000 cubic feet
Overall length	800 feet
Maximum diameter and overall width	100 feet
Overall height	105 feet
Total lift (at 68 lbs. per 1,000 cubic feet)	105 tons
Disposable lift	68 tons
Total maximum power of engines	3,500 B.H.P
Cruising power	2,000 B.H.P.
Speed at full power	75 m.p.h
Speed at cruising power	60 m.p.h
Endurance at cruising power—when carrying 15 tons of passengers and freight—80 hours, equals 4,800 miles	





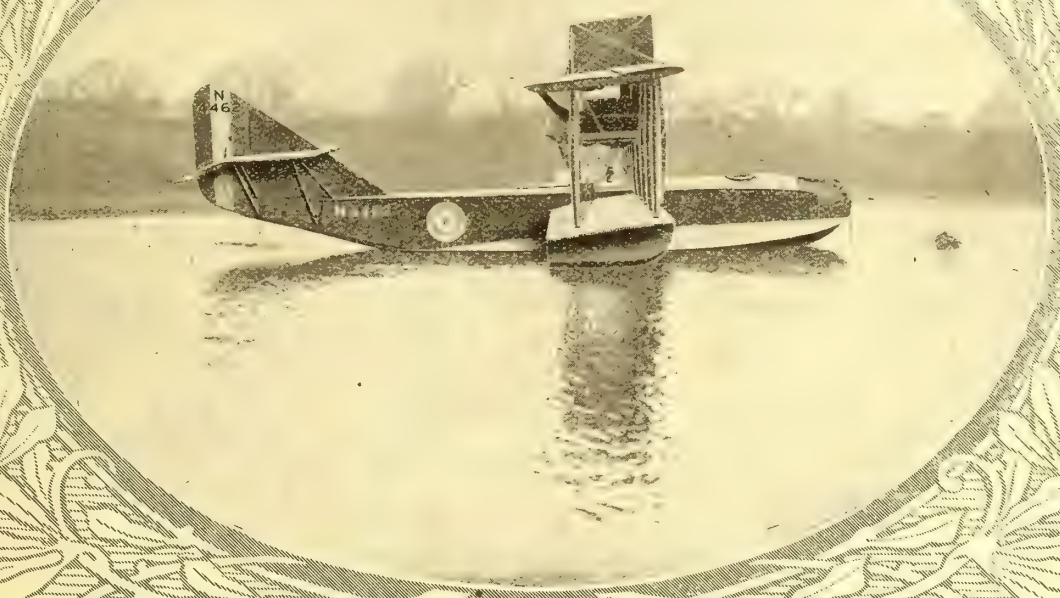
— SECTION INWAY OF CABIN —

— SECTION THRO' LOUNGE —



Diagrams of the Passenger accommodation of the Vickers proposed Trans-Atlantic Airships.

SAUNDERS



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Endurance at cruising power—when carrying
10 tons of passengers and freight .....
90 hours, equals 5,400 miles

Note.—The "Disposable Lift" is the lift available for fuel and oil, stores, crew and passengers, mails, and freight, etc.

The particulars and performance stated are based on present design, and the actual performance of ships of 2,000,000 cubic feet capacity now in service. It is considered that the figures given are conservative and that actually the increased size of ship would enable greater structural efficiency and consequently greater disposable lift available than that specified.

Special Features:

Passenger accommodation—

Living Saloon.—The main living accommodation would be in a saloon fitted along the top of the airship, provided with tables and chairs in the style of a Pullman car, which would enable the passengers to be comfortably accommodated during the day time. Part of this saloon would be fire-proofed to allow of being used as a smoke room. An open shelter deck would also be provided at the aft end to enable the passengers to take the air.

The saloons would be provided with windows giving the passengers an all-round outlook.

A passenger lift would be provided for communication between the passengers' quarters and the lower part of the ship.

Observation car.—An observation car, fitted below the hull towards the aft end of the airship, would also enable passengers to observe the land and sea immediately below the ship.

Sleeping quarters.—Sleeping accommodation in the form of berths would be provided in small cabins fitted on top of the airship forward of the living saloons.

Cooking.—A mess kitchen would be provided fitted with electrical cooking apparatus. Meals would be served in the saloon.

Heating.—The saloons and sleeping quarters would be heated by electric radiators.

Height equilibrium:—

On long day and night flights the greatest problem is the maintenance of the airship at a constant height, and avoiding the loss of gas consequent on expansion due to the ship rising as she loses weight by consumption of engine fuel. Also, owing to the great variation in temperature between day and night, the ship becomes heavy due to the lower temperature at night, and light due to the higher day temperature, and thus would require a discharge of weight (ballast) at nightfall, and discharge of gas in the morning to keep the ship in equilibrium. To obviate discharge of gas, and the necessity of starting with a large weight of ballast, it is proposed to adopt the following means:—

1. Using hydrogen as fuel.—Arrangements may be made to run a proportion of the engines on gas fuel, so the gas can be consumed at such a rate that the loss of lift equals the loss of weight of fuel consumed by the other engines, thus economically using gas which otherwise would be lost through the discharge of the gas-valves. For details of this scheme, see the appendix to this section, from which it will be seen that hydrogen as fuel is only approximately twice the cost of petrol.

2. Water recovery from exhaust gases.—Apparatus could be provided to condense the water of combustion from the exhaust gases of the engines. Experiments which have been carried out have demonstrated that it is practicable to recover water of slightly greater weight than the petrol fuel consumed, thus avoiding any variation in lift due to petrol consumption.

3. Water ballast from the sea.—Apparatus could be provided to enable water ballast to be picked up periodically from the sea by means of a pump suspended from a flexible hose, or by bringing the airship down on to the water's surface and taking water direct into tanks in the gondolas through sea-valves.

4. Dynamic lift. If the airship is flown with a slight upwards or downwards inclination, a considerable lifting or weight effect is obtained, but this, however, entails a reduction in the flying speed of the ship.

General Specification.

Hull Structure.—The shape of the hull to be of the most perfect streamline form within the limitations of constructional requirements.

An internal keel corridor, running along the bottom of the hull, to be provided, in which all petrol and oil tanks and water ballast would be carried.

Outer Covering.—The outer cover would be made of special weather-proof fabric to give the longest possible life when subjected to the weather effects on continuous voyages. Also, to be as efficient as possible in insulating the gas from change of temperature, and so avoid great variations in the lift.

Gasbags.—The gas capacity would be divided up into gasbags made of suitable rubber-proofed cotton fabric, lined with goldbeater's skins. Gasbags will be fitted to automatic relief valves and hand control manœuvring valves.

Control and Navigating Compartment.—A control and navigating compartment to be built on to the hull towards the forward end of the airship, which would contain all main controls, the navigating instruments, and also the wireless telegraphy installation cabin.

This compartment should be so arranged with windows as to have a clear view in every direction.

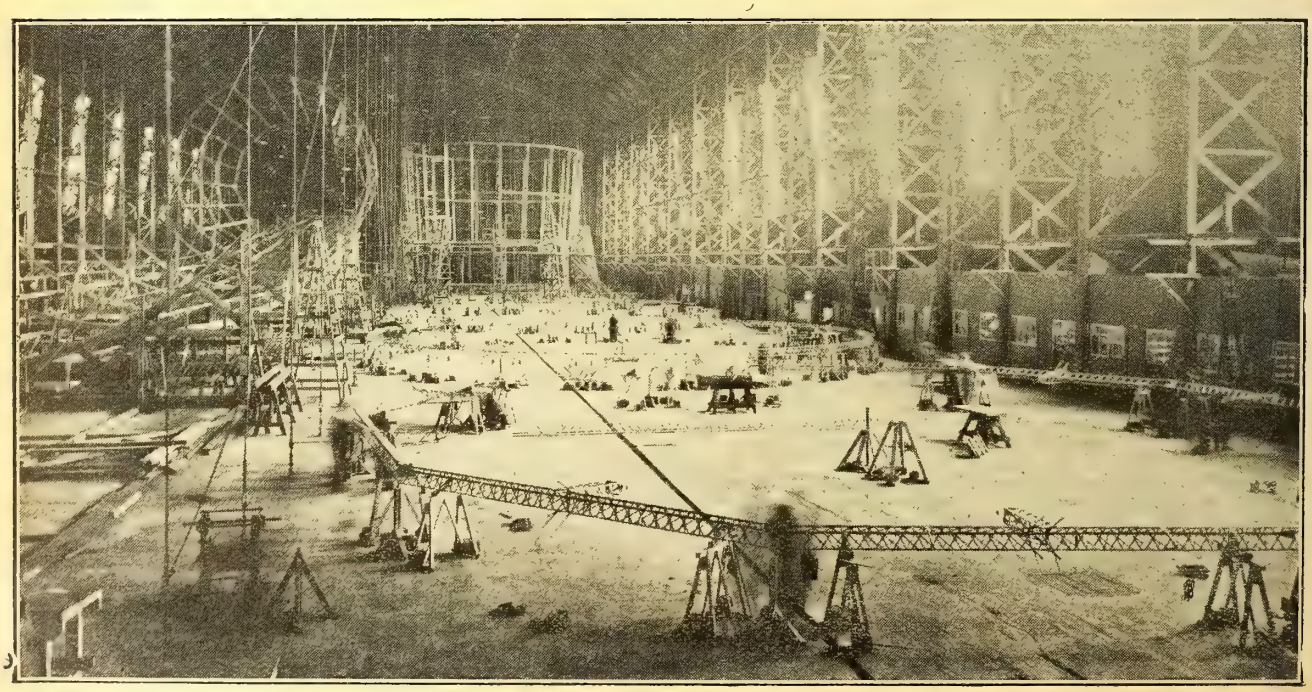
Machinery Cars.—Six machinery cars would be fitted, each containing one engine installation, with a direct-driven propeller fitted at the aft end. Two of these cars to be suspended on each side of the hull, suitably arranged so as to give ample ground clearance for the propellers.

The two other cars to be situated underneath the hull, and fitted with landing gear and floats.

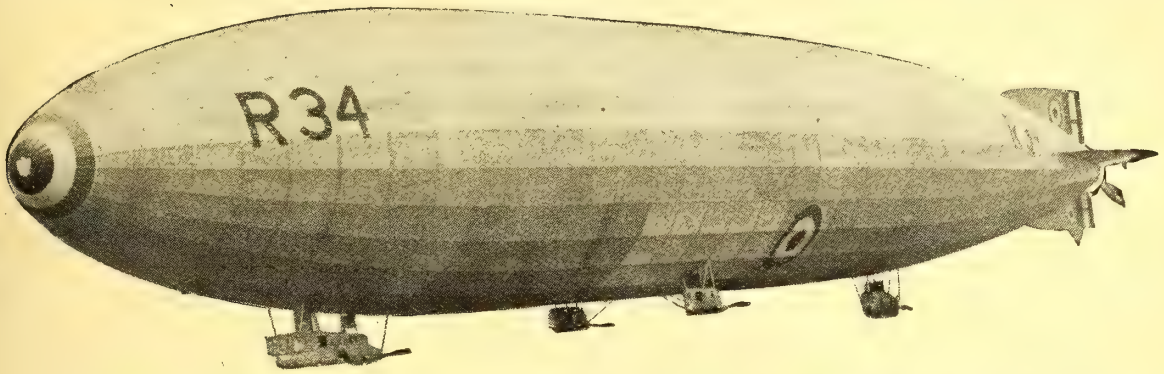
Machinery Arrangements:—

Six engines, of a nominal 600 b.h.p. each, to be fitted, making a maximum total power of 3,500 b.h.p. The engines to be designed to develop their maximum full power when flying at a height of 5,000 feet.

Engine Starting.—Starting to be by the Maybach charging pump system, or, alternatively, the engine to be arranged to start on the hydrogen fuel.



AT THE VICKERS WORKS:—Transverse frame rings for rigid Airships being assembled. In the background may be seen a section of the hull being erected in a vertical position, and on the left a completed section on the assembling cradles.



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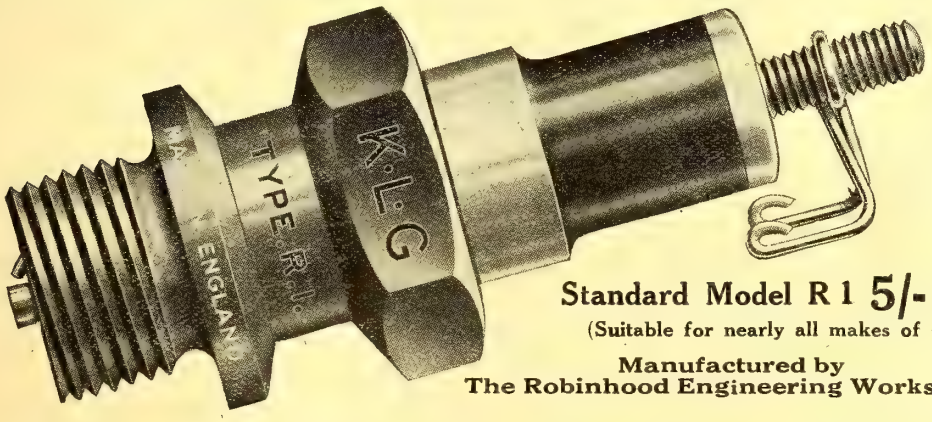
All were available, "K.L.G." were chosen.



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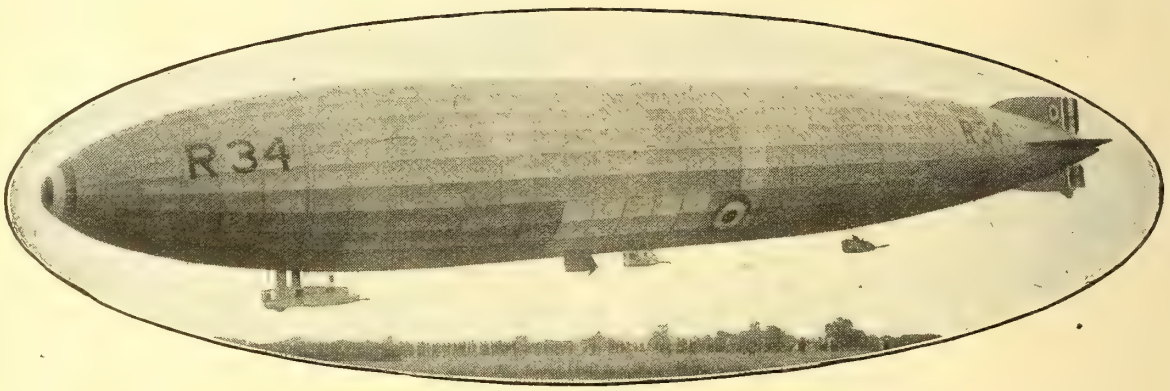

The Landing in Norfolk of the R.34, on Sunday, July 13th, 1919.

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Reversing Gear.—The transmission gear in two of the wing cars only, to be fitted with reversing gear to enable the airship to be driven astern.

Cooling System.—The radiators of the engine-cooling system to be fitted in slides to enable them to be completely drawn into the cars when the engines are not running, to ensure their being kept sufficiently warm and prevent freezing.

Silencer.—The engines to be fitted with special exhaust silencers in order to reduce the exhaust noise to a minimum, and special consideration is also to be given in the design of the transmission gear, etc., to obviate as far as possible all objectionable noise.

Engine Fuel.—All engines to be designed for running on petrol fuel, but to be fitted with arrangements to enable them to be run alternatively on hydrogen gas

Controls and Communications.—All the following controls of improved type would be fitted, to be operated from the forward control compartment :—

(i) Controls to the rudders and elevator planes for the steering control.

(ii) Gas-valve Controls.—Control gear to be fitted to enable the gas discharge valves on a selected number of gasbags to be operated from the control compartment.

(iii) Ballast Discharge Control.—Controls would be fitted to enable all the emergency water ballast discharge to be controlled from the forward compartment, all other water ballast to be discharged by local control.

(iv) Engine-room Telegraphs.—Engine-room telegraphs, preferably of the electrical type, would be fitted for communication from the forward compartment to the machinery cars.

(v) Telephones.—Telephone communication would be provided between all stations on the ship.

Heating Arrangements.—The living quarters and the control compartment would be heated by electric radiators.

In the machinery cars arrangements would be made to utilise the exhaust heat for keeping the cars at the necessary temperature.

Landing Gear.—Inflated buffer landing bags of a special type would be fitted underneath the forward control compartment, and underneath the two aft machinery cars, which would enable the airship to alight either on land or on the surface of the sea.

Mooring and Handling Gear.—Hauling-down ropes, mooring ropes, and sea anchor gear would be provided as necessary in connection with the mechanical handling and mooring-out arrangements.

The airship would be provided with bow mooring gear to enable her to be moored out to the mooring tower.

Special means of mechanically handling the airship when landing, and for taking her into the shed, would be provided on the landing grounds, and the necessary attachments in connection with this provided on the ship. These arrangements would be of such a nature as to reduce the number of hands required during these operations to the personnel usefully employed at the shed establishment.

For full description of proposed methods of handling and mooring the airship, see Section VIII.

Electrical Installation.—Electrical power would be provided by dynamos driven off the main engines to provide current for electric lighting of the saloons and cars, and also to provide the electrical heating in the saloon cabin and sleeping quarters.

Wireless Telegraphy.—A powerful wireless telegraphy installation would be fitted in the wireless cabin in the forward control compartment, and would have a range for sending and receiving of at least 5,000 miles

SECTION VIII.

Aerodromes, Sheds, and Equipment.

At the terminal point of each airship route it would be necessary to make provision for the following :—

1. An aerodrome of about one mile square.
2. A double airship shed capable of housing two of the airships.
3. A mooring-out tower, with bow mooring gear
4. Mechanical handling gear for transferring the airship from the mooring tower to the shed.
5. Hydrogen generating plant and storage.
6. Repair workshops and stores.
7. Meteorological office and wireless telegraphy installation.
8. Electrical night signalling and lighting arrangements for the aerodrome.
9. Offices, etc.

Aerodrome.—The aerodromes should be within direct communication and a short distance from the city served by the airship service, and, if possible, would be advantageously situated near to a chemical works where hydrogen could be obtained as a by-product.

The ground would require to be flat, and preferably on a site remote from hills and other topographical features likely to cause air disturbances

Sheds.—The double sheds required to house the size of airships specified would require to have two berths each with a minimum size of 850 ft. long, 150 ft. wide, and 115 ft. high, with opening doors.

The sheds would be provided with hydrogen-filling mains and with gear for slinging the airships from the roof when deflated for overhaul.

Special arrangements would be made to enable rapid replenishing of the ships with gas, fuel, and water ballast

Mooring-out arrangements (see below).—A mooring-out station would be provided at each aerodrome, consisting of a fixed mooring tower about 150 ft. in height, with a revolving head to which the airship would be rigidly attached by the nose and would ride clear of the ground in all weathers, and be able to turn round in accordance with the direction of the wind. This tower would be provided with a hauling-in winch and rope to haul the ship up to the mooring point.

Means would be provided at this mooring tower to enable the airship to be supplied with hydrogen, fuel, and water ballast whilst moored out.

A lift from the ground to the top of the tower would enable passengers to embark and disembark whilst the airship was riding at the mooring, and would also serve to convey mails, freight, stores, etc., to the ship.

The airship would be moored to this mast and ride out during even the worst weather, and would only require to be taken into the shed when lying up and for overhaul and repairs, etc.

A diagrammatic sketch showing the scheme of mooring the ship to the mooring mast is shown in the figure below.

Mechanical Handling Gear.—Mechanical handling gear, consisting of trolleys running on guide rails from the mooring tower to the shed, with electrically-driven gear, would enable the ship

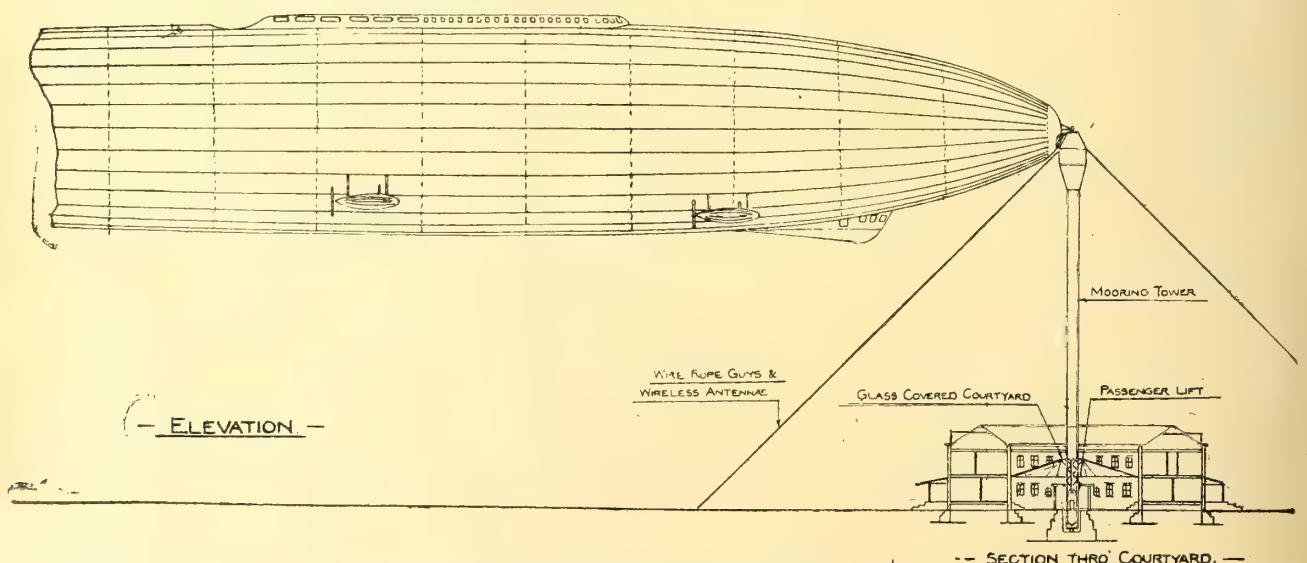

Diagram of the Vickers Patent Mooring Mast arrangement applied to a passenger terminal station. The building at the base of the mast is the Station Hotel.

Twenty Years Ago

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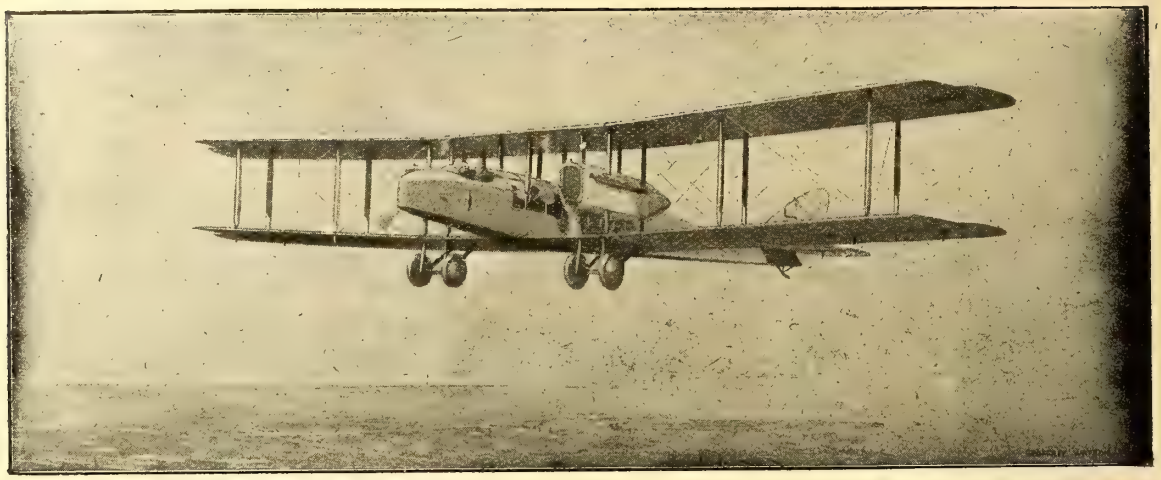

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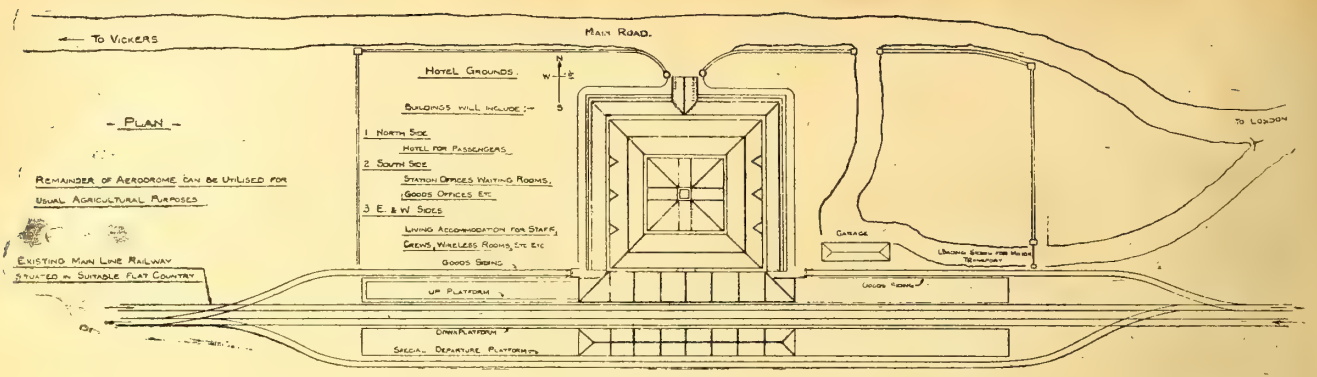


Diagram of the Vickers proposed London Airship Terminus in Plan View.

to be safely moved from the mooring tower to the shed with a minimum of man power.

Hydrogen Generating Plant and Storage.—If no industrial supply of hydrogen were conveniently situated, it would be necessary to provide each aerodrome with hydrogen generating plant, with a production of, say, 50,000 cubic feet per hour, and gasometer storage would require to be provided with a capacity of about 500,000 cubic feet.

Workshops and Stores.—Workshops would be provided at the shed as necessary to carry out all overhauls and repairs to the airships, and stores would require to be provided to store spare gear and other materials required.

Meteorological Office and Wireless Installation.—Each aerodrome would be provided with a meteorological office or station to issue weather reports for the guidance of airship navigators and to issue navigating instructions to them whilst on voyage by means of the wireless installation. The latter would require to have a range of at least 5,000 miles.

Electrical Night Signals and Lighting Arrangements.—Each aerodrome would be provided with suitable electric light sky signals to indicate the position of the landing ground to incoming ships at night, and the aerodrome would require to be provided with landing lights to indicate the position of the mooring tower and to give sufficient light to enable the ship to be moored.

SECTION IX.

The Weather as Affecting Airship Service.

The elements of weather that have influence on airship travel are wind, rain, hail, snow, and fog.

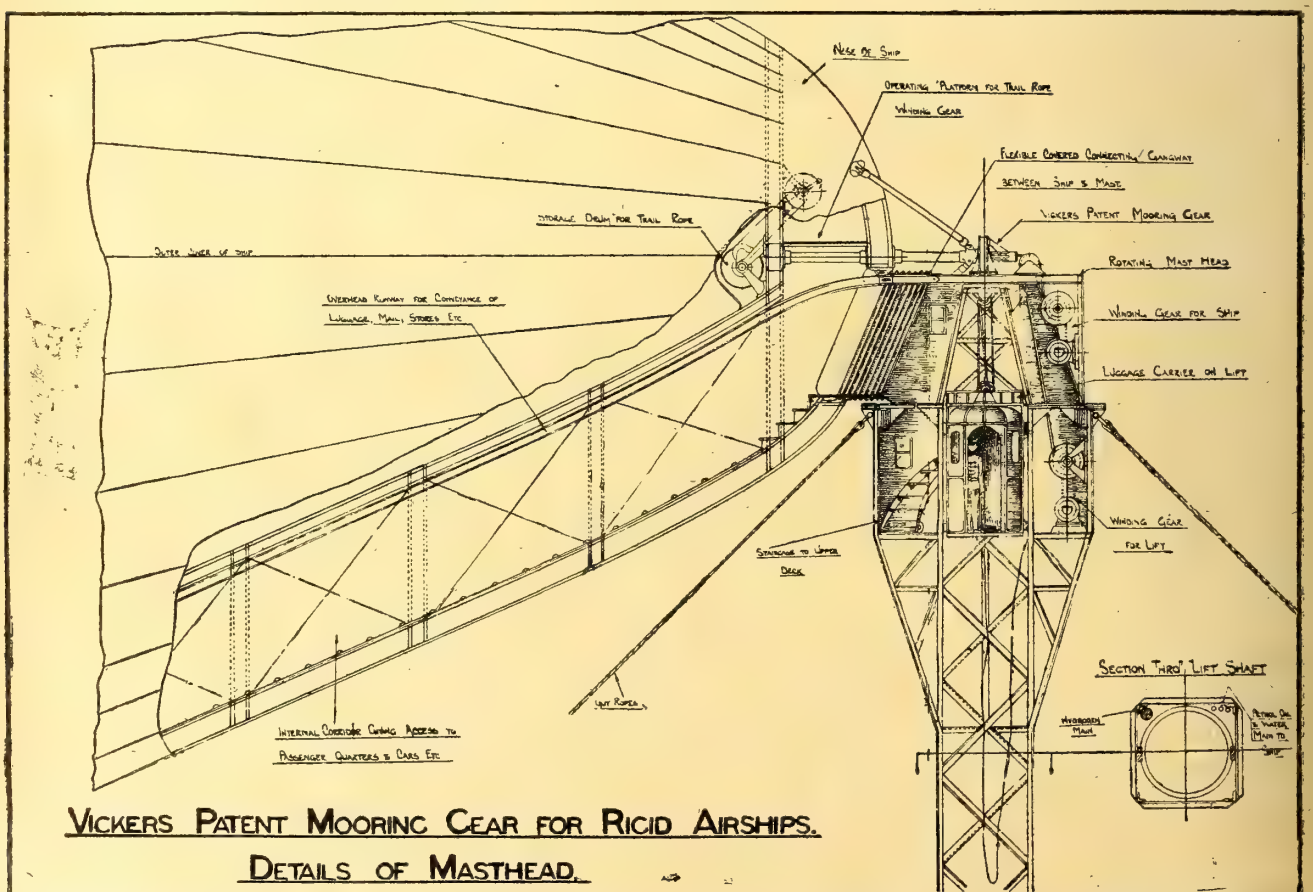
It is not likely that rain, hail, snow, and fog will of themselves have much influence on airship flying. With suitable rainproof, non-absorbent outer covering, the absorption of water, and the consequent increase of weight, are avoided. Hail and snow will not adhere to the ship's surface when in flight owing to the high speed through the air, and in any case, as the precipitation height is not usually more than 8,000 feet, they can be entirely avoided by flying above this height.

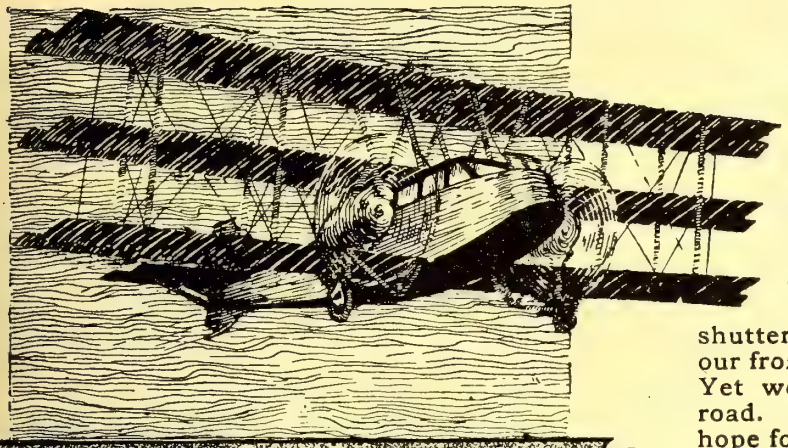
Fog might give trouble in landing, but in flight the airship would be above the fog, and not be affected by it. In landing, suitable means would be taken to mark the landing place by means of captive balloons or kites, and strong searchlights could be used on the ground. At night the balloons would carry electric lights with connection from the ground.

Rain, hail, snow, and fog are also generally local in their occurrence, and could, in any case, generally be avoided by a short deviation from route. Cross-Atlantic records indicate that on the main steamship routes fog sufficient to impede navigation does not occur on more than 12 days in the year.

Wind.—The only important factor that need be taken into consideration is wind, but in most cases unduly strong winds can be avoided by flying at a higher level or sailing on a different course, so as to avoid the storm area.

As is well known, there are at sea level, between certain clearly defined latitudes, prevailing winds of constant direction, of which advantage can be taken by suitably laying out the course and route to be followed. Again, at the higher levels, there is at most latitudes a constant drift, of which advantage may be taken even if the winds at sea level are unfavourable.





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The following general facts, which have been established from meteorological records all over the world, have a great bearing on airship possibilities—viz., (1) heavy storms, which are usually of a cyclonic nature, are known rarely to cover an area of more than 200 miles diameter; (2) the rate of progression of a cyclonic area is considerably less than the speed of the air movement in the area.

It is therefore obvious from the above that an airship would get clear of a cyclonic area by a deviation from her route of not more than 100 miles, and once clear of the disturbed area would have no difficulty in getting and keeping away from it.

Prevailing Winds at Sea Level in the North Atlantic.—The prevailing winds north of the Equator may be clearly divided into two regions :—

1. Between that part of the West Coast of Africa between latitudes 30° N. and 15° N., and the American coast from Florida to the Amazon.

In this region the winds at the African coast blow from N.E. by N., and gradually become more easterly across the Atlantic, until at the American coast they are practically N.E. at the Amazon, and practically E. at the Mexican Gulf.

These winds are the trade winds of the old navigators, and are remarkable for their steadiness and persistency, both as regards direction and speed.

The speed of these winds averages 10 to 15 miles per hour, and varies little from season to season.

These winds are favourable for flying from east to west.

2. Between the coast of the United States from Florida and as far north as Newfoundland to Europe, from the North Coast of Spain to the North of Scotland.

In this region at the American coast the prevailing winds blow from almost due W. in the winter months, veering S.W. in the summer months, and gradually change in crossing the Atlantic to S.W. on the European coast in winter and almost due W. in summer.

These winds are more variable than the trade winds, but are persistently westerly. Their speed is, however, more variable.

The yearly average of the speed of these winds is 15 miles per hour, but they occasionally blow up to 40 miles per hour, and heavy gales are not unknown in the winter months, but these are usually of a local character.

Records kept on the main Atlantic steamship routes indicate that, on the average, general winds of 40 m.p.h. and over do not occur on more than 20 days per annum, and the total time of duration not more than 300 hours in all.

Practically all the storms of 40 m.p.h. and over occur N. of latitude 45° N.—that is, the latitude Bordeaux-Nova Scotia; and 60 per cent. of the total number of storms in the winter months (November, December, and January), only less than 10 per cent. in the summer months (May to August).

Prevailing Winds at Higher Levels.—Although, as stated above, precise information is available of the sea-level prevailing and periodic winds at various latitudes, very little co-ordinated work appears to have been done in charting the prevailing and seasonal winds in the higher levels of the atmosphere. A great deal of work has been done in various localities in U.S.A., England, and Germany, but very little is known of the winds at the higher levels over the great ocean tracts.

There is no doubt a great necessity for international research on the predictions of weather conditions in the higher atmosphere, to enable advantage to be taken of these higher currents, if Atlantic flying is to become as common as Channel flying.

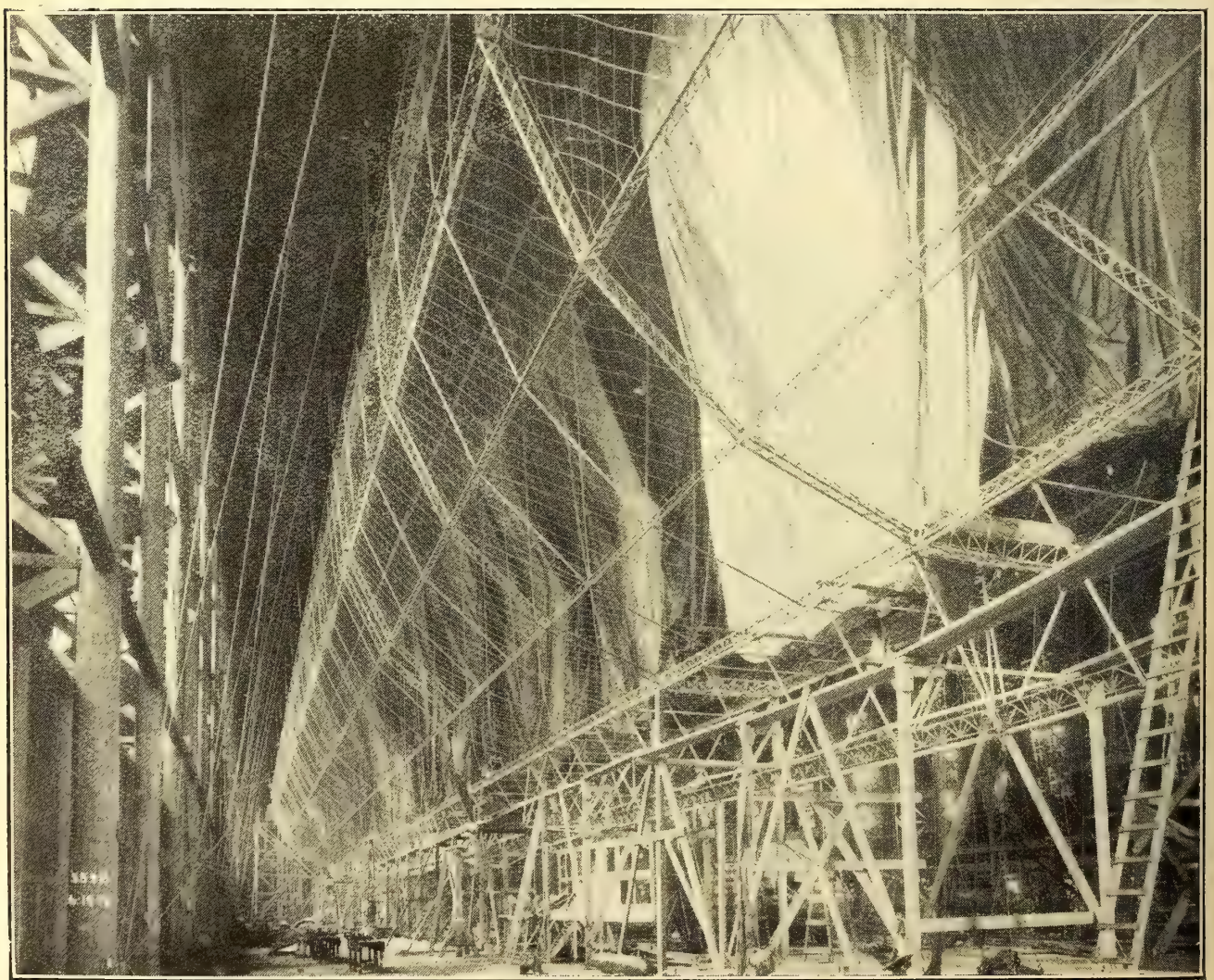
At high altitudes, constant winds of from 30 to 40 m.p.h. are common, and if the prevailing directions of these are known to airship navigators the duration of the journey could be considerably shortened, even by taking an indirect route, if advantage can be taken of these air currents.

It is, however, undesirable to fly at great heights owing to the low temperature, but with suitable provision for heating there is no reason why flying at 10,000 feet should not be common.

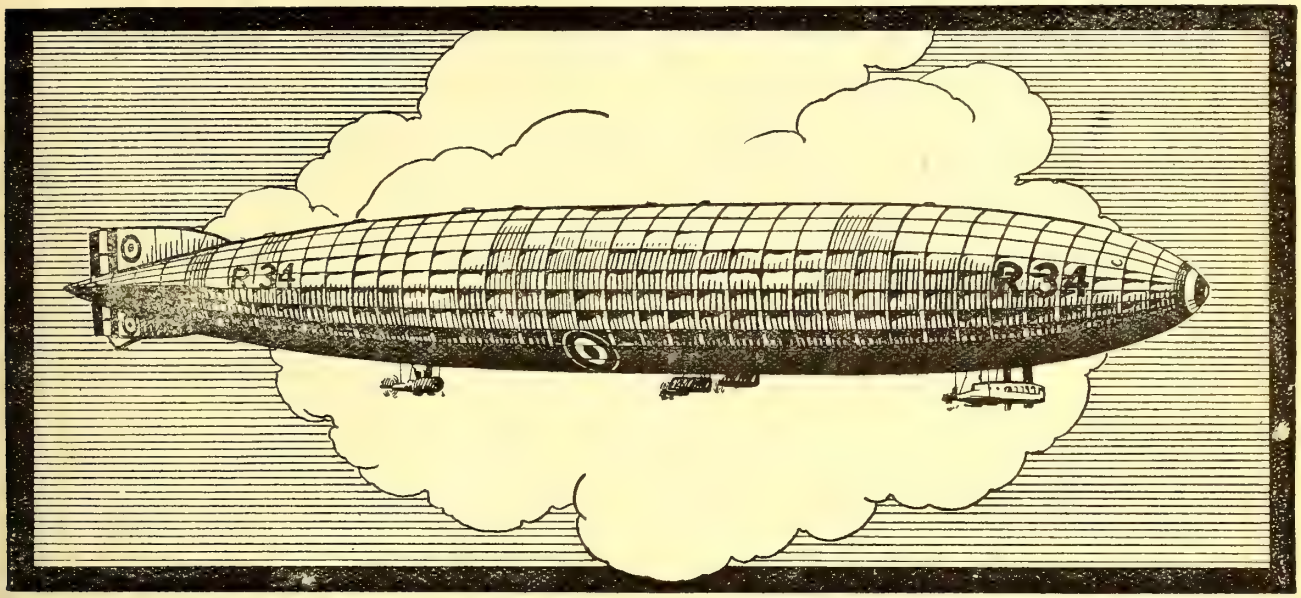
SECTION X.

Airship Navigation.

The navigation of airships is similar in principle to that of steamships, but is made more difficult by much greater drift to be allowed for.



A complete rigid Airship skeleton at the Vickers Airship Works, Barrow, showing the gas-bags just being inflated.



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The actual course of a ship being the resultant of its own forward speed and that of the motion of the air in which it is borne, it is impossible for the navigator to plot his true course relative to the earth unless he is aware of the motion of the air.

When navigating over land he is able to determine the drift of his ship by observation of a suitable fixed point on the earth's surface and adjust his compass course accordingly to give the desired true course.

Over sea, of course, no fixed point is available, so if the motion of the wind is not known, the course must be periodically corrected by astronomical observation, and determination of his charted position.

A reliable and effective method of navigation is, however, available with the wireless installation.

If the ship is in communication with two stations, they can determine the direction of the transmitted waves and signal to the ship its bearings, from which the position can be laid off on the ship's chart and the new departure determined.

It is known that this method of direction was used by the German Naval Zeppelin airships.

SECTION XI.

Comparison of Airships and Aeroplanes for Long-Distance Transport.

Endurance.—The airship of 3,500,000 cubic feet capacity, specified in this paper for immediate use for trans-Atlantic transport, has an endurance of 80 hours at an air speed of 60 m.p.h., and can carry 15 tons of passengers and mails for an air distance of 4,800 miles at that speed. Also, it would be quite a practicable proposition with present systems of design and materials of construction to build a rigid airship to carry 50 tons of passengers and freight for 10,000 miles, at a speed of 80 m.p.h., as soon as developments in the demand for aerial transport justify the construction of the size of airship necessary.

With a 40-ton all-metal aeroplane—which represents about the maximum size and most efficient weight-carrying type that could at present be constructed and handled—the maximum non-stop endurance of this machine would not be greater than 25 hours, carrying a load of passengers and mails of about three tons, at an air speed of 85 m.p.h.—i.e., having a maximum air distance of 2,100 miles; and unless some radical new method of design is discovered, it is considered theoretically impossible to produce a machine on the present methods of construction, even with light metal structure throughout, to give an effective range of more than 2,000 miles, and then only with a relatively very small passenger load-carrying capacity.

The advantage of the airship in these respects is due to the following characteristics. In the case of the airship the percentage of useful lift increases with the size of ship and the rate to power ratio decreases.

In the case of the aeroplane the percentage of useful lift and the weight to power ratio increases but slightly with increase of size.

It therefore may be definitely accepted that for voyages on which it is necessary to make a non-stop flight between points more than 2,000 miles distant the airship is far more economical, and, further, is the only means of aerial transport practicable.

On the other hand, if flying over land, with landing grounds provided at intervals of not more than 1,000 miles, the aeroplane can of course travel for indefinite distances, coming down at each landing ground for replenishment of fuel and oil.

It therefore appears inevitable that the airship will hold the field for long-distance cross-oceanic voyages and the aeroplane will be used for routes which may be flown in stages of a maximum distance apart of about 1,000 miles continuous flight.

Carrying this delimitation further, it may be concluded that the airship may be used to deal with express traffic at present dealt with by trans-oceanic liners, and the aeroplane will deal with local traffic and express traffic at present dealt with by railway trains and cross-Channel steamers.

Comfort of Travel.—With the large space available on a large rigid airship, it is quite easy to provide comfortable living and sleeping accommodation for the passengers, as described in the specification of the airship in Section VII.

It is obvious that in the restricted space available on an aeroplane it is impossible to provide the same comfort and convenience for the passengers as can be provided in the large airship.

Further, on the airship, there is plenty of room for the passengers to move about and take exercise by walking along the length of the inside keel or inside the top saloon of the airship, and the preparation and eating of adequate meals in comfort is easily provided for, but in an aeroplane the passengers will be restricted to a very confined space.

A great advantage in comfort in travelling on an airship is attained by the comparative silence and lack of vibration due to the ship's machinery, and it is probable that in the saloon at the top of the vessel, which is remote from the engines and propellers, there will be absolute silence. On an aeroplane, on the other hand, the passengers have unavoidably to be accommodated close to the engines and propellers, and the noise will be a very serious objection.

Safety.—An aeroplane is entirely dependent on the proper working of the engines for its sustentation in the air, and should any of the engines break down, the result would be a forced landing on the water, with the consequent possibility of total loss on a rough sea.

In the case of an airship the only result of the breaking-down of any of the motors is the reduction in the speed, and as a speed of 0.8 full speed can still be maintained with even half of the motors out of action, there is no possibility of the airship being lost owing to possible failure of the engines alone. The only result would be that the arrival of the airship would be somewhat delayed owing to the reduction in speed.

It may further be stated that with reduced power, petrol consumption per mile run is considerably reduced, and the airship would then have an even greater reserve of endurance.

It may further be noted that on an airship the machinery can be so arranged as to be perfectly accessible for repairs or replacements of the engines whilst en route, and as the ship can be driven by the other engines no stoppage need be incurred for this purpose.

Speed.—The large type of aeroplane which will be necessary to carry an economical load for long distances will not have a speed greater than 85 to 90 m.p.h., and if it is taken into account that for long journeys an aeroplane requires to stop at a number of intermediate landing grounds for replenishment, it is apparent that the advantage of the aeroplane speed of 85 m.p.h. over the airship speed of 60 m.p.h. will not be very apparent, if any at all, and any slight advantage which there may be in this respect will disappear when the large type of airship is used, which can easily have a cruising speed of 75 to 80 m.p.h.

For the airship service, London to New York direct, the time is 50 hours; and with the aeroplane service, London-Ireland-Newfoundland-New York, the time taken is at least 46 hours, and it is probable that in service the times would be about the same.

Cost of Service.—As a basis of comparison of cost of operation of comparative trans-Atlantic services by airship and aeroplane, it has been assumed that there will be a constant average traffic of 30 tons total load of passengers, mails, or freight required to be transported each direction per week, and that both services are run to meet this demand.

The estimate of the cost of airship service is given in Section V and aeroplane service in Section XII. The results may be compared as follows:—

	Airship Service.	Aeroplane Service.
Capital required	£2,600,000 ...	£3,850,000
Passenger rate:—		
London-New York	£48 ...	£115
Rate per passenger mile...	4d. ...	9d.
Mails per ounce:—		
London-New York	3d. ...	7½d.

SECTION XII.

Comparative Aeroplane Trans-Atlantic Service.

Route.—There is not an aeroplane in existence capable of flying direct the 3,000 miles between London and New York, even when loaded only with the necessary pilots and crew, and 2,000 miles continuous flight represents the maximum that can be done by any existing aeroplane with crew only.

It is also very improbable that a machine of even 50 tons total load, of the most efficient type with the lightest possible metal structure, will be able to fly more than 2,500 air miles with even a small number of passengers and freight.

It therefore must be recognised that safe direct trans-oceanic commercial flying between points more than 2,000 miles apart by aeroplane is an impossibility, unless some entirely radical new principle of design is evolved.

In order to make the Atlantic crossing by aeroplane it will therefore be necessary to take a route allowing of intermediate landing-places for replenishment of fuel, etc., with the consequent delays and necessity of additional aerodromes and equipment.

The alternative routes are:—

1. London-Ireland-Newfoundland-New York, the longest distance being 1,800 miles between Ireland and Newfoundland, and the total distance = 3,200 miles.

2. London-Azores-Newfoundland-New York. The longest distance is 1,300 miles between the Azores and Newfoundland, and the total distance = 3,600 miles.

It would be possible to fly by the second route with the largest and most efficient aeroplanes now in service, but only with a very small number of passengers

In order to compare the aeroplane with the airship proposed for cross-Atlantic service, we shall consider a large machine which represents the limit of possible developments in size and efficiency at present considered attainable.

There are obvious disadvantages in using the London-Azores-Newfoundland route for regular commercial service. It would

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be difficult to navigate an aeroplane in stormy weather and at night to ensure landing on the relatively small Azore islands, and there would be great danger of the reserve petrol being consumed before being able to strike the islands, and being forced to alight on the sea. There are also objections to having to make two landings during the voyage owing to the loss of time in landing and getting away again, but with an aeroplane this is unavoidable. It is therefore considered that the only practical route for regular use is the London-Ireland-Newfoundland route, and we shall therefore, for comparison with the airship, consider a machine large enough to carry a commercial load on this route :—

Minimum direct distance .....1,800 miles
To give a safety reserve of 25 per cent., the machine must carry fuel and oil for .....2,250 miles

This would allow of flying against an average head wind of 15 m.p.h. for the whole distance.

Particulars of Machine required :—

Total load .....40 tons (90,000 lbs.)
Useful lift (fuel, oil, passengers, etc.) .....20 tons (45,000 lbs.)
Maximum b.h.p. .....4,000 b.h.p.
Maximum speed flying at 5,000 ft. .....85 m.p.h.
Fuel consumption .....0.45 lbs. per b.h.p./hour
Oil consumption .....0.03 lbs. per b.h.p./hour

Assuming that the power is reduced, and engines cut out so as to maintain a constant load/power ratio, as weight is reduced by consumption of fuel, the weight of fuel and oil required for 2,250 miles (26.5 hours at 85 m.p.h.) .....39,000 lbs.
This leaves for passengers and crew .....6,000 lbs.

Crew Required.—Three pilots, three engineers, taking watches of four hours on and eight hours off; one steward; total crew, seven men.

Weight at 160 lbs. per man, personal effects at 20 lbs. per man, food at 10 lbs. per man; total, $190 \times 7 = 1,330$ lbs. This leaves for passengers, mails, etc., 4,670 lbs. = 2.1 tons.

Passenger weight at 170 lbs. per man, personal baggage at 50 lbs. per man, food, etc., at 15 lbs. per man; total 235 lbs. per man. Number of passengers that can be carried, 20.

Service :—

Time taken for crossing :—

London-Ireland .....300 miles = 3½ hours
Ireland-Newfoundland .....1,800 miles = 21½ hours
Newfoundland-New York .....1,100 miles = 13 hours
Total time in air .....38 hours

Allowing two hours at the Ireland Station and six hours at Newfoundland for landing, refilling, and getting away, the total time for the journey would be forty-six hours.

It would therefore, allowing time for overhaul, etc., be possible for a machine to make two crossings per week.

Thus, to give the same service as the airship service proposed, i.e., 30 tons of passengers and mails each way per week, 14 aeroplanes continually in service would be required; and allowing for 100 per cent. spare machines stand-by for repairs, and overhaul, total number of machines required—28.

Cost of running the service :—

The cost of running the service would be that necessary to cover the following charges, viz. : (1) Interest on capital required; (2) Allowances for depreciation; (3) Insurance premiums; (4) Operating expenses; (5) Repairs and maintenance.

1. Capital charges :—

28 aeroplanes at £120,000 each	£3,350,000
28 aeroplane sheds at £10,000 each	280,000
Land for 4 aerodromes	100,000
Workships and equipments	20,000
Spare parts, etc.	100,000
Wireless equipment	10,000
	£3,860,000

Total capital required £3,860,000
Annual charge at 10 per cent. interest £386,000

2. Depreciation :—

(a) Aeroplanes.—Useful life say 3 years as for airships; Obsolete value, say £6,000 per machine; Average total depreciation per annum for 28 machines, equal £1,050,000.

(b) Aeroplane sheds.—Life say 20 years; Scrap value in 20 years —10 per cent. Total annual charge—£12,200.

(c) Workshops and plant.—Depreciation at 3 per cent. per annum—£600.

(d) Land for sheds and aerodromes.—Would not decrease in value.

Total annual charge for depreciation—£1,062,800.

3. Insurance premiums :—

(a) On aeroplane value at 10 per cent. per annum—£225,000.
(b) On sheds and plant at 2 per cent. per annum—£5,400.
Total insurance charges—£230,400.

4. Annual establishment expenses :—

(a) Salaries of 36 pilots at £600 per annum—£21,600; Salaries of 36 engineers at £400 per annum—£14,400; Salaries of 12 stewards at £300 per annum—£3,600.
(b) Salaries of establishment :—
(i) Management and staff—£5,000.
(ii) Workshop hands and storekeepers, etc., at 100 off.—£20,000.

Total annual establishment expenses—£64,600.

5. Repairs and maintenance :—

(a) Sheds and plant, annual charge, say—£5,000.
(b) Repairs and overhaul to machines—£10,000. Total £15,000.

Totals of annual charges :—

1. Interest on capital—£386,000.
2. Depreciation—£1,062,800.
3. Insurance—£230,400.
4. Establishment expenses—£64,600.
5. Repairs and maintenance—£15,000. Total £1,758,800.

Cost chargeable per crossing :—

1. Proportion of annual charges.
2. Cost of fuel and oil per crossing.
3. Cost of Food, etc.

As aeroplanes may be taken as being practically independent of weather it is assumed that the service of twenty-four crossings per week is maintained for fifty weeks in the year, that is, a total of 1,200 crossings :—

1. Proportion of annual charges per crossing—£1,450
2. Petrol used per trip, 28 tons at £25 per ton—£700.
3. Oil per trip, 2 tons at £40 per ton—£80.
4. Cost of food per trip for twenty passengers and crew of seven—£100. Total £2,330.

It will be seen from the above that the direct running cost is 38 per cent., and the overhead charges 62 per cent. of the total cost.

Carrying 20 passengers, the rate would be for London-New York, £115 per head, which is equivalent to 8.75d. per mile per passenger.

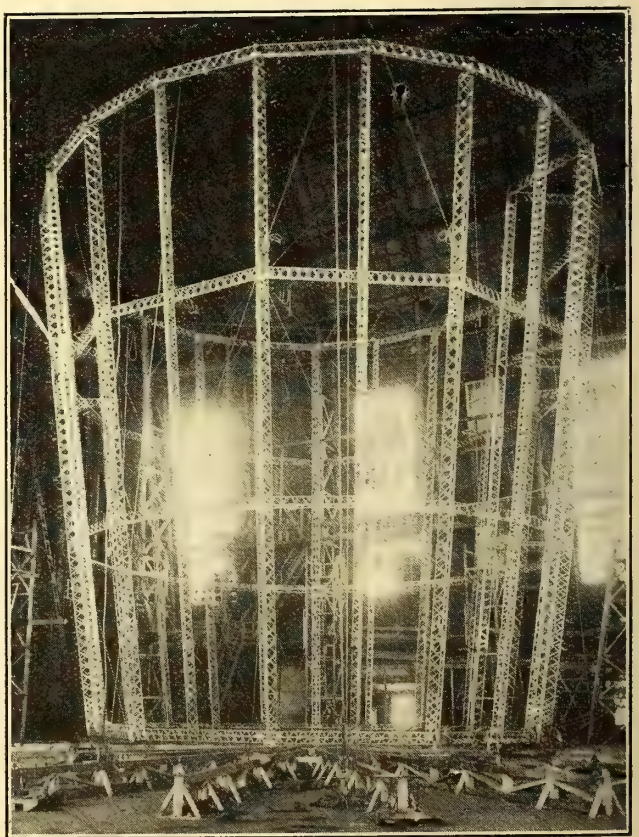
The rate for mails would be £1,100 per ton, London to New York, or 7⅛d. per ounce.

SECTION XIII.

Pre-War German Airship Services.

It is little appreciated in this country to what an extent the rigid airship was utilised in Germany for passenger flights and services before the war. The experience and resources which enabled the Germans to develop the Zeppelin for Naval work and raiding were gained by constant use of airships in civil flying.

Der Deutsche Luftfahrt Actien Geselschaft, D.E.L.A.G. (The German Air Travel Company), was formed in 1910, and was mainly financed and managed by the Hamburg-America Line, the H.A.P.A.G. This concern ran regular passenger excursions and



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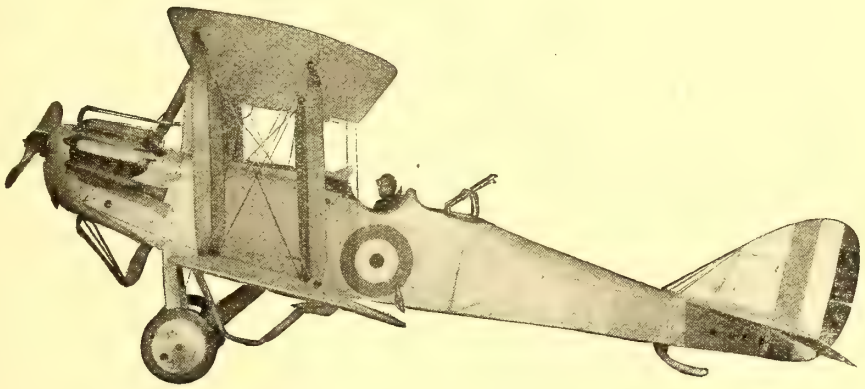

FIRST ONCE MORE!

The following telegram speaks for itself:—

"We have completed our non-stop flight from London to Madrid in 7¾ hours, due in great part to the perfect running of your engine, for which accept our hearty congratulations.'

CURTIS and PETERS.

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to a limited extent regular town to town services during the years 1910 to 1914.

The following figures for number of trips and mileage are taken from the annual report of this company, issued in 1912. The total number of flights in 1912 was 400. The total flights from commencement in 1910 up to time of report in 1912, are as follows :—

Name of Ship.	No. of Flights.	Hours.	Mileage.	Number of Persons Carried.
"Schwaben"	230	499	28,468	4.622
"Victoria Luise" ...	285	663	36,600	3,953
"Hansa"	188	418	22,960	4,007
"Sachsen"	58	133	7,820	1,335
Others				
Totals	826	1,853	102,675	17,221

From the above it will be seen that in this period 826 flights had been made, and 17,221 passengers carried without any mishap. The "Sachsen" only went into commission early in 1912, hence only is shown a small number of trips.

These airships had spacious passenger cabins, holding thirty passengers, fitted up in a most luxurious style, with inlaid mahogany panelling, carpeted floors, and comfortable armchairs; in general shape and style similar to a Pullman car, with large windows from which the passengers could look at the ever-changing scenery, and were served with lunch or tea as required from a buffet.

Owing to the novelty, the company mainly confined its enterprise to short distance pleasure excursions of two to three hours, at the rate of 100 marks (or £5), including lunch. These airships carried thirty passengers at a time, in addition to the crew of eight. The attraction was so great that places had to be booked days ahead. At the same time periodic trips were run from Berlin to Leipzig-Dresden-Munich, as will be seen from the route map which was issued with the company's prospectus.

Sheds and aerodromes were built by the D.E.L.A.G. at Potsdam, Leipzig, Dresden, and Munich, etc.

The company was able to make a profit, and also received a subsidy from the Government for the use of the airships for training the army and navy airship crews.

There is no doubt that the Germans are preparing and organising for an extensive scheme of air travel, and some time ago mention was made in the Press of a company formed for an airship line from Berlin to Constantinople, stopping at Munich and Vienna.

THE WAR WORK OF THE VICKERS' AIRSHIP DEPARTMENT.

During the war and subsequently the Airship Department of Vickers, Ltd., have produced :—

Three rigid airships for Naval service.

One airship to their own design, now nearly complete.

A large proportion of the component parts for four other rigids built at other stations.

Three large non-rigid ships.

Twenty-six kite-balloons.

Two hundred and fifty gasbags for rigid airships.

Seven outer covers for rigid airships.

Thirteen envelopes for non-rigid ships.

Six spherical balloons.

In addition Vickers, Ltd., were the first firm in Britain to build a rigid airship and with any experience of the design of such structures, and they placed the whole of their experience at the disposal of those other firms which undertook such work.

The present Airship Department was formed in April, 1913, when Vickers, Ltd., were requested by the British Admiralty to put forward proposals for an experimental rigid airship to be of the same size and general type as the types of Zeppelin airships then in service in Germany; and for three non-rigid airships of the "Parseval" type.

At this time, no design data for rigid airships was available, the only information in our hands being a few general exterior photographs of some of the D.E.L.A.G. passenger Zeppelin airships.

Vickers' representatives visited such of the German airship sheds as were accessible, and picked up such particulars as could be obtained from casual inspection of the exterior of these ships.

It is difficult, when so much knowledge is now available, to realise the magnitude of the problems required to be solved in this initial work. No particulars of weights or of the detail design of the ship components being available, it was necessary to make tentative designs of all parts of the ship in order to obtain approximate data on which the final design could be based. Even the general principle of construction of the hull framework of the German airships was not known, and many different systems were investigated before the final design was determined.

By the end of 1913 a final design was submitted to the British Admiralty, which, with minor modifications, was approved and a contract arranged with Vickers, Ltd., for building an airship at Barrow-in-Furness. This airship was subsequently numbered "R.9" and was the first rigid airship to be delivered to the Naval Service.

The work of construction was commenced at Barrow at the beginning of 1914, when workshops were equipped at Cavendish Dock for the structural work, and half of the old airship shed there partitioned off for the fabric work on the gasbags and outer covers, etc.

Experimental work was started on the building of hull girders, but great difficulties were experienced in the manufacture of the thin and light "Duralumin" sections required. At first it was found practically impossible to produce straight angles and channels, and it was only after a long time, and at great expense, that these difficulties were overcome, and the manufacture of girders was enabled to proceed.

In March, 1915, instructions were received from the British Admiralty that the construction was to be suspended, as it was then thought that the war would be over in a few months, and the Walney building shed was commandeered by the Royal Naval Air Service for a flying station.

After the remarkably effective work done by the German Zeppelin airships with their fleet at Jutland and elsewhere, it was decided by the British Admiralty that R.9 should be completed, and to put in hand further rigid airships of improved type.

The resumption of the construction was greatly impeded owing to a considerable quantity of the previously completed steel wires and other materials having deteriorated during storage and having to be replaced.

The designs of R.9 were at this time completed, and all the difficult manufacturing problems solved, and it only remained to carry on the completion of the airship.

R.9 eventually left Barrow on April 4, 1917, after carrying out very successful flight trials over Morecambe Bay. From that date until the present time this airship has been stationed on the East Coast of England, and in the words of the Admiralty "has proved to be not only invaluable for the training of officers and men, but also in assisting to carry out the patrol of the East Coast."

23 Class Rigid Airships.

At the latter end of 1915 it was decided by the Admiralty to build rigid airships of an improved R.9 type, and in order to develop resources for an airship construction the Admiralty decided that Beardmore and Co. and Sir W. G. Armstrong, Whitworth and Co. should also take up this work, and accordingly orders for vessels were placed with Vickers, Ltd., and them.

The whole of the designs and working drawings were prepared by Vickers, Ltd., and circulated to the other builders.

When these airships were commenced, Vickers placed all the experience and the knowledge derived from their costly and difficult initial experimental work entirely at the disposal of the two competitive firms starting in this industry. Their representatives made many visits to the Vickers works, and all knowledge and experience of design and construction was freely imparted to them, and thus rendered it possible for them to commence manufacture immediately. Also, much of the design thus circulated to those other firms was fully covered by patents which were freely used without any consideration to Vickers, Ltd.

Further, in order to assist the other firms to get ahead with their work, Vickers undertook to supply them with all the bracing pieces, stampings, and forgings required for the hulls of their first ships, and also, in the case of Armstrongs, supplied them with all valves, controls, tank fittings, and other mechanical gear complete, ready for the ship, together with all gasbags, outer covers, and other fabric work, and also assisted the other builders by supplying materials and instructing them in the manufacture.

The airships of this 23 Class, built to Vickers' design, have since commission been engaged on sea patrol work, and have taken a prominent part in the patrol of the North Sea and in convoying shipping. The two airships of this class, Nos. R.23 and R.26, built at Barrow, were delivered in October, 1917, and March, 1918, respectively. These airships have frequently been seen over London, and R.26 took part in the surrender of the German submarines at Harwich. This shape made a record flight of 41 hours.

33 Class Airships.

These airships are of about 2,000,000 cu. ft. capacity, and orders were placed with Vickers, Ltd., Armstrongs, and Beardmores, in November, 1916. The latter two firms, having large enough sheds, were in a position to proceed immediately, but, the Walney shed not being large enough, Vickers, Ltd., were not able to start erection until the new shed at Flookburgh, near Barrow, could be completed.

In September, 1917, the work on Flookburgh site was stopped on account of the acute shortage of steel at that time, and arrangements were made for the erection of this ship to be taken over by Short Brothers, of Bedford.

In order to give all possible assistance to Short Brothers in facilitating the construction of this ship, all the material that

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By direction of the Disposal Board

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For further particulars apply to the Disposal Board, Room 135, Charing Cross Buildings, Villiers Street, London, W.C.2.

NOTE.—For "SURPLUS," the detailed list of surplus Government property for sale, apply at the nearest bookstall or to the Director of Publicity, Ministry of Munitions, Whitehall Place, London, S.W.1. Price 3d.

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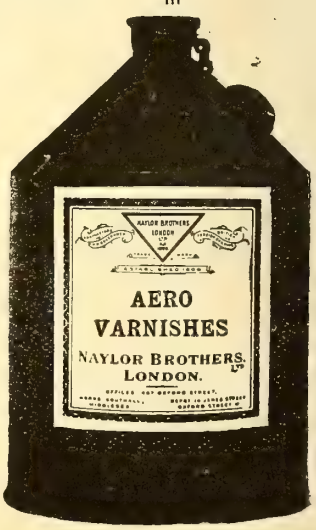

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Rolls-Royce Ltd. have recently learned that attempts are being made by certain persons to "bring up to date" pre-war Rolls-Royce chassis by substituting for Rolls-Royce Springs of old type cantilever springs which are not of Rolls-Royce manufacture; also by substituting other radiators and bonnets which are not of Rolls-Royce manufacture. Some of these changes have been brought to the attention of the Company, who have found them to be not only unsatisfactory but possibly dangerous to the users. Owners who are asked to have such changes made to their Rolls-Royce cars, or potential purchasers of Rolls-Royce cars on which such changes have been made or may be suspected, should communicate with Rolls-Royce Ltd., 15, Conduit Street, London, W.1, and the Company will, for a small fee, inspect the chassis in question and inform the applicant what parts, if any, are not supplied by Rolls-Royce, and what the effect of such parts in their opinion is likely to be. Furthermore, any such alterations which interfere with or depart from Rolls-Royce standards will probably put the car out of action for an indefinite period in cases of accident or breakage, as Rolls-Royce new parts cannot be expected to replace foreign broken parts in a "bedevilled" chassis.

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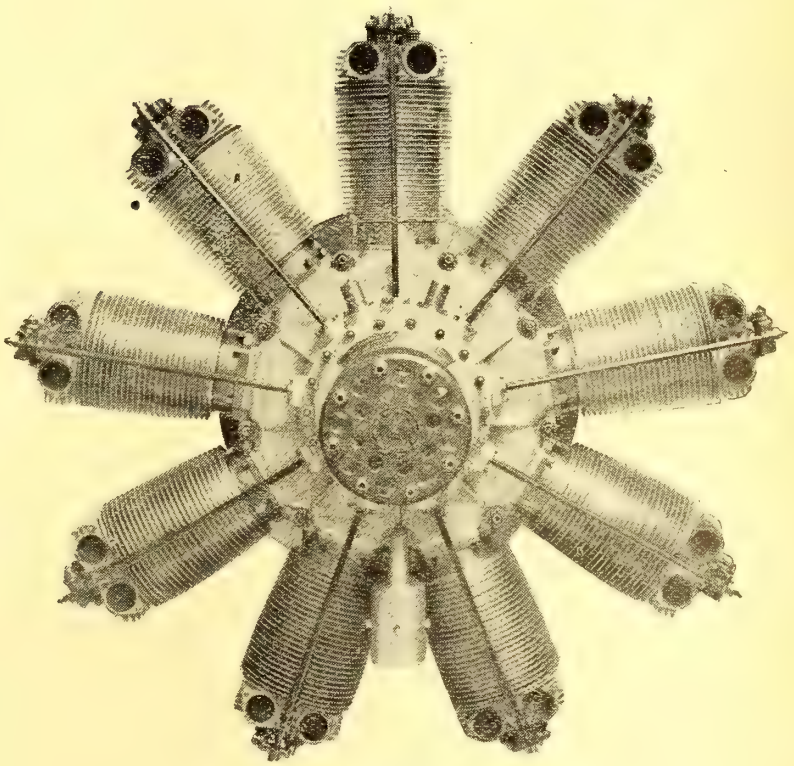

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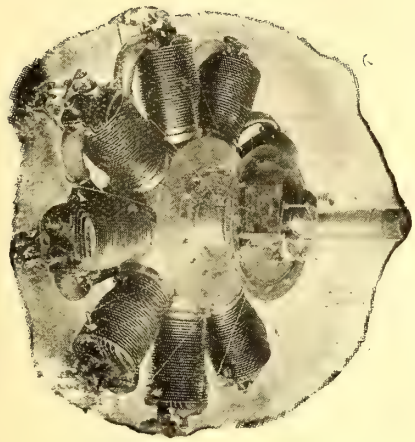

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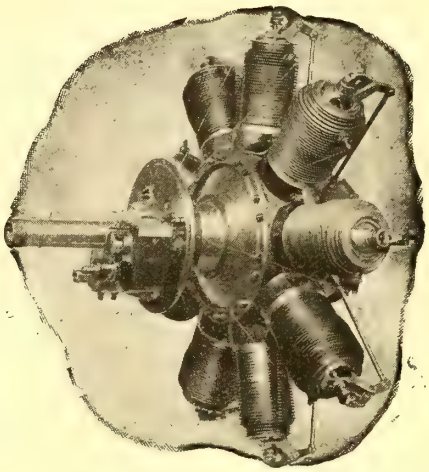

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Glue—
Cannon, B., & Co., Ltd, Lincoln. London Office, 110, Cannon Street, E.C.4. "Bececolin, Cannon, London." City 1206.
Improved Liquid Glues Co., Ltd., Gt. Hermitage Street, E. (Croid.) "Excroiden, 'Phone, London." Avenue 4611-2.
Meudine Co., 8, Arthur Street, E.C. Bank 5873

Goggles—
Triplex Safety Glass Co., Ltd., 1, Albemarle Street, Piccadilly, W.1. "Shatterlys, Piccy, London" Regent 1340

Heating and Ventilating—
Chas. P. Kinnell and Co., Ltd., 65 & 65A, Southwark Street, London, S.E.1. "Kinnell, London." Hop 372 (2 lines).
The Thames Bank (Blackfriars) Iron Co., Ltd., Upper Ground Street, London, S.E.1. "Hot Water. Friars, London." Hop 763.

Instruments—
British Wright Co., Ltd., 33, Chancery Lane, W.C.2. Holborn 1308.

Instruments (Scientific, Altimeters, etc.)—
Short & Mason, Ltd., Macdonald Road, Walthamstow, E.17. "Aneroid, Phone, London." Walthamstow 180.

Insurance—
Aviation Insurance Association, 1, Royal Exchange Avenue, E.C.3. London Wall 6044.
Bray, Gibb & Co., Ltd., 166, Piccadilly, W.1.
Captain A. Newman (late R.A.F.), 20, Bucklersbury, E.C.4. City 4855
Harold Townend, Ltd., 13-14, Abchurch Lane, King William Street, E.C.4. "Carinsur, London." Central 156 (2 lines).
Percy Wingfield, 22, Newgate Street, E.C.1. City 4672.

Leather Cloth—
New Pegamoid, Ltd., 134, Queen Victoria Street, London. "Pegamoid, Cent., London." City 9704 (2 lines).

Lubricating Oil Refiners and Merchants—
W. B. Dick & Co., Ltd, 90, Fenchurch Street, E.C.3 Telegrams, Dicotto Fen, London. Avenue 7854 (2 lines.)

Magneto Driving Pieces—
Herbert Terry & Sons, Ltd., Redditch. "Springs, Redditch." Redditch 61.

Magnetos—
The British Lighting & Ignition Co., Ltd., 204, Tottenham Court Road, W.1. "Vicksmag, Phone, London." Museum 430.
The British Thomson-Houston Co., Ltd., Lower Ford Street, Coventry. "Asteroidal, Coventry." Coventry 278.

Metal Casement Manufacturers—
Henry Hope & Sons, Ltd., 55, Lionel Street, Birmingham. "Conservatory, Birmingham." Central 999 (2 lines).

Metal Manufacturers—
Clifford, Chas., & Sons, Ltd., Birmingham. "Clifford, Birmingham." Central 42-43. Avenue 1432.

Metals in General—
Samuel Mercer & Co., 198, Upper Thames Street, E.C.4 "Reconciled, Cannon, London City 6342.

Metal Parts and Fittings—
Accles & Pollock, Ltd Oldbury, Birmingham. "Accles, Oldbury." Oldbury 111 (4 lines)
Arnott & Harrison, Ltd, Hythe Road, Willesden Junction. Willesden 2207.
Bayliss, Jones, & Bayliss, Ltd., Wolverhampton. (Bolts and Nuts.) "Bayliss, Wolverhampton." Wolverhampton 1041.
Blackburn Aeroplane & Motor Co., Ltd., Olympia, Leeds. "Propellors, Leeds." Roundhay 345 (3 lines).
Brown Bros., Ltd., Gt. Eastern St., E.C.1.
Mann, Egerton & Co., Ltd., 177, Cleveland Street, London, W.1 "Installing, Eusroad, London." Museum 70.
Rubery Owen & Co., Darlaston, South Staffs.
Sankey, Joseph, & Sons, Ltd., Wellington, Shropshire. "Sankey, Wellington, Salop." Wellington 66.
The Selsdon Aero & Engineering Co., Ltd., 1, Albemarle Street, Piccadilly, W.1. "Selaero, Phone, London." Regent 1181.
Thompson Bros., Ltd., Bradley, Bilston. "Thompson Bros., Bilston." Bilston 10

Metric Bolts—
Cashmore Bros, Hildreth Street, Balham, S.W. Battersea 415.
Rubery Owen & Co., Darlaston, South Staffs.

Miscellaneous—
Anderson, D., & Son, Ltd. (Roofs), Belfast. "Anderson, Belfast." Belfast 4033-4034-4035
Brown Bros., Ltd., Great Eastern Street, E.C.1 "Imbrowned, Bethroad, London." London Wall 6300.
Herbert Frood Co., Ltd., Chapel-en-le-Frith. "Frodobrake, Birmingham." Central 793
MacLennan, J., & Co., 30, Newgate Street, E.C.1., and at Glasgow. Tapes, Cords, and Threads. City 3115.

Motor Cars—
Arrol Johnston, Ltd., Dumfries. "Mocar, Dumfries." Dumfries 281-282.
Mann, Egerton & Co., Ltd. 379/381, Euston Road, London, N.W.1 "Manegecar, Eusroad, London" Museum 70.
Standard Motor Car Co., Coventry. "Flywheel, Coventry" Coventry 530 (4 lines).

Nameplates and Labels—
The Clegg Metal Engraving Co., Ltd., Worthing. "Clegg, Worthing."

Observation Panels—
Triplex Safety Glass Co., Ltd., 1, Albemarle Street, Piccadilly, W.1. "Shatterlys, Piccy, London." Regent 1340.

Oils—
C. C. Wakefield & Co., Ltd, Wakefield House, Cheapside, E.C.2. "Cheery, Cent, London." Central 11305 & 13466.

Parachutes—
E. R. Calthrop's Aerial Patents, Ltd., Eldon Street House, Eldon Street, London, E.C. "Savemalivo, Ave, London." London Wall 3266-3267.
C. G. Spencer & Sons, Ltd. (See under "Balloons").

Piston Rings—
The Standard Piston Ring and Engineering Co., Ltd., Don Road, Sheffield. "Ocean, Sheffield" Sheffield 2149

Presswork—
Rubery Owen & Co., Darlaston, South Staffs.
Terry, Herbert, & Sons, Ltd., Redditch. "Springs, Redditch." Redditch 61.

Propellers—
The Aircraft Improvements Co., Mornington Works, Arlington Road, Camden Town, N.W.1.
Blackburn Aeroplane & Motor Co., Ltd., Olympia, Leeds. "Propellors, Leeds." Roundhay 345 (3 lines).

Propellers (continued).
Boulton & Paul Ltd., Rose Lane, Norwich. "Aviation, Norwich." Norwich 851.
Ebora Propeller Co., 11 & 12, Surbiton Park Terrace, Kingston-on-Thames "Ebora, Kingston." Kingston 672.
Integral Propeller Co., Ltd., "Aviprop, Hyde, London." Hendon 9. Kingsbury 104
Lang Propeller, Ltd., Weybridge. "Aerosticks, Weybridge." Weybridge 520-521.
Oddy, W. D., & Co., Leeds. "Airscrews, Leeds." Leeds 20547-8.
Westland Aircraft, Yeovil. "Aircraft, Yeovil." Yeovil 129.

Pyrometers—
The Foster Instrument Co., Letchworth, Herts. "Foster Instruments, Letchworth." Letchworth 26.

Rawhide Hammers—
Ira Stephens, Whitelands Leather Works, Ashton under-Lyne. "Stephens, 709, Ashton." Ashton 709.

Rigging for Aircraft—
Cradock, Geo., & Co., Ltd., Wakefield, England. "Cradock, Wakefield." Wakefield 466

Rubber Tubing & Accessories—
Hancock, James Lyne, Ltd., 266, Goswell Road, London, E.C.1 "Masticator, Isling, London." City 3811 & 3812.

Safety Belts—
C. H. Holmes & Son, 38, Albert Street, Manchester. "Semloh, Manchester." City 4432.

Screw-driving Machines—
Russell Bros. (Redditch), Ltd., Littleworth, Redditch. "Inventors, Redditch." Redditch 74.

Seaplane Manufacturers—
Blackburn Aeroplane & Motor Co., Ltd., Olympia, Leeds. "Propellors, Leeds." Roundhay 345 (3 lines).
Phœnix Dynamo Manufacturing Co., Ltd., Thornbury, Bradford. "Dynamo, Bradford." Bradford 3700 (7 lines).
Short Bros., Rochester. "Seaplanes, Rochester." Chatham 627.
Supermarine Aviation Works, Ltd., Southampton. "Supermarin, Southampton." Woolston 37.

Searchlights & Landing Lights
Brown Bros., Ltd., Great Eastern St., E.C.1.
Imperial Light, Ltd., 123, Victoria Street, London, S.W.1. "Edibrac, Phone, London" 3540 Victoria (3 lines).

Shock Absorbers—
Luke Turner & Co., Deacon Street, Leicester Leicester 967.
Tubbs, Lewis & Co., Ltd., 29 & 30, Noble Street, E.C.2. "Elastics, London." City 22.

Sheet Metal Pressings—
Accles & Pollock, Ltd, Oldbury, Birmingham. "Accles, Oldbury." Oldbury 111 (4 lines)
Blackburn Aeroplane & Motor Co., Ltd., Olympia, Leeds. "Propellors, Leeds" Roundhay 345 (3 lines)
Rubery Owen & Co., Darlaston, South Staffs.

Sheet Metal Work—
The Acetylene Corporation of Great Britain, Ltd., 49, Victoria Street, S.W.1. "Flamma, Vic, London." Vic 4830
Rubery Owen & Co., Darlaston, South
The Selsdon Aero & Engineering Co., Ltd., 1, Albemarle Street, Piccadilly, W.1. "Selaero, Phone, London." Regent 1181
Imperial Light, Ltd., 123, Victoria Street, London, S.W.1. "Edibrac, Phone, London." Victoria 3540 (3 lines).

Solder Manufacturers—
Samuel Mercer & Co., 198, Upper Thames Street, E.C.4. "Reconciled, Cannon, London." City 6342.

Sparking Plugs—
Brown Bros., Ltd., Great Eastern St., E.C.1
Lodge Sparking Plug Co., Ltd., Rugby. "Igniter, Rugby." Rugby 235.
The Robinhood Engineering Works, Ltd., Newlands, Putney Vale, S.W.15. Makers of KLG Plugs. "Kaelgee, Phone, London." Putney 2132-3.

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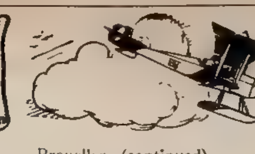

Accumulators—

The Chloride Electrical Storage Co., Ltd., Clifton Junction, near Manchester. "Chloridic, Pendlebury" Central Manchester, 163 Pendleton, 11.

Acetylene Welding Plant—

Acetylene Corporation of Great Britain, Ltd, The, 49, Victoria Street, Westminster, S W 1 "Flamma, Vic, London" Vic 4830.

Imperial Light, Ltd, 123, Victoria Street, London, S W 1 "Edibrac, 'Phone London." 3540 Victoria (3 lines

Aeroplane Manufacturers—

Aircraft Manufacturing Co, Ltd, Hendon. "Airmanship, Hyde, London" Kingsbury 220.

Armstrong, Sir W, Whitworth & Co., Ltd., Newcastle - on - Tyne "Armstrong Aviation, Newcastle-on-Tyne." Gosforth 500

Blackburn Aeroplane & Motor Co., Ltd., Olympia, Leeds "Propellors, Leeds." Roundhay 345 (3 lines)

Boulton & Paul, Ltd, Rose Lane, Norwich. "Aviation, Norwich" Norwich 851

British Aerial Transport Co, Ltd. Head Office: 78, Conduit Street, London, W 1 "Batigram Reg London" Mayfair 637, 638.

Works: Hythe Road, Willesden, London, N W 10 "Aerbrirans, Phone, London." Willesden, 2272, 2273

British & Colonial Aeroplane Co, Ltd (The Bristol Co), Filton, Bristol "Aviation, Bristol" Bristol 3906

Central Aircraft Co, High Road, Kilburn, N W 6 "Aviduction, Phone, London." Hampstead 4405 and 4424.

Dawson, John, & Co, Ltd., Newcastle-on-Tyne. "Dependable, Newcastle-on-Tyne" Central 2604 (2 lines).

Eastbourne Aviation Co, Ltd, Eastbourne "Aircraft, Eastbourne" Eastbourne 1176

Gosport Aircraft Co, Gosport "Flight Gosport" Gosport 217

Grahame-White Company, Ltd, London Aerodrome, Hendon. "Volplane, Hyde, London." Kingsbury 120 London Office, 1., Regent Street, S W 1 Regent 2004

Handley Page, Ltd, 110, Cricklewood Lane, N W 2 "Hydrophid, Crickle, London" Hampstead 7420

Hooper & Co, Ltd, 54, St James St, Piccadilly, London, S W "Sociable, St James, London" Regent 912

Mann, Egerton & Co, Ltd, Norwich. "Motors, Norwich" Norwich 482 (4 lines)

Martinsyde, Ltd, Brooklands, Byfleet, "Martinsyde, Weybridge" Woking 331; Byfleet 171

"Nieuport" & General Aircraft Co, Cricklewood, London, N W 2 "Nieuscout, Crickle, London" Willesden 2455

Phœnix Dynamo Manufacturing Co, Ltd, Thornbury, Bradford "Dynamo, Bradford" Bradford 3700 (4 lines).

Roe, A. V., & Co, Ltd., Manchester. "Triplane, Manchester" City 8530-8531, Manchester

Saunders, S. E., Ltd., East Cowes, I O W. "Consuta, East Cowes" Cowes 193

Short Bros, Rochester, Eastchurch and Whitehall House, S W "Tested, Phone, London" Regent 378

The Siddeley Deasy Motor Car Co, Ltd, Coventry Coventry 951 "Deasy, Coventry."

Sopwith Aviation Co., Ltd., Kingston-on-Thames. "Sopwith, Kingston" Kingston 1988 (8 lines).

The Supermarine Aviation Works, Ltd, Southampton "Supermarin" Woolston 37 (2 lines)

Vickers, Ltd, Imperial Court, Basil Street, Knightsbridge, S W 3 "Vickerfyta, Knights, London" Kensington 6010.

Waring & Gillow, Ltd, Hammersmith "Warisen, Ox, London" Museum 5000.

Westland Aircraft, Yeovil "Aircraft, Yeovil." Yeovil 129

White, J. Samuel, & Co, Ltd, East Cowes "White, East Cowes" Cowes 3

Airships—

Airships, Ltd., High Street, Merton. Wimbledon 1314

Short Bros, Rochester, Eastchurch, and Whitehall House, S W "Tested, 'Phone, London" Regent 378.

C. G Spencer and Sons, Ltd (See under "Balloons")

Aluminium Castings (Sand and Die)

Coan, R. W., 210, Goswell Road, London, E C 1 "Krankases, Isling, London." City 3546

Balloons—

C G Spencer and Sons, Ltd., 50A, Highbury Grove, N 5. "Aeronaut, London." Dalston 1893.

Bent Timber Parts—

Hopton & Sons, George Street, Euston Square, London, N W 1 "Hoptons, Eusquare, London" Museum 496. Also at Market Harborough, Leicestershire. "Hoptons, Market Harborough" Market Harborough 13.

Bearings (Etonia Cast Phosphor Bronze)

Brown Bros., Ltd, Gt. Eastern St., E.C.1.

Yorkshire Engineering Supplies, Ltd., Wortley, Leeds "Yes, Leeds" Central 3927

Blowpipes (Oxy-Acetylene)—

Acetylene Corporation of Great Britain, Ltd, The, 49, Victoria Street, Westminster, S W 1 "Flamma, Vic, London" Vic. 4830

Imperial Light, Ltd, 123, Victoria Street, London, S W 1 "Edibrac, 'Phone, London" Vic. 3540 (3 lines)

Bolts—

Mitchell Wedgewood & Co., Campbell Works, Stoke Newington, London, N 16 Dalston 2500 (2 lines).

Books (Aero Engines)—

Dykes' Auto Encyclopedia, Gillam, 149, Strand, W 2

Buildings—

Boulton & Paul Ltd Rose Lane, Norwich "Aviation, Norwich" Norwich 851

Rubery Owen & Co, Darlaston, South Staffs

Cable Coverings and Cable Controls—

The Bowden Brake Co., Ltd., Tyseley, Birmingham "Bowden, Acock's Green" Acock's Green 103 & 104

Bowden Wire, Ltd, Willesden Junction, "Bowirelim Harles, London." Willesden 2400 (3 lines).

Herbert Terry & Sons, Ltd, Redditch "Springs, Redditch" Redditch 61

Carburettors—

Hobson, H. M., Ltd, 3, Vauxhall Bridge Road S W 2 Victoria 4670

Casein—

Nieuwhof, Surie & Co., Ltd., 5, Lloyds Avenue, London E.C.3. "Suricodon, Fen, London." Avenue 34 and 35.

Clothing—

Burberry's, Ltd, Haymarket, S.W.1 Regent 2165

Dunhill's Ltd., Euston Road, N W 1 "Dunsend, London" North 3405-6

Component Parts—

Accles & Pollock, Ltd Oldbury, Birmingham "Accles, Oldbury." Oldbury 111 (4 lines).

Brown Bros., Ltd, Gt. Eastern St., E.C.1.

Central Aircraft Co, High Road, Kilburn, N W 6 "Aviduction, Phone, London" Hampstead 4405 & 4424

Thompson Bros (Bilston), Ltd, Bradley, Bilston, England "Thompson Bros., Bilston" Bilston 10

Cords, Tapes, and Threads—

MacLennan, J., & Co., 30, Newgate Street, E.C 1. And at Glasgow. City 3115.

Dopes

Titanine, Ltd., 175, Piccadilly, W 1 "Tetrafree, Piccy, London" Gerrard 2312

British Cellulose Co, 8, Waterloo Place, S W.1. "Cellutate, London" Regent 4016

The British Emaillite Co, Ltd, 10, Regent Street, S W.1. "Ridleypren, Piccy, London" Gerrard 280

Cellon, Ltd., 22, Cork Street, London, W 1. "Ajawb, Reg, London." Gerrard 440.

Robt. Ingham Clark & Co., Ltd, West Ham Abbey, E 15 "Oleotine, Strat, London." East 955

Engines and Parts—

Allen. W. H., & Co., Ltd., Bedford. "Pump Bedford." Bedford No 1

Arrol-Johnston, Ltd, Dumfries "Mocar, Dumfries" Dumfries 281-282

Beardmore Aero Eng., Ltd, 112, Great Portland Street, W 1 "Beardmore, London" Gerrard 238

The Cosmos Engineering Co, Ltd, Fishponds, Bristol

Dudbridge Iron Works, Ltd (Salmson), 87, Victoria Street, London, S W.1 "Aeroflight, Vic, London" Vic 7026.

Gordon Watney & Co., Ltd., Weybridge. "Mercedes, Weybridge" Weybridge 550 (7 lines).

Green Engine Co, Ltd, Twickenham Richmond 1203.

Gwynnes, Ltd, Hammersmith, W. "Gwynne, Hammersmith" Hammersmith 1910.

Napier & Son, D., Ltd, 14, New Burlington Street, London, W, and at Acton, W "Nitrifier, London" Gerrard 8920.

Rolls-Royce, Ltd, 14 and 15, Conduit Street, W 1 "Rolhead, London" Gerrard 1654-5-6.

The Siddeley-Deasy Motor Car Co, Ltd, Coventry. Coventry 054 "Deasy, Coventry."

Sunbeam Motor Car Co, Ltd, Wolverhampton "Moorfield, Wolverhampton" Wolverhampton 965.

The Gnôme & Le Rhône Engine Co, Ltd., 27, Buckingham Gate, S W 1 "Elevenfold, London" Walthamstow 811 (2 lines).

Walton Motors, Ltd, Walton-on-Thames. "Motors, Walton-on-Thames" Walton-on-Thames 220

Electrical Accessories—

Belling & Co., Montague Road, Upper Edmonton, N 18 "Belling, Edmonton." Tottenham 1084

Brown Bros., Ltd., Gt. Eastern St., E.C.1

Gent & Co., Ltd, Faraday Works, Leicester. "Lodestone, Leicester" National 151 (two lines)

Johnson & Phillips, Ltd., Charlton, London, S.E.7. "Juno, London" Central 2207, London Wall 1594

The Rotax Motor Accessories Co, Ltd., Victoria Road, Willesden Junction, N.W 10. "Rodynalite, 'Phone, London" Willesden 2480.

Electric Cables—

E Kalker and Co, Coventry "Kalker, Coventry" Coventry 242.

Johnson & Phillips, Ltd, Charlton, London S E 7. "Juno, London" Central 2207, London Wall 1594

Electric Lighting and Power—

Johnson & Phillips, Ltd, Charlton, London, S.E 7 "Juno, London." Central 2207; London Wall 1594

Mann, Egerton & Co, Ltd, 117, Cleveland Street, London, W. "Installing, Euston road" Museum 70 (4 lines)

Electro Platers and Metal Polishers' Engineers—

W. Canning & Co, 133-137, Great Hampton Street, Birmingham. "Materials, Birmingham" Birmingham 3622 Central (3 lines)

Fireproof Petrol Tanks—

The Aircraft Improvements Co, Mornington Works, Arlington Road, Camden Town, N W 1

Flare Lights—

Imperial Light, Ltd, 123, Victoria Street, London, S W 1 "Edibrac, 'Phone, London" Victoria 3540 (3 lines).

Flexible Shafts—

Herbert Terry & Sons, Ltd, Redditch "Springs, Redditch" Redditch 61

Fluxes—

Imperial Light, Ltd., 123, Victoria Street, London, S W 1 "Edibrac, 'Phone, London." Victoria 3540 (3 lines)

The Auto Controller Co. (Fluxite), Vienna Road, Bermondsey, Eng

Flying Boat Builders—

Gosport Aircraft Co, Gosport "Flight, Gosport" Gosport 217

Galvanising—

Boulton & Paul, Ltd, Rose Lane, Norwich "Aviation, Norwich." Norwich 851.

Gauges—

J A Prestwich & Co., Northumberland Park, Tottenham, N 17.

Gears—

Moss Gear Co., Ltd., Thomas Street, Aston, Birmingham. "Mosgear, Birmingham." East 407.

Glue—

Cannon, B., & Co., Ltd, Lincoln. London Office, 110, Cannon Street, E C.4. "Beccecolin, Cannon, London" City 1206

Improved Liquid Glues Co., Ltd., Gt. Hermitage Street, E (Croid.) "Exeroiden, 'Phone, London" Avenue 4611-2

Meudine Co., 8, Arthur Street, E.C. Bank 5875

Goggles—

Triplex Safety Glass Co, Ltd., 1, Albemarle Street, Piccadilly, W 1 "Shatterlys, Piccy, London" Regent 1340

Heating and Ventilating—

Chas P Kinnell and Co, Ltd, 65 & 65A, Southwark Street, London, S E.1 "Kinnell, London" Hop 372 (2 lines).

The Thames Bank (Blackfriars) Iron Co, Ltd, Upper Ground Street, London, S E 1 "Hot Water, Friars, London" Hop 765

Instruments—

British Wright Co, Ltd, 73, Chancery Lane, W C 2. Holborn 1308

Instruments (Scientific, Altimeters, etc.)—

Short & Mason, Ltd, Macdonald Road, Walthamstow, E.17. "Aneroid, Phone, London" Walthamstow 180.

Insurance—

Aviation Insurance Association, 1, Royal Exchange Avenue, E C 3 London Wall 9044.

Bray, Gibb & Co, Ltd., 166, Piccadilly, W 1.

Captain A Newman (late R A F), 20, Bucklersbury, E C 4 City 4855

Harold Townend, Ltd, 13-14, Abchurch Lane, King William Street, E.C.4. "Carinsur, London" Central 156 (2 lines).

Percy Wingfield, 22, Newgate Street, E C 1 City 4672

Leather Cloth—

New Pegamoid, Ltd, 134, Queen Victoria Street, London "Pegamoid, Cent, London" City 9764 (2 lines).

Lubricating Oil Refiners and Merchants—

W. B Dick & Co, Ltd, 90, Fenchurch Street, E C 3 Telegrams, Dicotto Fen, London Avenue 7851 (2 lines)

Magneto Driving Pieces—

Herbert Terry & Sons, Ltd, Redditch "Springs, Redditch" Redditch 61

Magnetos—

The British Lighting & Ignition Co., Ltd., 204, Tottenham Court Road, W 1. "Vicksmag, Phone, London." Museum 430

The British Thomson-Houston Co, Ltd, Lower Ford Street, Coventry "Asteroidal, Coventry" Coventry 278.

Metal Casement Manufacturers—

Henry Hope & Sons, Ltd., 55, Lionel Street, Birmingham "Conservatory, Birmingham" Central 909 (2 lines).

Metal Manufacturers—

Clifford, Chas, & Sons, Ltd, Birmingham. "Clifford, Birmingham." Central 42-13 Avenue 1432

Metals in General—

Samuel Mercer & Co, 198, Upper Thames Street, E C 4 "Reconciled, Cannon, London" City 6342

Metal Parts and Fittings—

Accles & Pollock, Ltd Oldbury, Birmingham "Accles, Oldbury" Oldbury 111 (4 lines)

Arnott & Harrison, Ltd, Hythe Road, Willesden Junction. Willesden 2207

Bayliss, Jones, & Bayliss, Ltd., Wolverhampton (Bolts and Nuts) "Bayliss, Wolverhampton" Wolverhampton 1041

Blackburn Aeroplane & Motor Co., Ltd., Olympia, Leeds "Propellors, Leeds" Roundhay 345 (3 lines)

Brown Bros., Ltd, Gt Eastern St, E C 1

Mann, Egerton & Co, Ltd, 177, Cleveland Street, London, W 1 "Installing, Eusroad, London" Museum 70

Rubery Owen & Co, Darlaston, South Staffs.

Sankey, Joseph, & Sons, Ltd., Wellington, Shropshire "Sankey, Wellington, Salop." Wellington 66

The Selsdon Aero & Engineering Co., Ltd, 1, Albemarle Street, Piccadilly, W.1 "Selaero, Phone, London" Regent 1181

Thompson Bros., Ltd., Bradley, Bilston. "Thompson Bros, Bilston." Bilston 10

Metric Bolts—

Cashmore Bros, Hildreth Street, Balham, S.W. Battersea 415

Rubery Owen & Co., Darlaston, South Staffs.

Miscellaneous—

Anderson, D., & Son, Ltd. (Roofs), Belfast "Anderson, Belfast." Belfast 4033-4034-4035

Brown Bros., Ltd., Great Eastern Street, E.C 1 "Imbrowned, Bethroad, London" London Wall 6300

Herbert Frood Co., Ltd., Chapel-en-le-Frith. "Frodobrake, Birmingham." Central 703

MacLennan, J, & Co, 30, Newgate Street, E C 1, and at Glasgow. Tapes, Cords, and Threads. City 3115.

Motor Cars—

Arrol Johnston, Ltd., Dumfries "Mocar, Dumfries" Dumfries 281-282.

Mann, Egerton & Co., Ltd 379/381, Euston Road, London, N.W 1 "Manegecar, Eusroad, London" Museum 70

Standard Motor Car Co., Coventry. "Flywheel, Coventry" Coventry 530 (4 lines)

Nameplates and Labels—

The Clegg Metal Engraving Co, Ltd., Worthing "Clegg, Worthing"

Observation Panels—

Triplex Safety Glass Co, Ltd., 1, Albemarle Street, Piccadilly, W 1 "Shatterlys, Piccy London" Regent 1340.

Oils—

C. C. Wakefield & Co., Ltd, Wakefield House, Cheapside, E.C 2 "Cheery, Cent, London" Central 11305 & 13400

Parachutes—

E R Calthrop's Aerial Patents, Ltd, Eldon Street House, Eldon Street, London, E C "Savemalivo, Ave, London" London Wall 2206-2207

C G. Spencer & Sons, Ltd (See under "Balloons")

Piston Rings—

The Standard Piston Ring and Engineering Co, Ltd, Don Road, Sheffield "Ocean, Sheffield" Sheffield 2149

Presswork—

Rubery Owen & Co., Darlaston, South Staffs

Terry, Herbert, & Sons, Ltd, Redditch "Springs, Redditch" Redditch 61

Propellers—

The Aircraft Improvements Co., Mornington Works, Arlington Road, Camden Town, N W.1

Blackburn Aeroplane & Motor Co, Ltd, Olympia, Leeds "Propellors, Leeds" Roundhay 345 (3 lines).

Propellers (continued).

Boulton & Paul Ltd., Rose Lane, Norwich, "Aviation, Norwich." Norwich 851.

Ebora Propeller Co., 11 & 12, Surbiton Park Terrace, Kingston-on-Thames "Ebora, Kingston." Kingston 672.

Integral Propeller Co., Ltd., "Aviprop, Hyde, London." Hendon 9 Kingsbury 104

Lang Propeller, Ltd., Weybridge. "Aerosticks, Weybridge." Weybridge 520-521.

Oddy, W. D., & Co., Leeds. "Airscrews, Leeds." Leeds 20547-8.

Westland Aircraft, Yeovil. "Aircraft, Yeovil" Yeovil 129.

Pyrometers—

The Foster Instrument Co, Letchworth, Herts "Foster Instruments, Letchworth" Letchworth 26

Rawhide Hammers—

Ira Stephens, Whitelands Leather Works, Ashton under Lyne "Stephens, 709, Ashton" Ashton 709.

Rigging for Aircraft—

Cradock, Geo., & Co., Ltd., Wakefield, England "Cradock, Wakefield." Wakefield 466

Rubber Tubing & Accessories—

Hancock, James Lyne, Ltd, 266, Goswell Road, London, E.C 1 "Masticator, Isling, London" City 3811 & 3812

Safety Belts—

C H. Holmes & Son, 38, Albert Street, Manchester "Semloh, Manchester" City 4432.

Screw-driving Machines—

Russell Bros. (Redditch), Ltd., Littleworth, Redditch. "Inventors, Redditch." Redditch 74.

Seaplane Manufacturers—

Blackburn Aeroplane & Motor Co., Ltd., Olympia, Leeds "Propellors, Leeds" Roundhay 345 (3 lines)

Phœnix Dynamo Manufacturing Co, Ltd, Thornbury, Bradford. "Dynamo, Bradford" Bradford 3700 (7 lines).

Short Bros, Rochester "Seaplanes, Rochester." Chatham 627.

Supermarine Aviation Works, Ltd, Southampton "Supermarin, Southampton" Woolston 37

Searchlights & Landing Lights

Brown Bros., Ltd., Great Eastern St., E.C.1

Imperial Light, Ltd., 123, Victoria Street, London, S.W.1. "Edibrac, Phone, London" 3540 Victoria (3 lines).

Shock Absorbers—

Luke Turner & Co, Deacon Street, Leicester Leicester 967.

Tubbs, Lewis & Co, Ltd, 29 & 30, Noble Street, E C 2 "Elastics, London" City 22.

Sheet Metal Pressings—

Accles & Pollock, Ltd, Oldbury, Birmingham. "Accles, Oldbury" Oldbury 111 (4 lines)

Blackburn Aeroplane & Motor Co., Ltd., Olympia, Leeds "Propellors, Leeds" Roundhay 345 (3 lines)

Rubery Owen & Co, Darlaston, South Staffs.

Sheet Metal Work—

The Acetylene Corporation of Great Britain, Ltd, 49, Victoria Street, S W 1. "Flamma, Vic, London" Vic 4830

Rubery Owen & Co, Darlaston, South

The Selsdon Aero & Engineering Co., Ltd, 1, Albemarle Street, Piccadilly, W.1. "Selaero, Phone, London" Regent 1181

Imperial Light, Ltd, 123, Victoria Street, London, S W 1 "Edibrac, Phone, London" Victoria 3540 (3 lines).

Solder Manufacturers—

Samuel Mercer & Co., 198, Upper Thames Street, E C 4. "Reconciled, Cannon, London." City 6342

Sparking Plugs—

Brown Bros, Ltd, Great Eastern St., E C.1

Lodge Sparking Plug Co, Ltd, Rugby. "Igniter, Rugby." Rugby 235.

The Robinhood Engineering Works, Ltd, Newlands, Putney Vale, S W 15 Makers of KLG Plugs "Kaelgee, Phone, London" Putney 2132-3

"The Aeroplane" Buyers' Guide.—*continued.*

Springs—

Dart Spring Co., West Bromwich. "Dart, West Bromwich." West Bromwich 322.

Terry, Herbert, & Sons, Ltd., Redditch. "Springs, Redditch." Redditch 61 (3 lines)

Steel—

Allen, Edgar, & Co., Ltd., Sheffield. "Allen, Sheffield." Sheffield 4607.

Brown Bros., Ltd., Great Eastern St., E.C.1.

Firth, Thos., & Sons, Sheffield. "Firth, Sheffield." Sheffield 3230 to 3237.

Jonas & Colver, Ltd., Continental Steel Works, Sheffield. "Jonas, Sheffield." Sheffield 4660

Nicklin, Bernard, & Co., Birmingham. "Bernico, Birmingham." Smithwick, 224.

Spear & Jackson, Ltd., Ætna Works, Sheffield. "Spear, Sheffield." Central 4522-3-4.

Steel Tubes for Aeroplanes—

Accles & Pollock, Ltd, Oldbury, Birmingham. "Accles, Oldbury." Oldbury 111 (4 lines)

Tapes and Smallwares—

MacLennan, John, & Co., 30, Newgate Street, E.C.1. And at Glasgow. City 3115.

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Gent & Co., Ltd., Faraday Works, Leicester. "Lodestone, Leicester." National 151 (two lines)

Tools—

Richard Mather & Son, Shoreham Street Works, Sheffield Sheffield 4349.

Turnbuckles—

Brown Bros., Ltd., Great Eastern St., E.C.1.

Rubery Owen & Co., Darlaston, South Staffs.

Tyres and Wheels—

The Palmer Tyre, Ltd., Shaftesbury Avenue. "Tyricord, Westcent." Gerrard 1214 (5 lines).

Undercarriages—

Thompson Bros. (Bilston), Ltd., Bradley, Bilston, England. "Thompson Bros., Bilston." Bilston 10.

Varnishes—

The British Emaillite Co., Ltd., 30, Regent Street, S.W.1. "Ridleypren, Piccy, London." Gerrard 280.

Thomas Parsons & Sons, 315 & 317, Oxford Street, London, W.1. "Varjap, Phone, London." Mayfair 6347 (3 lines).

Robt. Ingham, Clark & Co., Ltd., West Ham Abbey, E.15. "Oleotine, Strat, London." East 955.

Harland, W., & Son, Merton, London, S.W.19. "Harland, Wimbledon 45." Wimbledon 45 and 1395

Naylor Bros., Ltd., Southall, Middlesex. "Naylor, Southall." Southall 30

Washers—

Terry, Herbert, & Sons, Ltd., Redditch. "Springs, Redditch." Redditch 61.

Welding and Cutting Plant—

Acetylene Corporation of Great Britain, Ltd., The, 49, Victoria Street, Westminster, S.W.1. "Flamma, Vic, London." Vic 4830.

Imperial Light, Ltd, 123, Victoria Street, London, S.W.1. "Edibrac, Phone, London." Victoria 3540 (3 lines).

Welding Repairs—

Imperial Light, Ltd, 123, Victoria Street, London, S.W.1. "Edibrac," Phone, London." Victoria 3540 (3 lines).

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Auster, Ltd., 133, Long Acre, W.C. "Winflector, London." Regent 5910

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Greening, N., & Sons, Ltd, 16, Finsbury Street, London, E.C.2. "Setscrew, Finsquare, London." London Wall 1082.

Wire and Cables—

Bruntons, Musselburgh, Scotland. "Wiremill, Musselburgh." Musselburgh 28.

Cradock, Geo., & Co., Ltd., Wakefield, England. "Cradock, Wakefield." Wakefield 466 (3 lines).

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Woodworking Machinery—

Sagar, J., & Co, Ltd, Halifax "Sawtooth," Halifax." Halifax 136.

Wadkin & Co., Leicester "Woodworker, Leicester" Leicester 3614.

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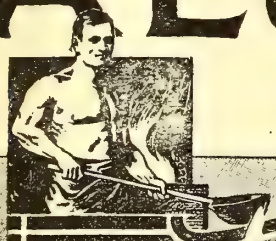

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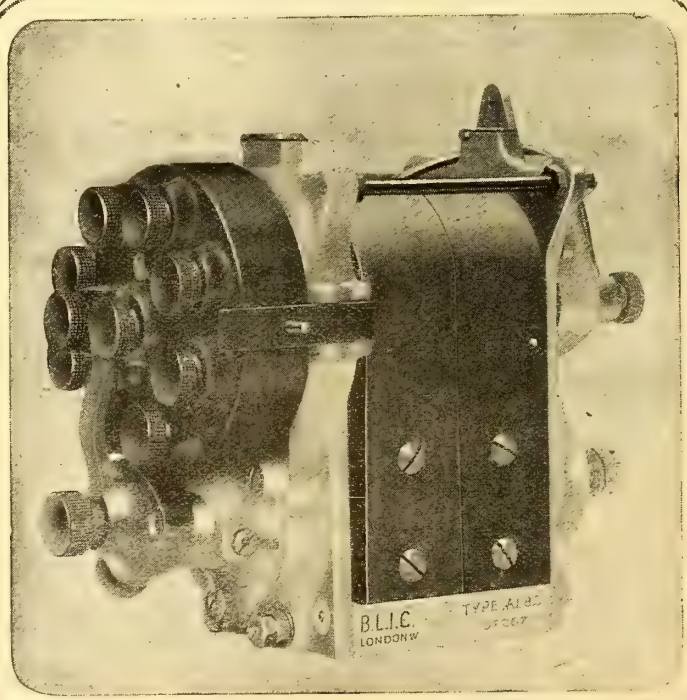

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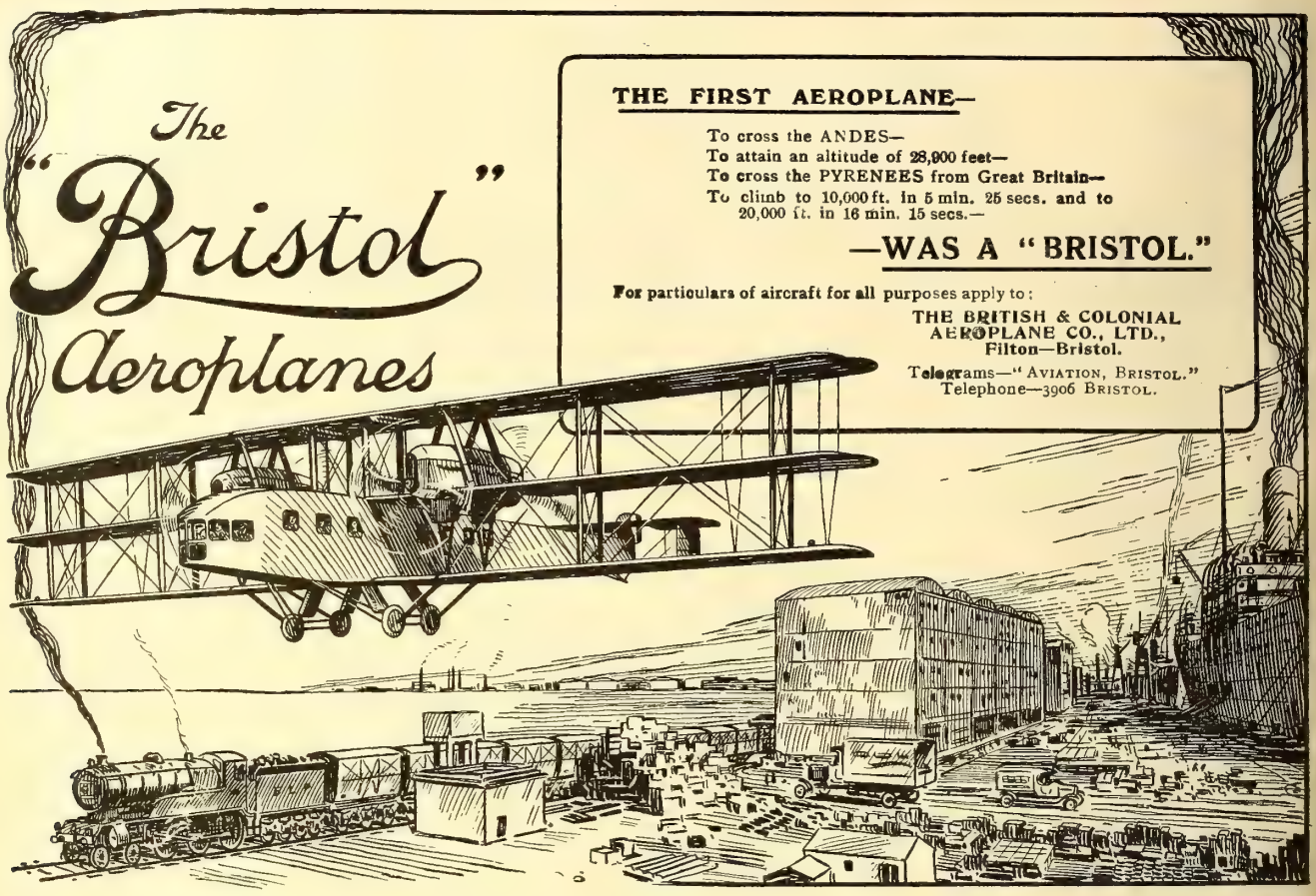

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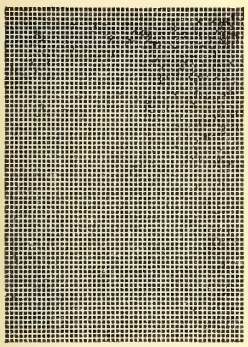

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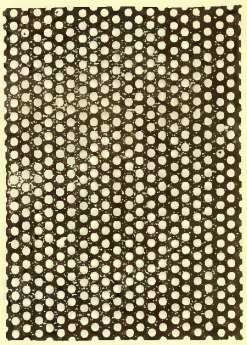

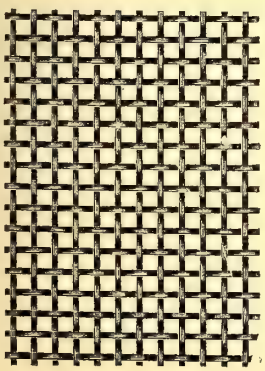

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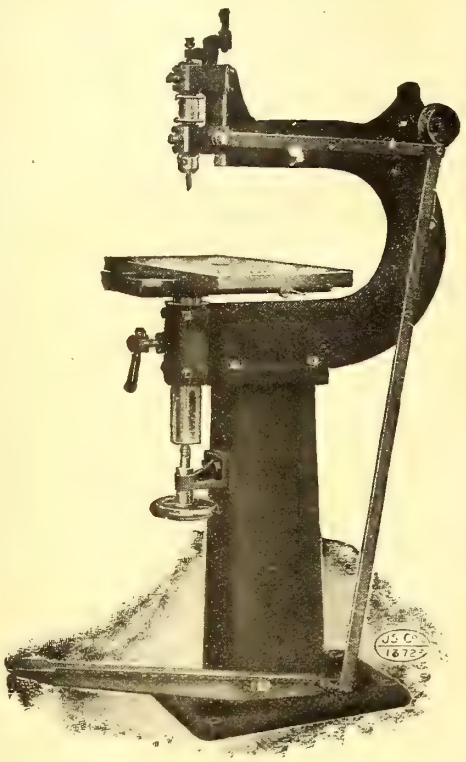

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had been prepared was handed over to them, and Vickers, Ltd., undertook to drill for them all the channels required for the hull structure, and supply all the finished bracing pieces required. They also arranged to make the gas valves and other finished components. The drilled channels and bracing pieces supplied enabled them to proceed immediately with the assembly of girders, and greatly expedited the work of construction.

VICKERS' NEW DESIGN OF RIGID AIRSHIP, R.80.

R.37 having been transferred to Short Bros., Vickers, Ltd., were without further work to proceed with on the completion of R.26, and, as Flookburgh shed and aerodrome were stopped, they were restricted to a size of airship that could be built in Walney shed.

Designs were prepared for an airship of the largest possible size that could be built there. Embodied in this design were all the best features obtained from the German 35 Class, and also the improvements suggested by the experience of the airships of R.9 and R.23 Classes in service.

As the firm were given a free hand in the design, without unnecessary restrictions as to strength, such as were imposed in 23 Class vessels, they have produced a design which for its size is considerably more efficient than any other rigid airships in both weight and general design.

An order for one ship to this design was placed in November, 1917, and it is expected that this airship will be ready for trials very soon. In a new design, the rate of building of the first ship is entirely determined by the rate at which the drawing-office can produce the working drawings and the material ordered. If a second airship were ordered, it could be produced in considerably less time, as all the material could be ordered at once and all the work put in hand.

THREE PARSEVAL NON-RIGID AIRSHIPS NOS. 5, 6, 7L.

No. 5 was built entirely in Germany, and was in the hands of the Germans at the outbreak of war.

Nos. 6 and 7 were built at Barrow, and after the outbreak of war a large number of alterations in design were made as a result of active-service experience with other ships. This caused considerable delays in completion.

No. 6 was taken over by the Admiralty in June, 1917.

No. 7 was taken over by the Admiralty in September, 1917.

OTHER AIRSHIP WORK.

S.S. TYPE AIRSHIPS.—Four of the small submarine-spotting airships for coast patrol were made for the Admiralty, and delivered at the beginning of 1916.

KITE BALLOONS.—Some of the earliest kite balloons made in England were made at Barrow, and a subsequent contract was obtained for 26.

AIRSHIP WORK PRODUCED AT DOUGLAS FACTORY.

Early in 1916, when the demands for gasbags, etc., for war purposes were greater than could be met with at Barrow, Vickers, Ltd., organised a factory at Douglas, Isle of Man, for the carrying out of this work. This factory has produced the bulk of the Government requirements for rigid airships, in addition to a large quantity of non-rigid envelopes and balloon work, and includes 250 gasbags for rigid airships, 7 complete outer covers for rigid airships and numerous spares, one 360,000 cu. ft. Parseval envelope and rigging, six 360,000 cu. ft. North Sea type envelopes, six 70,000 cu. ft. A.P. envelopes, six spherical balloons; quantities of target balloons, flotation bags for aeroplanes, ballast bags, suspension fittings, and other details for envelopes assembled elsewhere.

"IOCO" PROOFING FACTORY, GLASGOW.

Before the war, practically all the proofed balloon fabric used in England came from Germany, and when the large airship programme was initiated by the British Government early in 1915 the supplies of prooted fabric were difficult to obtain.

In conjunction with the "Ioco" Proofing Company, Vickers, Ltd., installed plant and commenced the proofing of airship fabrics.

After the initial difficulties were overcome, this factory was so successful that it developed into one of the chief, if not the leading, manufacturers of this class of material.

Its production at the date of the Armistice was 50,000 yards of completed fabric per week.

AIRSHIP ENGINES.

In the year 1913 Vickers, Ltd., obtained the exclusive manufacturing rights for the British Empire of the German Maybach engine.

Engines to the Wolseley-Maybach design of 180 b.h.p. were manufactured at the Wolseley Company's works at Birmingham, and fitted to rigid airship R.9 and the Parseval airships Nos. 6 and 7.

Wolseley-Maybach engines of 240 b.h.p. are now being manufactured at the Wolseley Company's works for fitting in rigid airship R 80.

This engine has shown itself in service as being pre-eminently suitable for airship work, owing to its consistent reliability and low fuel consumption.

AIRSHIP SHEDS.

At the end of 1915, when it was decided to carry on with airship construction, as Vickers, Ltd., had the old Walney shed available, it was decided that new sheds should be built first of all for Armstrongs, Beardmores, and Short Brothers, before building a larger shed for Vickers, Ltd.

It was not until October, 1916, when the new sheds for the other firms were completed, that the British Admiralty decided that a new large shed should be built for Vickers on a site selected at Flookburgh, near Barrow-in-Furness.

Work on the site and foundation were subsequently put in hand, but in September, 1917, owing to shortage of steel, the Admiralty stopped all work on the shed. This has temporarily placed the company at a disadvantage for future work, as the trend of airship development is towards greatly increased size.

They are, however, now making arrangements, and a large shed will be built as soon as it is necessitated by the development of commercial airships.

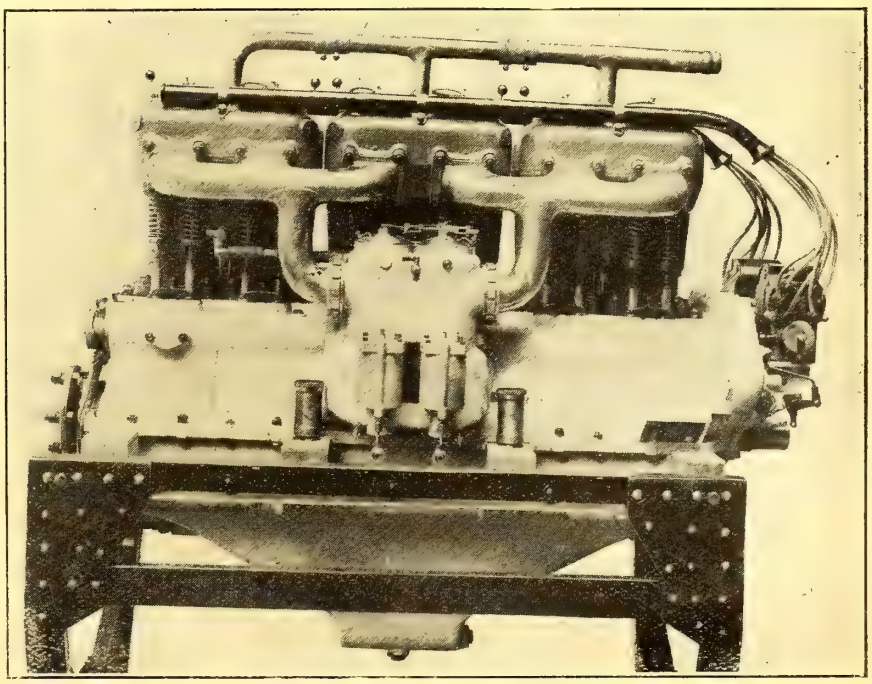
FIAT AIRSHIP ENGINES.

The requirements of an airship engine are quite different from those of a heavier-than-air machine. With the latter, as at present constructed, at any rate, it is impossible to carry out repairs while in the air. The airship, on the other hand, can remain aloft without its engines working, which allows of quite extensive repairs.

It is precisely because adjustments and repairs are looked upon as possible of execution that the Fiat airship engines built during the war for the Forlanini dirigibles are a distinct departure from the aeroplane types designed by this company.

This engine is a six-cylinder type having four valves per cylinder on opposite sides. The cylinders are cast in pairs, and are fitted with steel liners. Their bore is 125 m.m., and the stroke 190 m.m. The horse-power is 147.

Everything has been thought out with a view to ease of control and quick repair. The valves are not enclosed and can be changed readily. There are two oil pumps, mounted on the extremities of the camshafts. The magnetos are at the opposite end of the engine, driven from a short cross shaft, but having their distributors and contact breakers outwards for greater accessibility.



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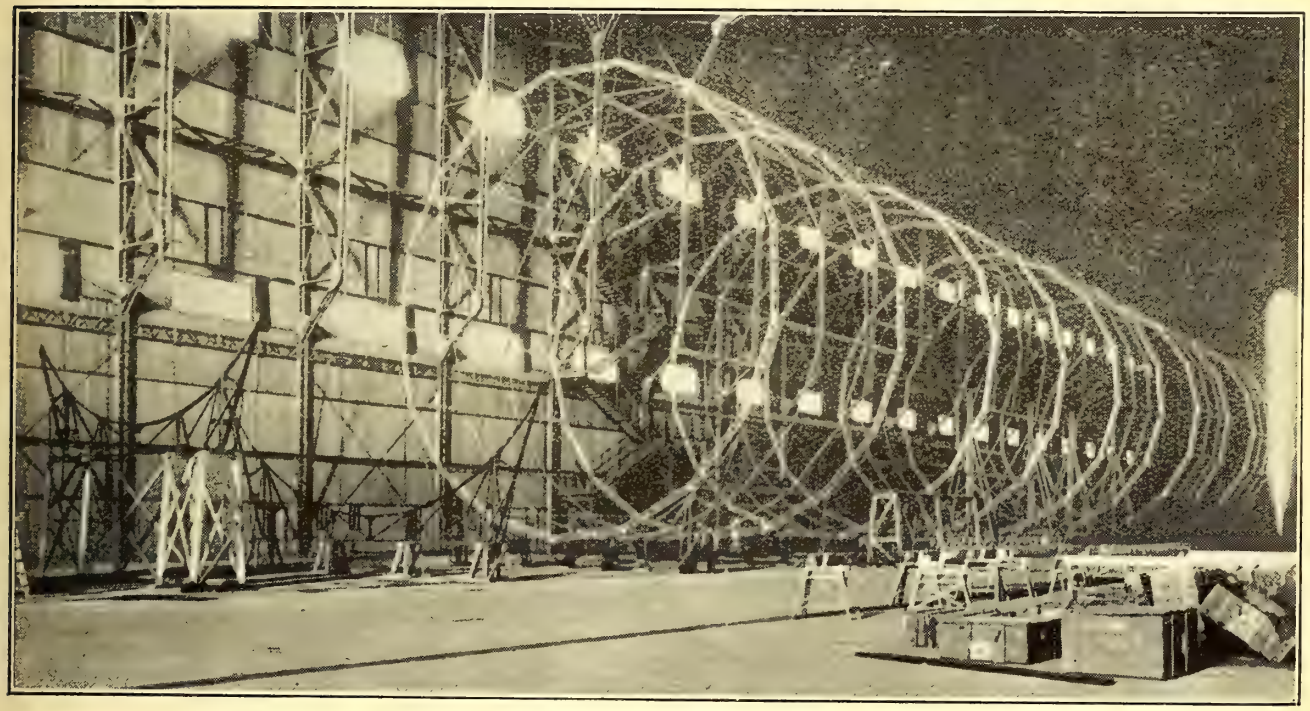
THE CONSTRUCTION OF BRITISH RIGID AIRSHIPS.

Contributed by Sir W. G. Armstrong, Whitworth & Co., Ltd.



AT SIR W. G. ARMSTRONG, WHITWORTH AND CO.'s WORKS, BARLOW.—The framework of R.25 in position on the erecting cradles.

A considerable time prior to the outbreak of war, Sir W. G. Armstrong Whitworth and Co., Ltd., the well-known armament firm of Newcastle-on-Tyne took up the question of rigid airship construction and purchased a site at Barlow, near Selby, in Yorkshire, upon which to erect special airship works.

The works comprise a large erection shed built of corrugated iron and steel, the interior dimensions of which are 150 ft. wide by 711 ft. long by 125 ft. in height, also large workshops of brick and steel, the principal buildings being about 560 ft. long by 90 ft. wide by 25 ft. high and 260 ft. long by 101 ft. wide by 45 ft. high. There are also separate buildings for offices, canteens, etc.

The building of the works commenced in January, 1916, and by July 1st of that year were so far advanced that airship erection commenced.

The first airship put in hand was R25. This ship was 535 ft. long by 53 ft. in diameter and had a gas capacity of 900,000 cubic feet. She was fitted with four 250-h.p. Rolls-Royce engines.

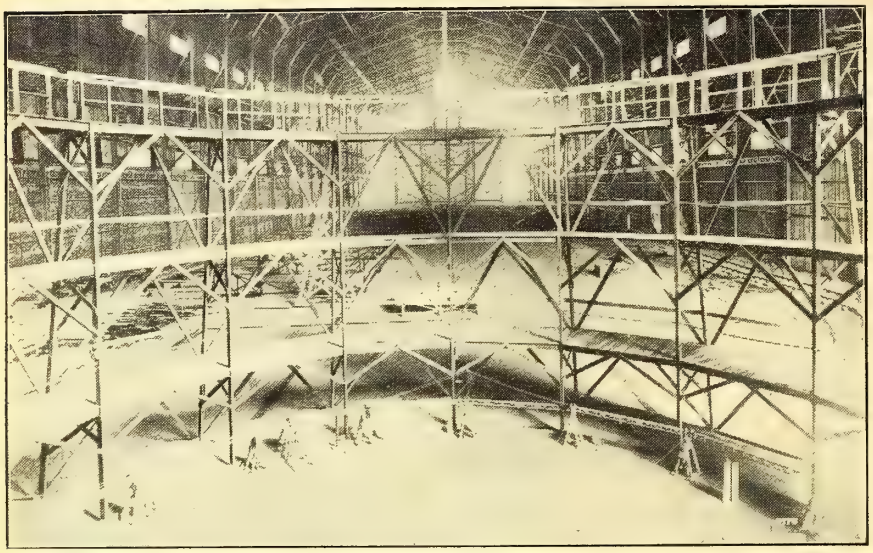
The lattice-work duralumin girders, and machinery and control cars, were made by the firm at their girder and car works, Newcastle-on-Tyne, the labour employed being mostly women.

The assembling of the frames and all ship erection was done at Barlow, the method of constructing the hull in the early stages being the same as already adopted by Vickers, Limited, who very kindly supplied information on the subject and facilities for the inspection of their works at Barrow-in-Furness.

The method consisted of building up in a wooden jig or tower complete sections of the hull. These sections, which consisted of two transverse frames connected together by longitudinal girders and wired up, were then hoisted out of the tower and placed vertically on iron cradles fixed on the floor of the shed to receive them.

The cradles were furnished with a curved track to correspond with the circumference of the sections, and the latter were fitted with rollers which rested upon this track. The cradles were carefully spaced apart so that when the full number of sections were

AT SIR W. G. ARMSTRONG, WHITWORTH AND CO.'s WORKS.—Girls assembling girders for rigid Airships.



The circular wooden tower originally used at the Armstrong W orks for erecting Sections of Airships.

placed in position upon them a space equivalent to the length of the section was left between any two sections.

Therefore, to complete the hull, it was only necessary to link up the sections by longitudinal girders, rivet up their joints and insert the necessary wires which are used to stiffen up the hull.

The various parts which are used to make up the hull construction are finally secured in place by riveting. This process is done by female labour, presses being used wherever possible, the remainder being done by hand.

To enable every portion of the hull structure to be reached, the latter was rotated bodily upon the cradles to any position desired, by means of pulleys and suitable tackle.

When the entire hull had been completed and riveted up, each bay on the inner side was covered with strong cord netting of about 9-in. mesh, forming a lining throughout the ship to give additional support to the gas bags.

In the case of R25 a keel triangular in cross-section and constructed of steel tubes was attached externally to the lower portion of the hull, and to place this keel in position it was found necessary to raise the hull bodily from the cradle; an extremely delicate operation in view of the fact that the keel lends considerable strength to the structure, and without it the hull was quite incapable of withstanding even its own weight unless equally supported at many points.

This difficulty was overcome at Barlow by attaching a sufficient number of counter-balance weights to the structure by means of ropes passing through pulley blocks in the roof of the shed until the hull was almost entirely supported, and then raising the structure by several rope tackles operated simultaneously from one point.

By this means the hull was successfully raised 24 feet in four minutes without a stop and without distorting the framework in the slightest degree. This height gave ample room for fitting on the keel and also the three cars which are slung below the keel.

Whilst this work was being done the structure received additional support from light scaffolding from the ground.

The fins, rudders and elevators were then placed in position, gas bags inserted and the outer envelope put on. The latter is made up in panels which are laced tightly together in place, the lacing joints being afterwards sealed up by doping on strips of fabric.

As this work proceeds the bags are gradually further inflated with hydrogen until the ship finally begins to lift from the supports and slings. Instruments and accessories are put in, machinery finished off and tested under power, the ship being secured in the shed for this and other tests by suitable means until finally the work is completed and the ship ready for flight.

R25 was completed in October, 1917, and was the second British rigid airship to be handed over to the Navy (R9 being the first and R23 being the third. Both of these were constructed by Vickers Ltd. R23 was delivered to the Admiralty only one day after R25).

Shortly after beginning work on R25 it became evident to the staff at Barlow that the method of erection adopted left much to be desired, particularly from a mass production point of view.

The time lost in completing sections before the final assembling of any considerable portion of the hull could be commenced was very great.

Further the wooden towers required to be altered continually to suit tapering portions of the hull, which would be a great obstacle in building streamline ships. Most important of all, it was found that the sections tended to alter slightly in shape when being lifted, necessitating the greatest care being used when linking one or more sections together to keep the structure true and to prevent unequal strains being set up on the girders and wires.

It was felt that these difficulties would enormously increase in building larger ships, and to overcome them a new method was devised. The towers were abolished and the circular transverse ribs or frames were constructed on horizontal radial jigs.

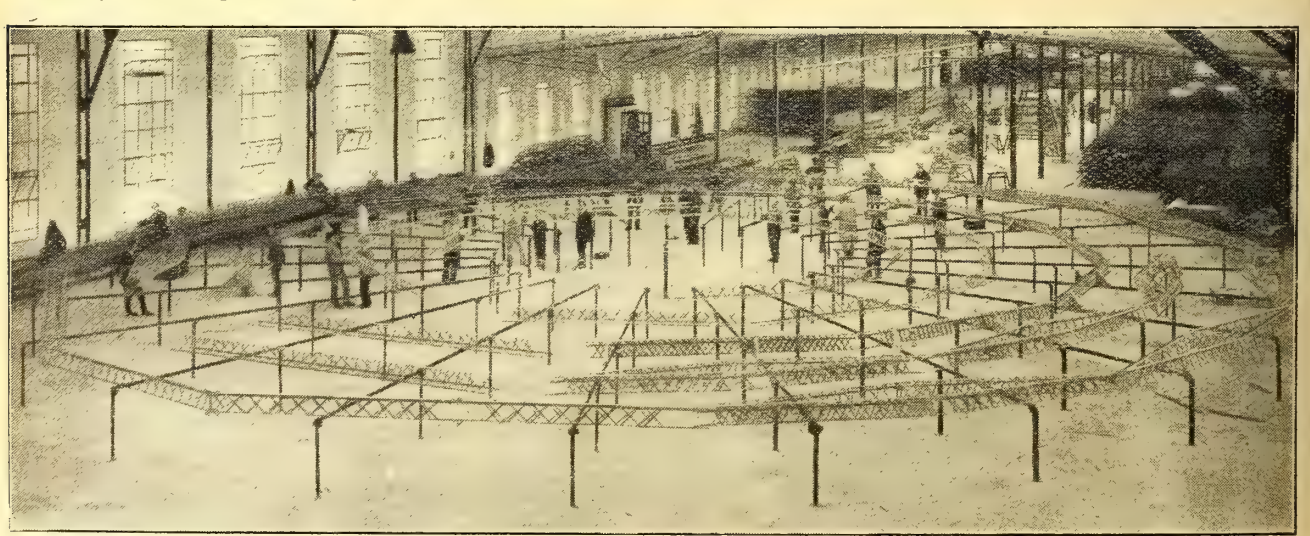
The frames were then slung into a vertical position and placed on the cradles; in that condition they were merely enormous hoops or rings. To stiffen up these frames to make slinging them possible, as they were extremely fragile and flexible, a pole about 4 inches in diameter and 14 feet long was placed vertically in the centre and wires were attached from the top end of the pole on either side to each of the main joints of the frame and carefully tautened, thus making it resemble a large wire wheel. They were then lifted without difficulty.

When each frame was placed in position on the cradles it was immediately connected up to the next frame by longitudinal girders, the intermediate girders placed in position, and the whole temporarily secured by bolts. After this the lower portion of the structure was riveted up and the wiring gang followed along and permanently wired up the hull.

Upon the whole lower portion of the hull being completed the structure was rotated upon the cradles to enable the remainder to be riveted and finished off.

This method was tried in building R29, the next Barlow ship. The photograph showing R25's outer cover being fitted shows eight weeks' progress on the hull of R29 by the new method of erection.

So successful was this scheme of erection that it was adopted



The radial jig for erecting frame rings of rigid Airships, devised by Armstrong, Whitworth and Co. Frames for R39 in course of assembly.

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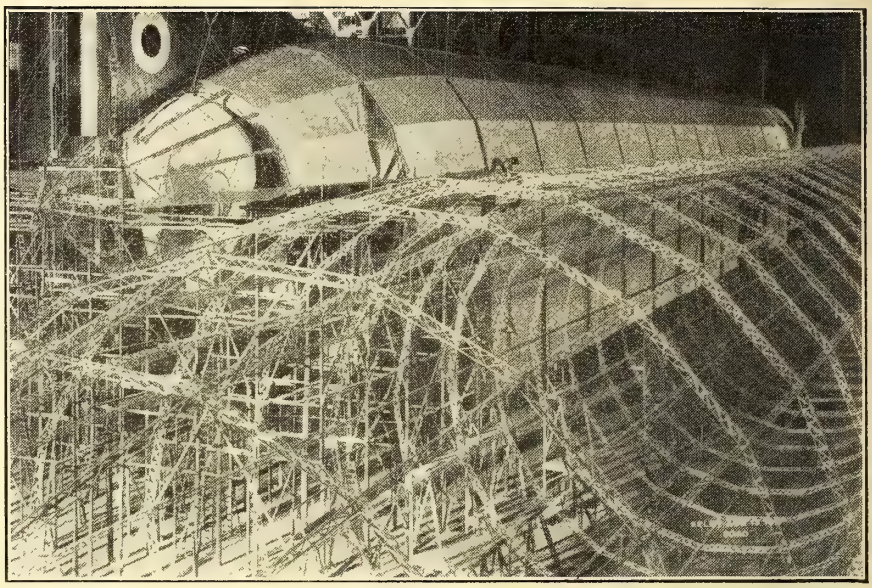
in subsequent Barlow ships, R33 and R39, and was also adopted by Beardmore and Company in building R34, and in part by other firms.

When information on the construction of German ships became available it was found that they also had in use a scheme somewhat similar and had abandoned the use of towers.

R29 was completed by Armstrong, Whitworth and Company, in May, 1918. She was the same length and diameter as R25, but small variations in shape and to her internal arrangements gave an increased gas capacity of 980,000 cubic feet. By discarding the external keel and fitting a triangular internal keel of duralumin girders and by several other improvements in design a disposable lift of 8.63 tons was obtained.

This increase of 3½ tons in lift over the R23 class ships made this ship the first British rigid to be really capable of use against the enemy. She had an armament equipment of eight 120-lb. bombs and numerous machine-guns. On four occasions she was in action against submarines, one of which was believed to have escaped, one was damaged and became a prey to a British destroyer, one struck a mine and was sunk whilst the action was progressing, and the fourth was sunk by a direct hit from a bomb from the ship.



The outer cover of R25 being fitted to the frame. In the foreground the hull of R29 is in course of erection.

The hull of R29 having an internal keel it was unnecessary to lift it from the cradles before completion. The final lifting to enable the cars to be placed in position was done by inflating the gas bags. R29 was similar in machinery and car equipment to R25.

R33 was the next ship to be constructed at Barlow by Armstrong Whitworth and Co., Ltd.

It has been freely stated that this ship was entirely copied from L.Z.33 which was brought down almost intact near Colchester, a statement which is not quite correct. British designers naturally availed themselves of the opportunity to study the German design and obtained much valuable information, incorporating in subsequent ships features of the German ship which were found superior to our own, but the greater portion of R33 was of British design.

In any case it should be pointed out that whilst this information undoubtedly assisted our designers it was of very little value to constructors in overcoming difficulties of erection.

R33 has a total length of 640 ft., maximum diameter of 78 ft. 9 ins., and a gas capacity of 2,000,000 cubic feet, giving a disposable load of 29½ tons.

The hull is divided by radially wired main frames into separate compartments into each of which a large gas bag is closely fitted.

There are four cars, the forward one being divided into three compartments, the front compartment being reserved for navigating officers, the centre one for the wireless gear, and the after portion for a 250-h.p. Sunbeam engine.

Two wing machinery cars, each containing a 250-h.p. Sunbeam engine, are fitted abreast of each other, one on the starboard and one on the port side, amidship along the hull and about 30 feet apart.

The after car contains two 250-h.p. Sunbeam engines driving through gearing one large propeller. Either one or both engines can be used simultaneously. In addition duplicate steering and elevating gear is fitted in this car for use in emergency

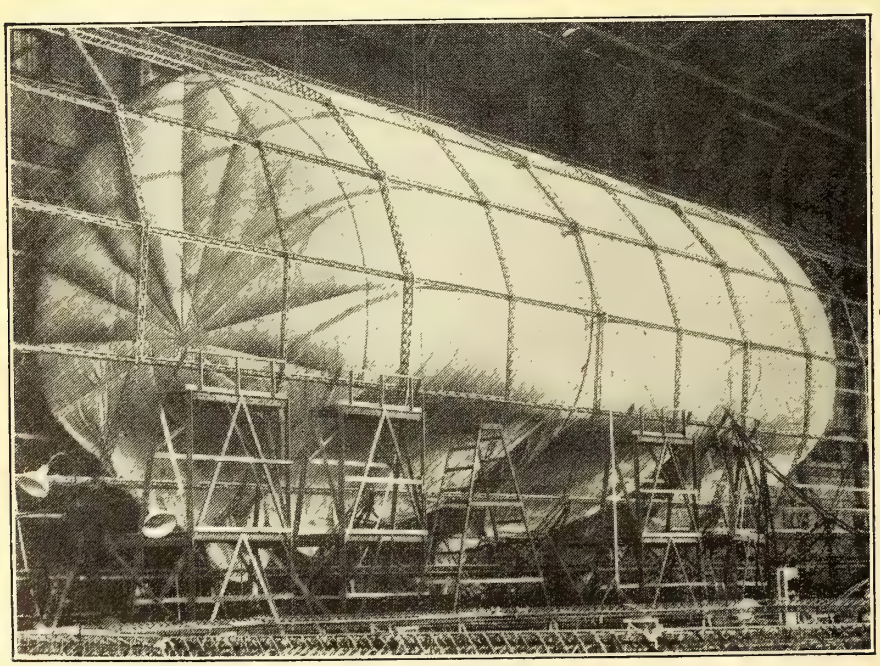
The hull has an internal keel or corridor constructed of duralumin girders and running the whole length of the ship.

This corridor provides space for housing the petrol tanks, which have a total capacity of 20 tons, also the water ballast bags, and space for the crew when off duty.

Access to the various parts of the ship is obtained by a walking-way passing through the corridor, ladders from it give access to the cars, and a tabular shaft with wire rope ladder suspended inside leads to the gun platform and top of the ship.

R33 was successfully put through her first flight trials on March 6th, 1919.

During the completion of the construction of R33 a ship of similar design, viz., R35, was put in hand. This ship was of the same type exactly, but having an increased length of 672 ft. Upon completion of the girders, and before actual hull erection commenced, it was decided to suspend operations on it and proceed with the building of a much larger type, the R39, the design of which is purely British. Work is being pushed rapidly forward in order to get this ship into commission at the earliest possible moment.



Three gas-bags in position and partly inflated. R29 at the Armstrong Works.

She will be one-third larger than the 33 class ships, and will have a gas capacity of 3,000,000 cubic ft. The total length is 694.5 ft. and maximum diameter 85 ft. Six power cars are provided, each with one engine. Four of the engines will be of 350-h.p each, and two will be of 275-h.p.

In addition there will be one control car attached immediately under the forward portion of the hull of the ship. The interior will be similar to the R33 class, though greatly improved, so far as general arrangements are concerned.

The airships and aeroplane departments of Sir W. G. Armstrong, Whitworth and Co., Ltd., have been conducted entirely separate from each other, each branch having its own management and staff, although both are jointly controlled by Capt. I. F. Fairbairn-Crawford, R.E., general manager of the aircraft department, who has been connected with aviation from its commencement in England.

Owing to the fact that there were few —if any—trained airship engineers and practically no reliable information on the subject at the time when the work was started in 1916, the utmost care and

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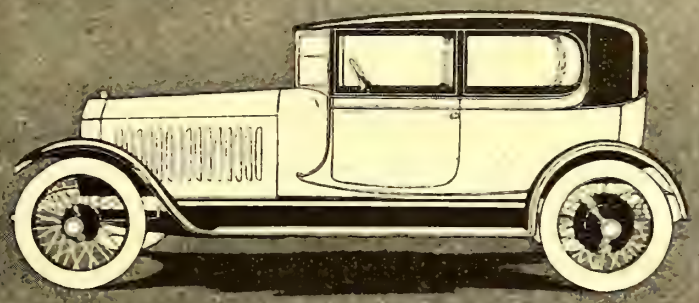

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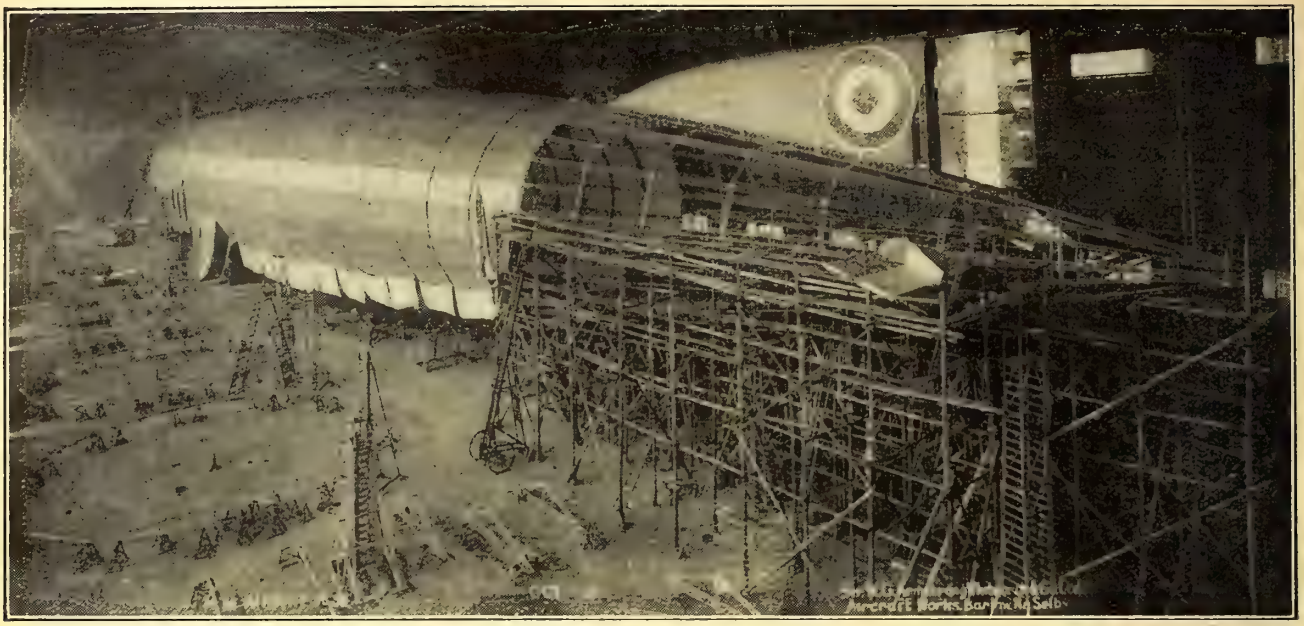


The outer cover being fitted to R33 at the Armstrong-Whitworth Works, Barlow. Frame-rings for another ship are seen on the left of the picture.

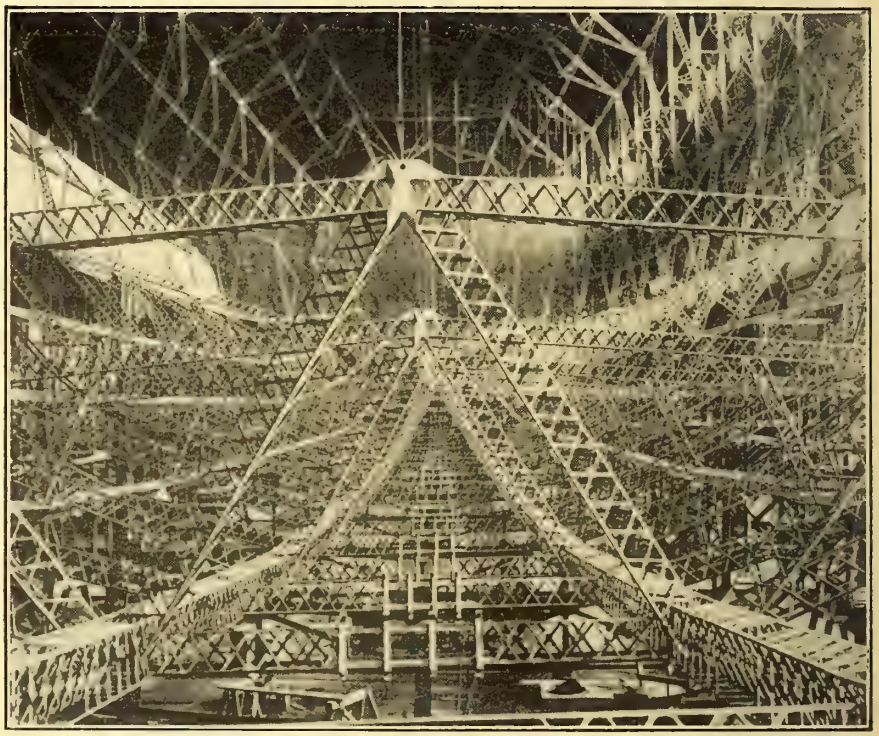
thought had to be used to overcome the thousand-and-one difficulties which were to be met with in the building and handling of large rigids.

Special tools had to be designed and appliances for lifting and handling the ships devised, and workpeople had to be trained in everything relating to this new class of work. These difficulties have been successfully overcome, and to-day the Barlow works have a trained staff capable of carrying out every process in connection with airships, from and including making the hull, cars, fabric work, gas bags, etc., to manufacturing the hydrogen gas and handling the ship when going in or out of the shed.

AIRSHIP v. AEROPLANE.

It is now fairly generally accepted by those who are reasonably well informed that in the development of commercial aviation both the airship and the aeroplane will play their part, each in its own sphere of action, and that the one will supplement the other rather than attempt to compete with it.

In the present state of the development of aircraft it can safely be said that for carrying large cargoes for long distances without stops at speeds up to about 70 miles per hour the airship cannot be rivalled by the aeroplane either in cost or in reliability.



View of the skeleton of R39, showing the interior corridor forming the keel.

On the other hand, for relatively small cargoes, to be carried at considerably greater speeds, and particularly where landings can be made at reasonably frequent intervals, the aeroplane need not fear the competition of the airship.

It would not be altogether safe to assume that these conditions will always hold, however.

The design of large rigid airships is—so far as the structure itself is concerned—a very complex problem. Apart from the purely structural difficulties, however, the airship is a relatively simple affair with definite limits to the possibility of improvement.

The weight of a cubic foot of air under given conditions of temperature, pressure, and humidity is unalterable—and fixes the total lift which can possibly be obtained from a ship of any given volume. It is highly improbable that any fluid less dense than hydrogen will ever be found, and even if it were, there can be but little gain.

The problem of securing that form of hull which will give the minimum air resistance for a given displacement is—as aerodynamic problems go—a simple one.

Thus apart from propulsion, the problem of improving upon the present type of airship is mainly one of structure design to secure the necessary strength for the minimum of weight.

Improvements in propulsive machinery would have as great an effect upon the development of the aeroplane as they would upon that of the airship.

The aeroplane is as susceptible as is the airship to improvement in structural design.

The aerodynamical problems involved in aeroplane design are much more complex than those presented by the airship, and the prospects of really important improvements in efficiency are very much greater.

Thus, over and above the possible beneficial effects of the discovery of better structural materials, the better use of the materials, of improvements in the power plant, and of the methods of propulsion employed which are likely to affect both the aeroplane and the airship to about an equal extent, there is a distinct probability that in the aeroplane it may be possible to increase very considerably the total weight which can be carried at any given speed, per h.p. of power plant installed.

There is very little possibility of any equivalent improvement in the aerodynamic design of airships, and although it is reasonable to expect the airship to increase in size, and in its ratio of disposable lift to gross lift in the future, it is also to be expected that the aeroplane will develop at an even more rapid rate, and will gradually encroach upon what is now regarded as the airship's special sphere of usefulness.

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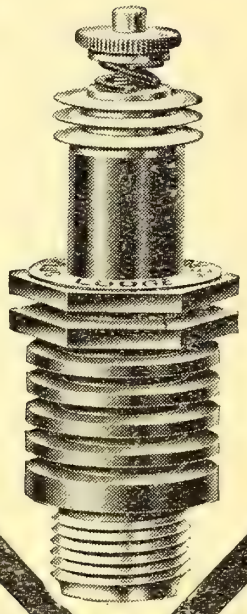

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Following the successful flight across the Atlantic by a British aeroplane with British engines and piloted by a Britisher, the notable achievement of H.M.A. "R34" in performing the double journey to New York and back is very gratifying in that it is also "All British."

Now that the war has been brought to a successful termination, it is possible to publish some particulars of this most interesting ship. She was built, equipped, and tried in Scotland by Wm. Beardmore and Co., Ltd., of Parkhead and Dalmuir, at their new airship works at Inchinnan in Renfrewshire. The direction of all the work carried out at the new shops and erecting shed took place from the naval construction works at Dalmuir.

During the very early days of the war this firm undertook the construction of aeroplanes and seaplanes for the Admiralty, and erected and equipped up-to-date shops suitable for the work.

When the Admiralty began their programme of airship building, Beardmore's were amongst the first firms to undertake the construction of large rigid airships.

R34 is the latest product of their works, and has been consistently successful in all her trials and long flights.

The land taken over at Inchinnan as a flying ground for airships extends to over 360 acres, and the sheds and buildings now cover nearly 8½ acres.

The actual construction of airships was started there about July, 1916, and two ships of moderate size were completed and tried out before R34 was put in hand.

R34 and her sister-ship R33 are the two largest ships yet built in Britain. The overall length of the airship is 645 ft., and the greatest diameter 78 ft. 9 ins. There are in all 18 gas bags, with a total capacity of 2,000,000 cubic feet. This is equal to a gross lifting power of 60 tons under standard conditions, and the lift which is useful, apart from that required for hull and other constructional items in this ship, is practically 30 tons. Every care was taken during the design and construction of the ship to keep down weight in every part, and the result has proved that this has been thoroughly successful without in any way detracting from the necessary strength.

The section of the ship takes the form of a polygon with 13 sides, and is built up of main transverse frames, rigidly wired, placed every 10 metres in her length, with intermediate transverse frames of lighter construction placed between them. The whole is bound up by longitudinal girders, the main members placed at the 13 angles in the main transverses. Intermediate longitudinals are also fitted, thus giving the ship finally the appearance of being a polygon with 25 sides. It is over this that the outer cover, or fairing, of fabric is stretched. The gas bags are placed inside each of the bays formed between main transverses and are attached in no way to the structure of the ship, but impart their lifting power wholly to the ship by their pressure on the underside of the upper portion of frames. The main transverse frames are built on special jigs on the ground and, after being completely riveted up and wired, are lifted by means of specially designed king-posts on to the building cradles. At every joint a trolley is fitted having large flanged wheels, so that the structure can be rotated in drums to facilitate the work of fitting the longitudinal girders.

After the hull framework is completely riveted up, the fore and aft and diagonal bracing wires are put into position and tensioned to the desired tautness.

The whole structure is then ready to lift for attaching the gondolas. In the case of R34 all the fins, rudders and elevators were attached to her after end before she was lifted. The ship is actually lifted into the new position by her own gas bags.

The gas bags, which are also produced at Beardmore's own works, are composed of a very fine quality of single ply cotton fabric with rubber on the inner surface. The inner surface is completely covered with goldbeaters skins laid on with rubber solution, and the whole is then varnished over.

By careful workmanship and the use of only the very best materials, very great impermeability to gas has been obtained with a remarkably low weight.

As it is impossible, of course, to arrange that an airship be always maintained upon a perfectly level keel, and also to meet the possibility of any gas bag becoming partly deflated, arrangements have been made to lessen the excessive pressures which might be set up during such conditions. A central wire is run from end to end of the ship along the longitudinal axis, tying together the transverse bracing wires to assist in this work.

The outer cover is composed of very light linen fabric to which has been applied weather-resisting dopes before the material is made up into the necessary shape. After the cover has been fitted to the ship and laced up to take as much of the slackness out of it as possible, it is again doped with a view to ensuring it being absolutely taut and rainproof.

Five cars are fitted to the ship, one of which is used for navigation, whilst all the others contain engines. The navigation car and No. 1 engine car are placed close together and give the appearance whilst the ship is in the air of one long car.

The forward control or navigation car has a covered means of access to the hull of the ship, the others have open ladders.

The ship is fitted with 5 Sunbeam-Maori engines, each of 250 h.p. Two engines are in the after car geared together to drive a single airscrew 19 ft. in diameter. The other engines, one in the forward engine car and one in each wing car, drive airscrews 16 ft. in diameter.

The after car is arranged to act as an ancillary control car, if necessary, and is fitted with a second set of controls and instruments.

The ship is fitted with an internal keel or corridor of triangular shape, which stretches from end to end. There is a walking way running all through it, and this forms the means of communication between all the various parts of the ship. On the side of the corridor on special box-shaped girders running fore and aft, there are suspended all the accessories, such as petrol tanks, water ballast bags, bomb stowage, etc.

Part of the corridor has been widened out to form the crew space and is fitted with tables, stools, drinking tanks, and being entirely surrounded with curtains is wonderfully comfortable and free from noise.

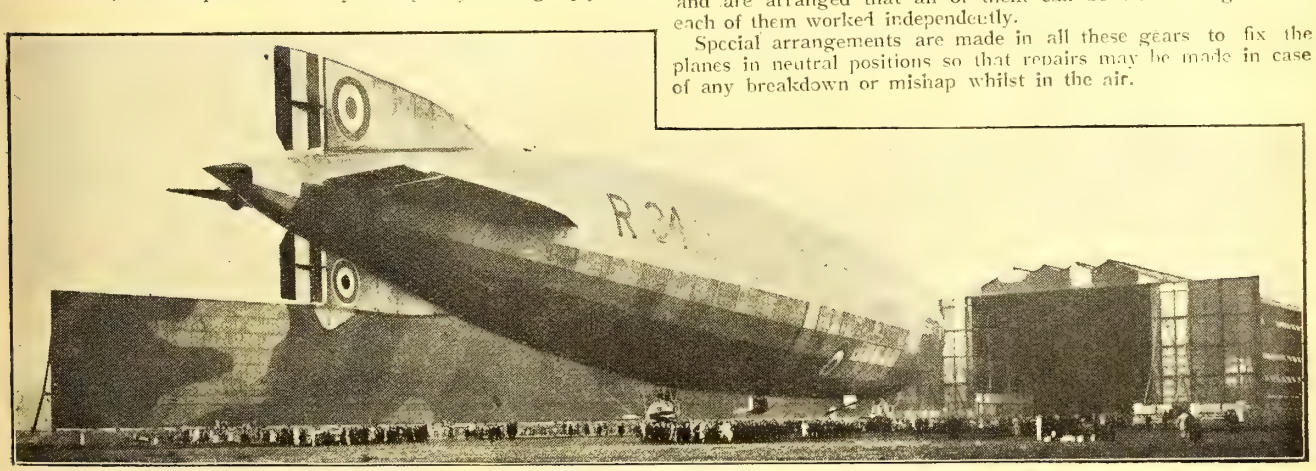
Many of the petrol tanks are designed so that they can be slipped to take the place of ballast in case of emergency.

The gas bags are each fitted with an automatic relief valve designed to blow at a certain pressure, and nine of the gas bags have a manœuvring valve placed on top. These may be operated as desired from the forward car and are used, of course, during the manœuvring of the ship for discharging gas when the ship becomes light or for trimming purposes.

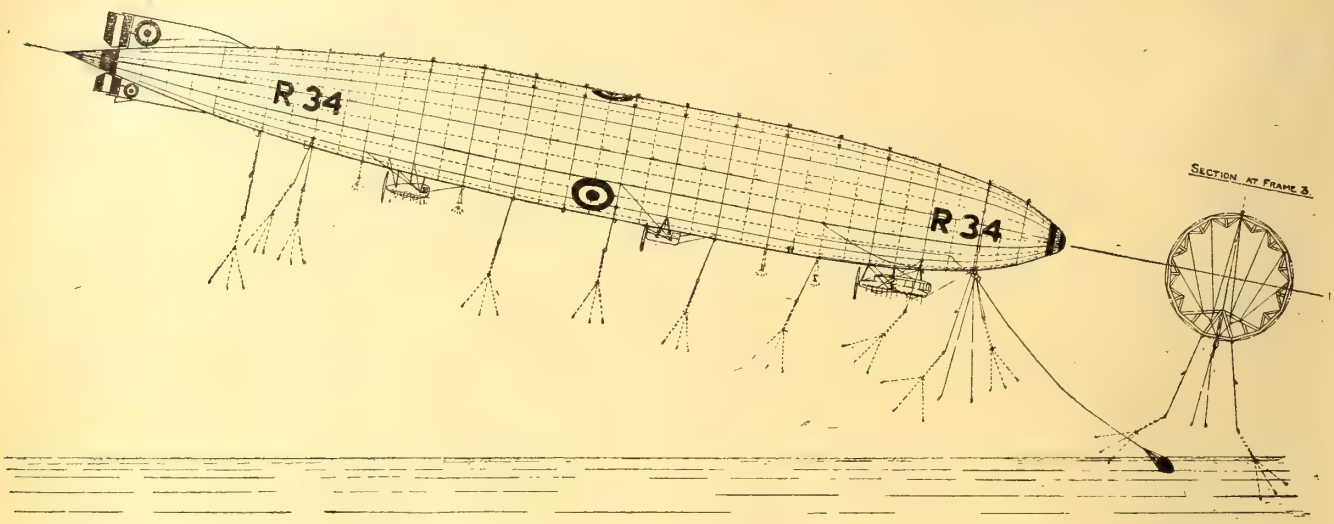
All the water ballast bag valves and the flaps for allowing the trail ropes and mooring ropes to fall can also be operated direct from the forward car. All the wires, of which there are nearly 50, passing between the hull and the car, are enclosed in a small streamline fabric casing.

The rudders and elevators are also operated from this car with an auxiliary or secondary control from the after car. They are all hand-controlled, but, as they are balanced, the actual working of them is very light. The controls are designed for working the rudders and elevators from 20° hard-over to 20° hard-over and are arranged that all of them can be worked together or each of them worked independently.

Special arrangements are made in all these gears to fix the planes in neutral positions so that repairs may be made in case of any breakdown or mishap whilst in the air.



R34 about to enter her shed at Beardmore's Airship Works, Inchinnan.



A Diagram of R34 showing the arrangement of the handling and mooring ropes. A droque for use at sea is shown attached to the main mooring rope.

The cars and the corridor are all lighted electrically from generators run by the main engines or alternatively from accumulators carried in each car. Telephone and voice pipe installations are fitted and the wireless apparatus is of the very latest type and special design and has ranges of 500 and 1,200 miles.

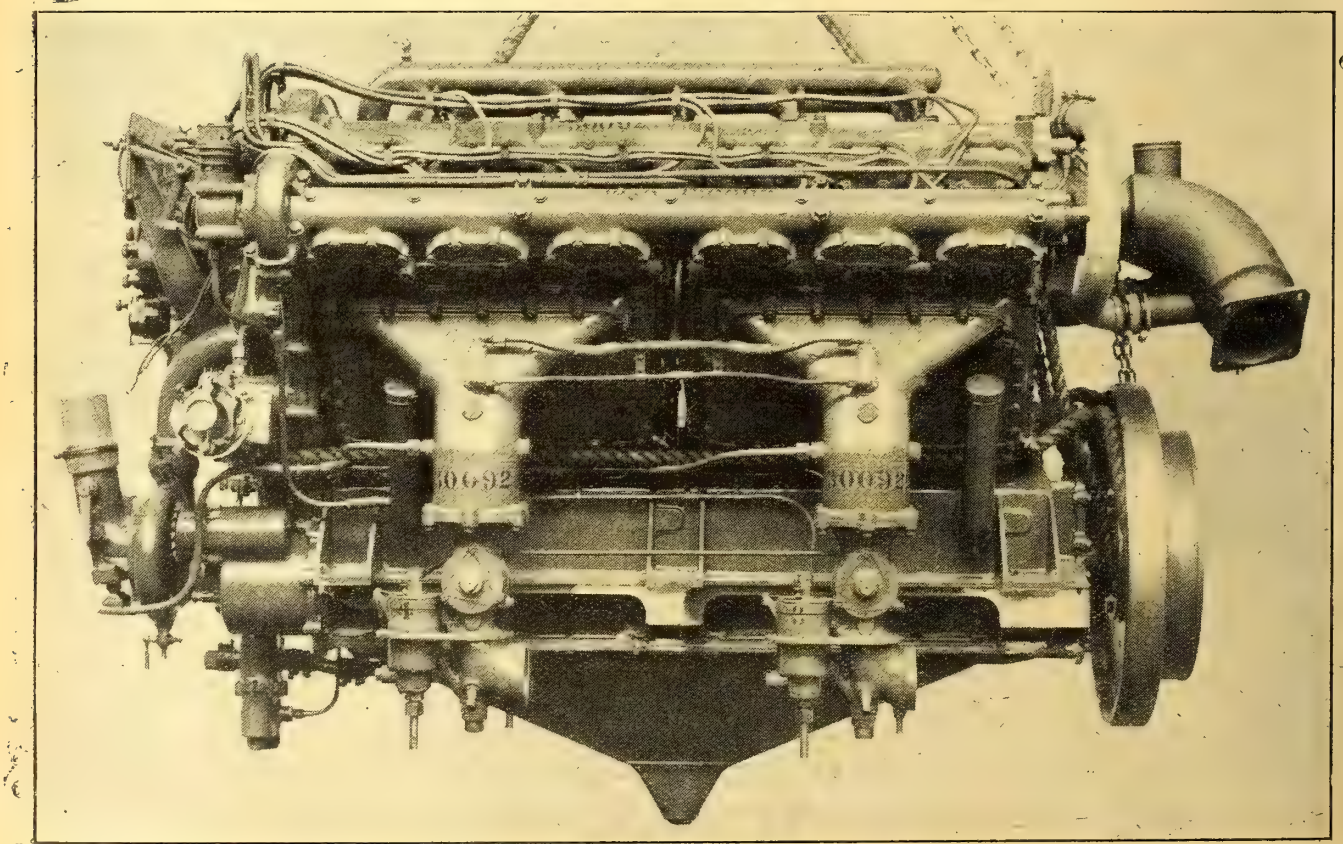
The ship is also fitted with directional wireless arrangements by which the position of the ship can be obtained after communication has been established with shore stations.

Particular care has been taken in this ship to provide her with the most effective mooring and handling arrangements. A sketch is reproduced showing these "all down." Of course the ship does not carry all these when she is actually sailing. The handling ropes are fitted with toggles on the end and are removed by the landing party before the ship is finally let go. The fixed part which hangs down from the ship is then hauled up and stowed alongside the corridor. A special drogue is also fitted for mooring over the sea. This is fitted with tripping gear which enables it to be slipped instantaneously.

The R34 was completed towards the end of last year, and her first formal trial lasted just over four hours. Afterwards a special endurance flight was undertaken, and on this occasion she remained up throughout the night for a total period of 19 hours. This flight was made from the banks of the Clyde, down over Ireland and the West Coast of England, and back again.

The official acceptance trial also lasted overnight, but this was due to the fact that fog prevented a landing at her station, East Fortune. The ship was actually in the air for 20 hours on this occasion, and proved thoroughly reliable and satisfactory; it was easily and safely housed after the fog had dispersed.

After being handed over to the Admiralty, the vessel carried out a very notable long-distance flight over the German coast and the Baltic. On this occasion she left East Fortune on the evening of June 17th and returned in the early hours of the morning of the 20th, after having been in the air for 56 hours and covering some 2,400 miles.



The Sunbeam-Coatalen "Maori 4" Airship Engine of the type used on R34.

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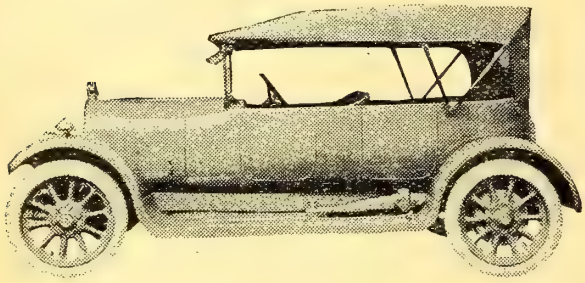

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of Wales has paid a much appreciated compliment to the new "Victory" Arrol-Johnston Car by purchasing the first model delivered to the public. The car supplied to H.R.H. was standard from all points of view, and differed in no way from the stock type as sold to the ordinary purchaser.

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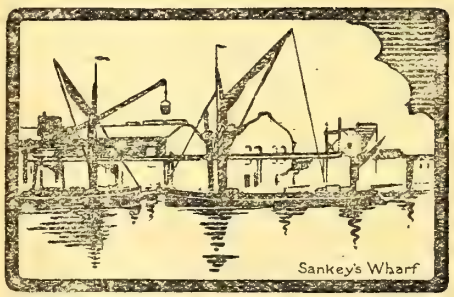

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A NOVEL TYPE OF RIGID AIRSHIP.

By Short Brothers, Bedford.

At present the section of a rigid airship is generally of a circular or slightly oval form, and as the difference between the internal and external pressure varies from a very small pressure at the lowest point (which may itself vary from nothing to the pressure at which the relief valve is set) to a maximum at the highest point, the resulting tension in fabric, circumferential wires, or supporting rings will vary, being a maximum at the top and very small at the bottom; and this introduces bending moments and other distorting stresses in the supporting structure, which is partially counterbalanced by the tension of radial wires.

By the proposed method of construction it is intended to make the cross section of a such a form that in the average condition of pressure in the bags the circumferential tension in the fabric, and in the circumferential supporting wires or frames, will be constant, thus avoiding the necessity for most of the radial wires, and reducing the pressure on the longitudinals and the bending moment in the frames.

The shape necessary for constant tension when the pressure at the lowest point is equal to the atmospheric pressure is given in Fig. 1. This is the shape (inverted) which a cylindrical bag made of flexible material and open at the top would take if filled with water. As this shape is unsuitable for a rigid ship owing to the large ratio of height to breadth it is proposed to combine two or more such shapes together removing the internal partitions, and replacing them by tension or lift wires. Fig. 2 shows such a form composed of three sections, the shape being such that the circumferential tension is uniform throughout.

These shapes may be varied slightly on the same principle to suit any average condition of gas pressure which it may be desired to work to, and the number of sections or spans may be varied as desired. The particular form shown in Fig. 2 is the most suitable, as the breadth and depth are practically equal, and the volume is practically the same as a circular section of the same height. The increase in surface is very small and the form is suitable to take longitudinal and sheer stresses.

With this form practically the whole of the lift of the bags is taken by the circumferential wires EE and the lift wires from the re-entrant angles BB and CC which may be led to the corridor where most of the weights are concentrated, or to the gondolas at the sides.

The circumferential wires are secured at the lower ends only, the length being such as to enable them to take up the shape shown. They are kept in position at each longitudinal frame but free to move circumferentially, thus ensuring that no side strain is transmitted to the frames and that the tension is equal throughout.

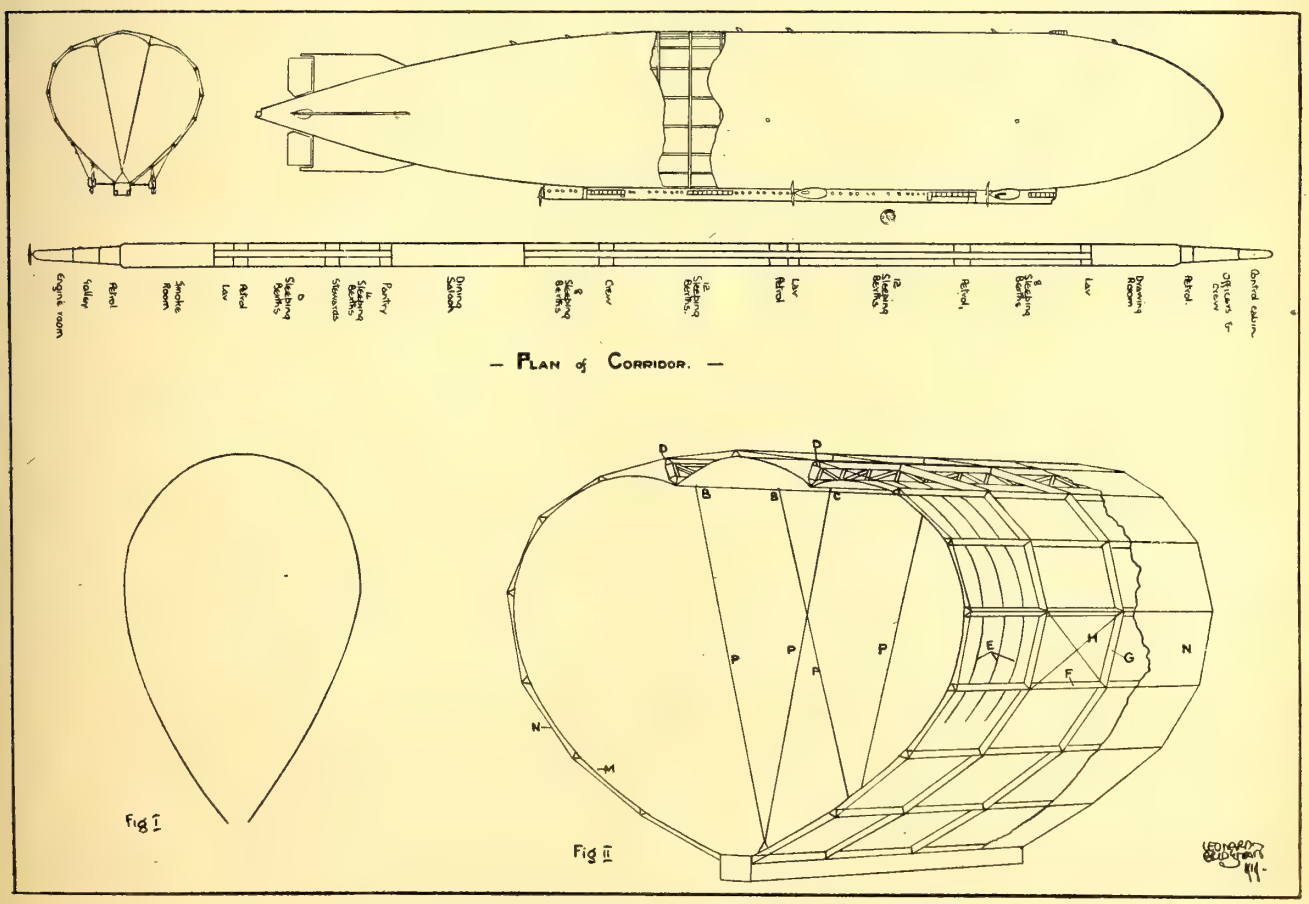
The upper end of the lifting wires are attached to one of the longitudinal girders or a special longitudinal girder D at the re-entrant angles, and are taken through the bag at suitable points through conical neck pieces or otherwise. The external shape of the framework is maintained in way of these girders with no re-entrant angles so as to reduce the surface friction

The construction differs from that used in certain non-rigid airships in that the external form, more especially in the longitudinal sense, is maintained by the rigid framework composed of transverse frames and longitudinal girders on which an outer cover is stretched, and it is not necessary to depend on any internal pressure at the bottom of the bags to maintain the shape. The general shape of the sections and position of the re-entrant angles are, therefore, different.

The proposed construction combines the advantages of the rigid and non-rigid types, giving the best results with the minimum of weight. The external shape is generally maintained by the rigid framework, but it is of such a form that the gas pressure produces practically no distorting stresses on it.

Further, the end pressure of the gasbags in the event of one being accidentally deflated is at present taken by the taut radial and chord wires, thus introducing an abnormal strain in them.

It is proposed instead to make the ends of the bags slightly convex, or more accurately the shape of the lower end of a pear, as shown in Fig. 3, one fitting close into the other, the supporting transverse wires RR being fitted loosely so as to follow this surface, and supported, if desired, at the centre by a longitudinal centre line wire SS. These transverse wires will not be of any use for maintaining the rigid form, but this is not necessary with the shape put forward in the first part of this proposal. Owing to the shape of the ends the transverse wires need be of much less strength than at present, and the strains



Diagrams of Short Bros.' New Type of Rigid Airship.

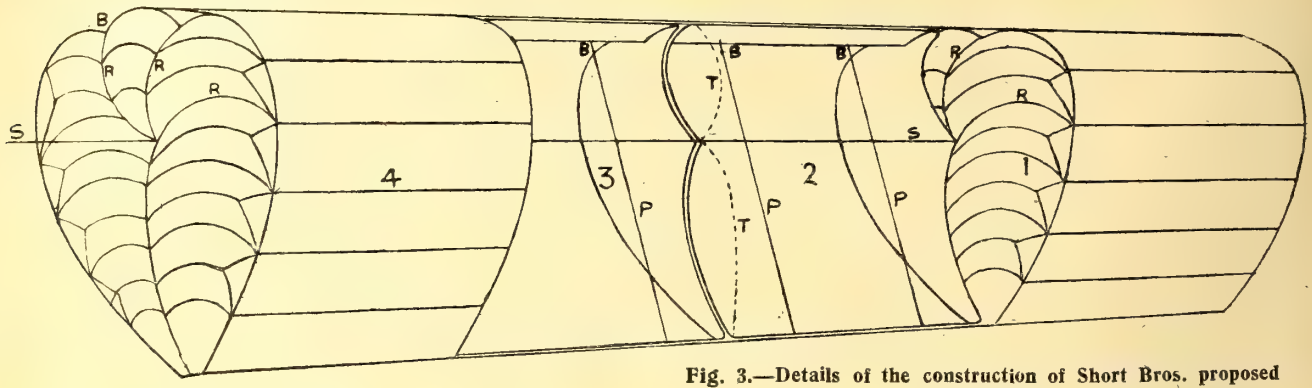


Fig. 3.—Details of the construction of Short Bros. proposed Rigid Airship.

on the main structure caused by one bag being accidentally deflated are reduced to a minimum. The curvature of the end and the position of transverse wires is arranged so that there will be practically no distorting stresses on the framework.

In Fig. 3 four bags are shown in elevation, bags 2 and 3 being in section. In the event of a bag being deflated the end of the adjacent bag, which is concave, will be free to blow out into the desired convex shape, as shown by the dotted line TT in Fig. 3, and incidentally reduce the pressure in that bag. The lift wires from the re-entrant angles BB (Figs. 2 and 3) are led through the bags so that the tension on these will not be unduly increased in the event of a bag being deflated.

The advantages claimed for these proposals are :—

1. Practically no distorting strains in the rigid framework due to gas pressure, leaving it free to perform its main function of providing longitudinal rigidity.

2. The maximum of strength with the minimum of weight.

3. The construction combines the most important advantages of both the rigid and non-rigid types.

4. The stresses on the different members are definite and easily calculated.

PROPOSED AIRSHIP FOR PASSENGER SERVICE—LONDON TO NEW YORK WITH 50 PASSENGERS.

General Specifications.

Length overall	694 ft.
Mean diameter	107 ft.
Height overall	115 ft.
Width overall	120 ft.
Capacity	4,450,000 cubic ft.
Total lift (95 per cent. full)	128.26 tons
B.H.P. in 5 units, 4 gondolas and 1 engine at end of corridor	2750
Speed	60 knots
Total weight of ship ready for flight (excluding fuel, oil, water, provisions, passengers and crew)	63.7 tons
Weight of petrol	44 tons
Radius of action at 60 knots	6,000 nautical miles
Available weight for provisions, water, passengers and crew	20.56 tons

THE CONSTRUCTION OF A WOODEN RIGID AIRSHIP.

The following, a brief description of the R32, is due to Messrs. Short Bros., her builders.

Although of an experimental nature, this ship gave excellent results on trial, her speed being 65 to 70 m.p.h., which is greater than that obtained from any ship at present in commission.

Her principal dimensions are as under :—

Length	615 ft.
Maximum diameter	65 ft. 6 in.
Total capacity	1,550,000 cubic ft.
Total lift	47 tons
Disposable lift	16.5 tons
Ratio, disposable lift to total lift	35 per cent.
Total B.H.P.	1,500
Endurance at two-thirds full power in sea miles	2,200

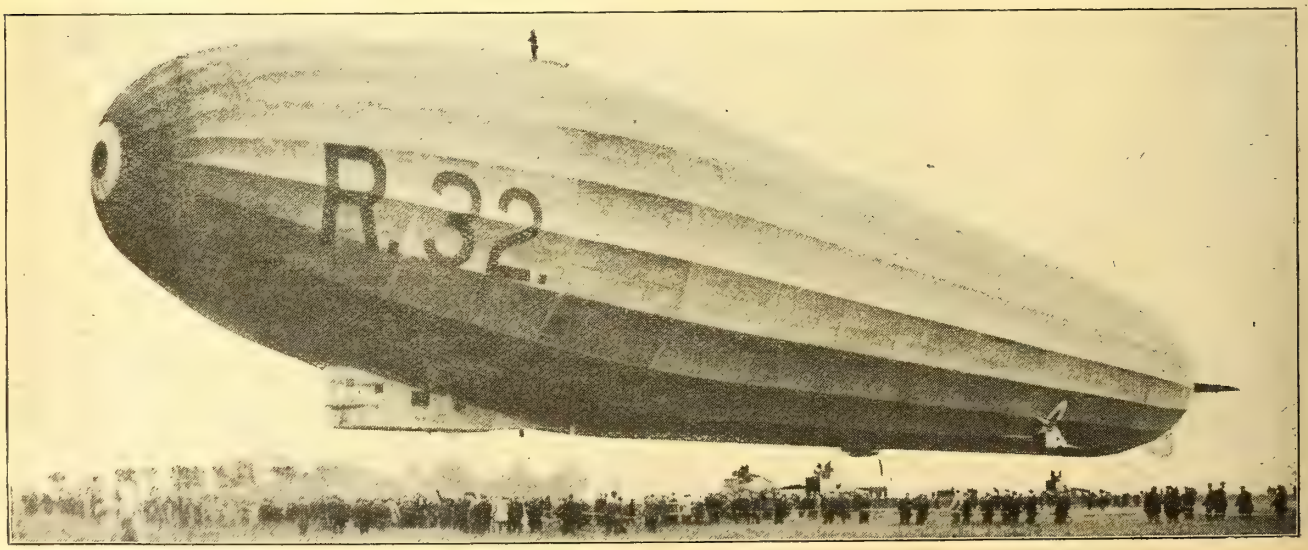
The shape of the hull approximates to a streamline, the middle portion being parallel and with bow and stern tapered.

The framework consists of a number of main frames built of twenty wooden triangular girders wired to a centre ring by radial wires, which rigidly maintain its shape. These frames are spaced about 30 ft. apart. Equally spaced between the two main frames are two rings of intermediate girders which are not wired and are of much lighter section; these mainly assist in keeping the ship rigid and absorb the difference in tensions in the diagonal wires.

Running longitudinally are a number of other triangular girders spaced at each of the joints of the transverse girders. The number of longitudinal girders so fitted is twenty. The girders are all braced together by diagonal cross wires whose function is to take the shearing forces due to the ship as a beam, and also to take the gas pressure due to the upward lift of the gas.

Running through the keel is a triangular structure of girders forming a passage way, from each side of which are suspended the petrol tanks, water ballast bags, bombs, etc., which are disposed evenly along the keel to relieve the hull as far as possible from undue strain.

The 300-h.p. Rolls-Royce engines are arranged in five units, viz, in two forward cars, two amidship cars and one after car. The propellers, each 17 ft. diameter, are direct driven, and the engines in the amidship car have a reversing gear.



H.M. Airship R32. Built by Short Bros., at Bedford.

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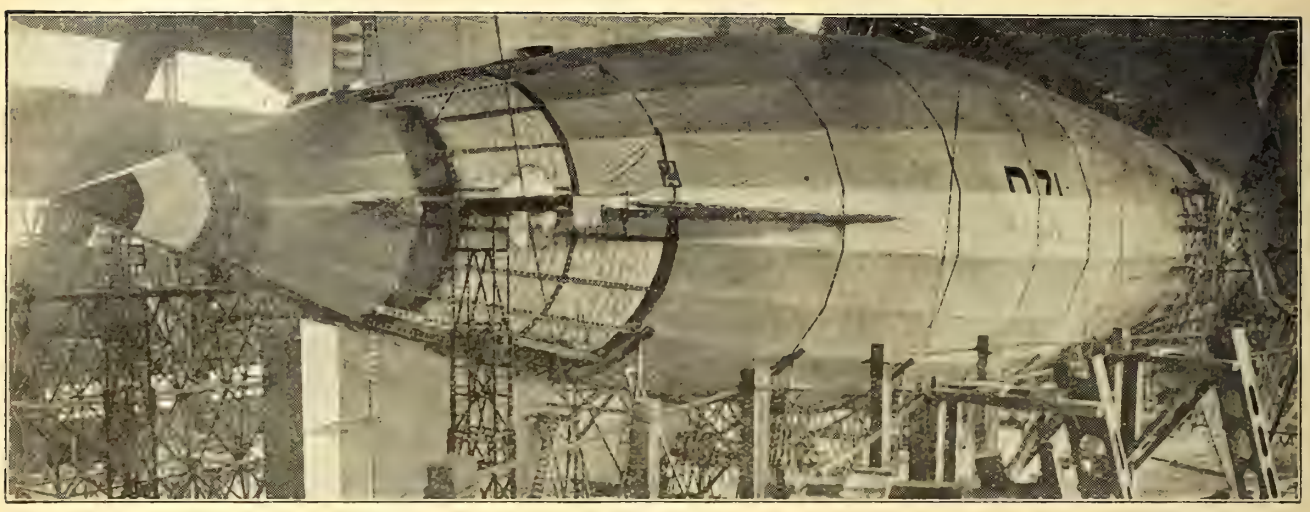
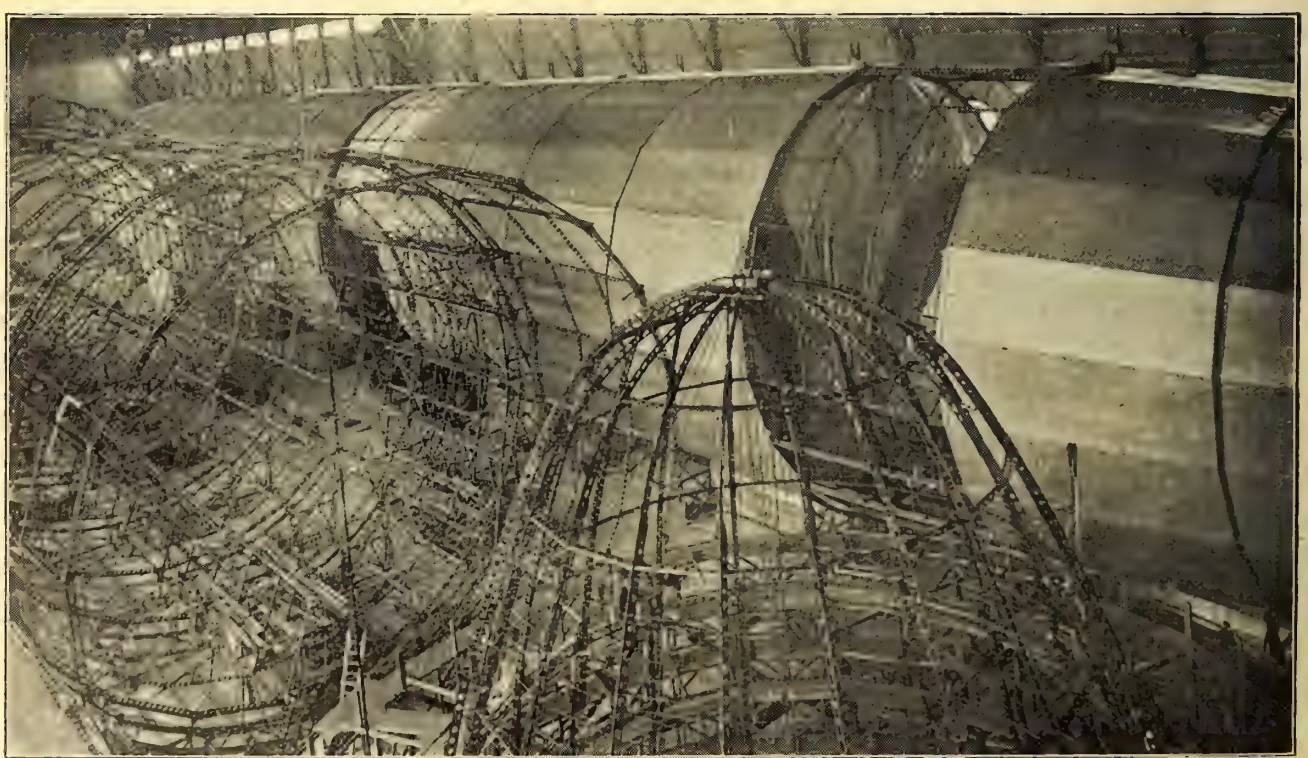


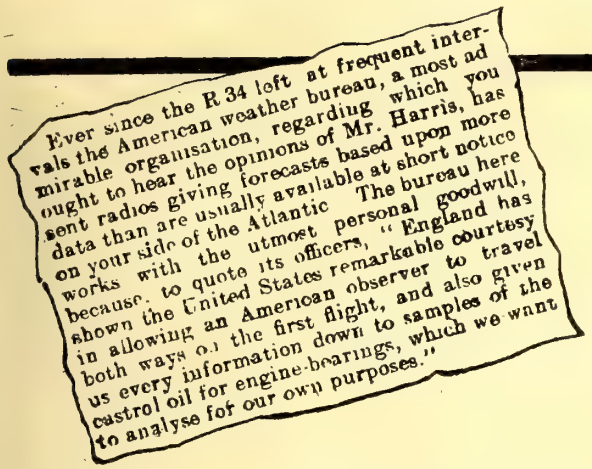
The cars are slung under the ship, the forward and after cars being slung direct to the centre ring and the amidship cars to the framework. The control car is built under the ship at the forward end and from this car the ship is navigated and controlled. The wireless cabin is also in this car.

The fins, rudders and elevators at the tail end are cruciform in shape and consist of a light framework of wooden girders covered with doped fabric. The ship is divided into twenty-one compartments, with a gasbag in each.

An outer cover is stretched over the framework in sections between main frames and is made of a doped cotton fabric. There is a clear air space between the outer cover and gasbags which tends to keep an even temperature in the gasbags. Two types of valve are fitted to the gasbags, viz., manœuvring and automatic. The manœuvring valves are fitted in the tops of the bags and are operated from



AT SHORT BROS.' AIRSHIP WORKS.—The construction of wooden airships Top, Stern View of R31 nearly comple e. Centre, Bow of R31. Bottom, R31 in background; framing of R32 in the foreground.



OVER THERE
R34 in America

THE "DAILY TELEGRAPH" of July 12th contained the cable reproduced here from its correspondent in NEW YORK.

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She *should* fill them, but she'll have many competitors and it's essential in the British interests that every manufacturer should lose no opportunity of bringing his products before the buyers of the world—THE BRITISH INDUSTRIES FAIR held concurrently in LONDON, GLASGOW and BIRMINGHAM is a NATIONAL TRADE FAIR—the BIRMINGHAM SECTION has a schedule including Hardware Manufactures as at side—every building of any size in the City will be used for exhibition purposes—buyers from all markets of the world will be there by official invitation from the Board of Trade—Space is letting rapidly—HAVE YOU BOOKED? Date of Fair is FEBRUARY 23–MARCH 5, 1920.

Applications for space to General Manager, British Industries Fair (Birmingham), 1920, Chamber of Commerce :: :: Buildings, Birmingham. :: ::

You can exhibit at Birmingham Aeronautical Motor Appliances **of British Manufacture**

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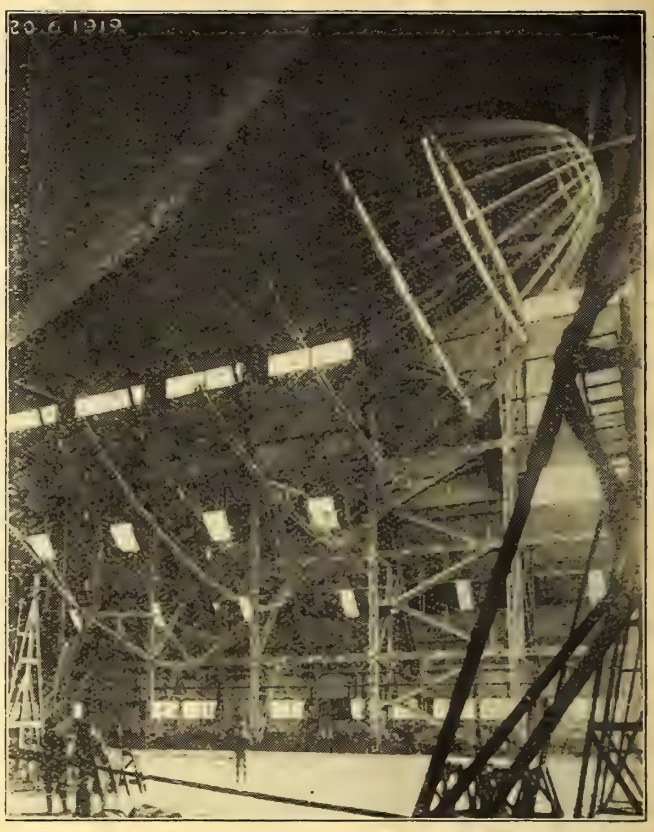
BIRMINGHAM 1920

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS

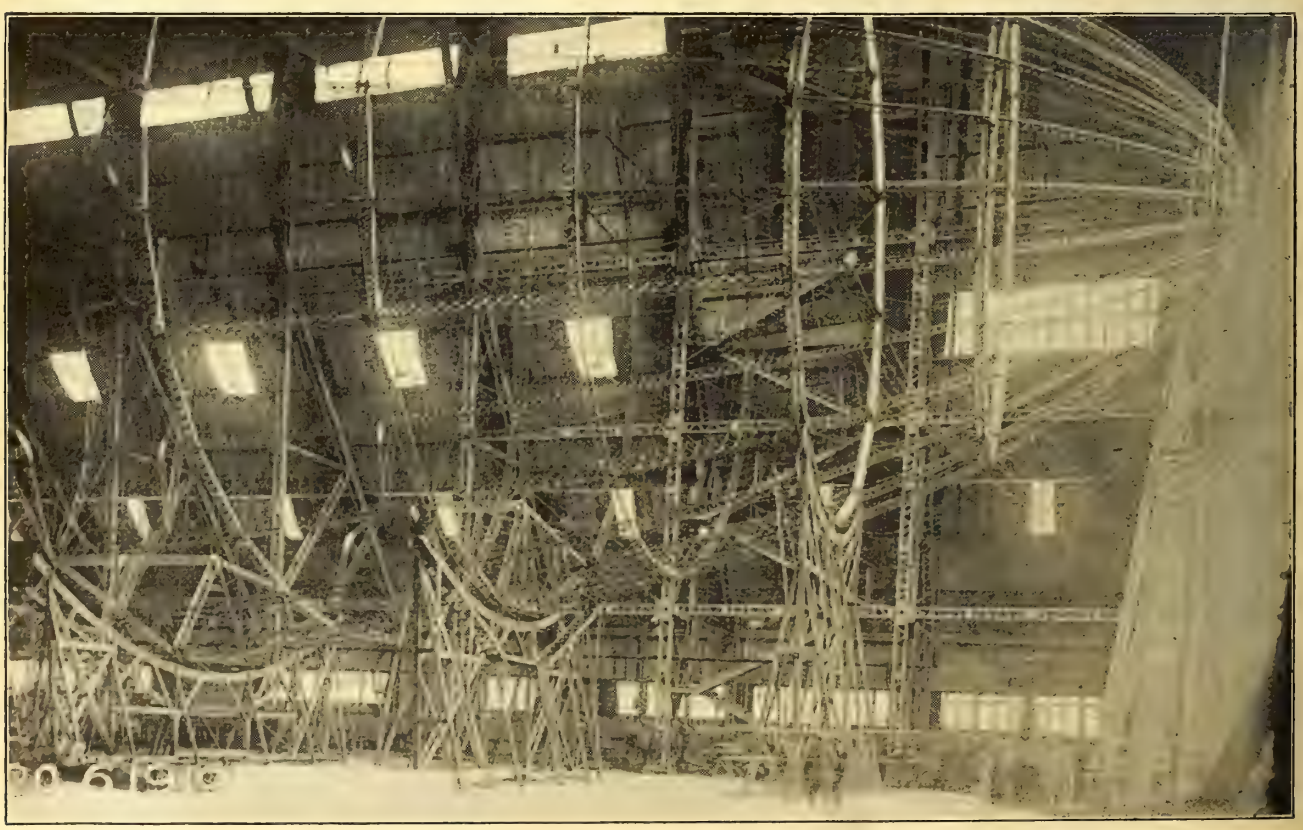


the control car when it is necessary to alter the trim of the ship. The automatic valves are placed in the bottom of the bags, just above the corridor. These are arranged to blow off at about 3 m/m water pressure. The gas is led from these valves to the top of the ship through exhaust trunks.

At the top of the forward end of the ship is fitted the gun platform, and machine-guns are also fitted at various points on top of the walking way, at the tail end and in all the cars.

A strong structure is built into the after end of the control car to act as a mooring point and the ship is moored to this point on open ground or over the sea. In the latter case a drogue is used which is made of fabric in the shape of a truncated cone which trails in the sea.

During flight, arrangements have been made for hot food to be supplied to the officers and crew by means of an exhaust-heated cooking apparatus.



A TRICKY BUSINESS.—The three photographs on this page show the nose section of the frame of R32, firstly completely assembled in a vertical position, secondly half-way through the process of being turned over, and lastly in the final horizontal position resting on its cradles.

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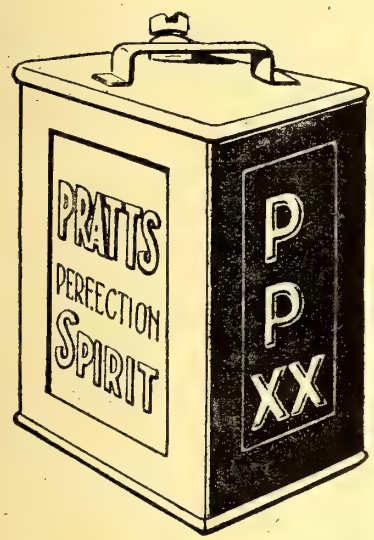

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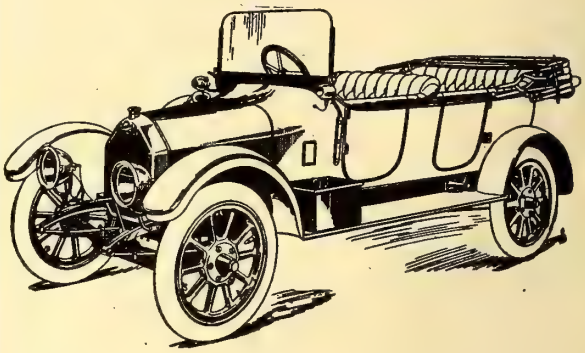

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AIRSHIPS IN PEACE AND WAR.

Contributed by Airships, Ltd.

THE HISTORY OF AIRSHIPS, LTD.

Airships, Ltd., came into existence in February, 1914, under the managing-directorship of Mr. G. Holt Thomas, who has always been a great believer in the future of lighter-than-air craft, and who was largely responsible for reviving official interest in the subject at a critical period in the early days of the war. This faith has found the most complete justification in the indispensable work since performed by airships.

Shortly after its formation the company acquired the British rights of the famous Astra-Torres Airship Co., of Paris. Two airships of the Astra-Torres type supplied to the British Admiralty were used very effectively in patrolling the Channel and in escorting the transport steamers which carried the first British Expeditionary Force to France in August and September, 1914.

In 1915 it became apparent that the use of submarines by Germany to destroy merchant shipping would create a considerable danger to British food supplies, and that this menace could only be encountered by more intensive patrol of home waters. Airships were considered the most promising means of achieving this result with a minimum of delay.

At the suggestion of Mr. Holt Thomas an envelope belonging to the small airship "Willows No. 2" (named after its constructor, Mr. E. T. Willows, who was at that time connected with the firm) was, in conjunction with a standard aeroplane fuselage, used as an experimental scouting craft.

On trial this airship gave excellent results, and was, in fact, so satisfactory that orders were placed for a large number of similar ships. Several of these were delivered by Airships, Ltd. They were called the S.S. ("Submarine-Searcher" or "Sea-Scout") class, since popularly known under the pseudonym—"Blimps."

The S.S. airship having filled, or at least giving definite promise of filling, the pressing need for aerial scouts to patrol the seas in the narrow waters of the English Channel and at other important strategic points, it was considered necessary to extend the process, from a limited number of bases, along the whole coast-line and further out to sea. This could only be done by craft having wider range of action and therefore, necessarily, of greater capacity.

For this purpose the Astra-Torres design of envelope was considered to be particularly suited. An envelope having a capacity of 4,000 cu. metres was, therefore, supplied by Airships, Ltd., and provided with a car of novel, but effective, construction. This airship became the prototype of the C.P. ("Coastal Patrol") airships of which a large number were placed in commission during the succeeding year. Modified airships of the same general type—known as the C ("Coastal") and C* ("Coastal Star") classes, having capacities of 170,000 cu. ft., and 200,000 cu. ft., respectively—and all built upon the Astra-Torres system—were subsequently produced.

The C.P., C, and C* airships proved thoroughly satisfactory and carried out very valuable work within the limits of their range. For naval operations upon a grand scale, however, it was necessary to have a still greater range of action, and with this end in view a class of airship having a capacity of 360,000 cu. ft.—also of Astra-Torres design—was constructed. These airships, which proved to be the most effective non-rigid craft ever produced by any nation, were capable of considerable speed and long duration. Their operations could be extended many hundreds of miles from their bases.

The serviceability of these airships, as shown by their performances under most exacting war service conditions—referred to more particularly upon a later page—cannot but be appreciated. The continued adherence of the Admiralty to the Astra-Torres design, through many successive stages of development, shows very clearly the esteem in which the system is held.

Airships, Ltd., have also been very extensively engaged in the manufacture of captive balloons. Spherical balloons were used for observation in the early stages of the war, and were produced by the firm in large numbers, including one having a capacity of 150,000 cu. ft.—the largest spherical balloon ever produced in this country.

Owing to the difficulty of taking accurate observations from spherical balloons, especially in windy weather, the more stable kite-balloon made its appearance at an early stage of the war. The manufacture of these was taken up extensively by the company. At the end of the war Airships, Ltd., were the largest manufacturers of kite-balloons in Great Britain. Kite-balloons of all types have been built, commencing with the "Drachen," and passing through several intermediate types to the Caquot R and M types which have now become the standard balloons for all military and naval observation purposes. Altogether a total of over 1,000 envelopes were produced during the period of the war.

The workshops at Merton, where the envelopes and suspensions are made, are perfectly equipped with the latest machines and appliances. Upwards of one thousand skilled fabric workers and riggers are employed therein. Similarly, the workshops at Hendon are equipped for the manufacture of the planes, rudders, car structures, engines, propellers, etc.

An experimental laboratory provides facilities for testing material and parts, and the company is fortunate in possessing a 7-foot wind-tunnel built upon modern and approved lines. This tunnel enables the wind resistance of airships and parts (represented by scale models) to be measured with extreme accuracy, and experiments relating to aerodynamic stability to be readily performed. It would be difficult to over-estimate the assistance which the designing department receive from constant and intimate contact with practical experiments of this character.

THE USES OF AIRSHIPS.

To those who have been unable to keep in touch with the development of airships during the war, the publication of figures showing the vast amount of flying which has been carried out by lighter-than-air craft, must have afforded considerable interest and food for thought. The impression still exists, even among many who are interested in aviation, that the airship is a frail and impractical craft, incapable of facing average weather conditions and of taking its place beside the aeroplane in the world of Aeronautics. This impression has been fostered by the secrecy which has until recently surrounded the work of Service airships, aided to no small extent by the fact that the operations have been carried out mainly at sea.

The exigencies of war have proved that airships are capable of performing many useful functions which cannot be conveniently or economically carried out by water-borne craft or safely attempted by seaplanes. They have, in fact, a wide field of utility which does not overlap those of the foregoing types of craft.

FACTS AND FIGURES.

During the war the aggregate time spent in the air by British airships was upwards of 80,000 hours, and the total distance covered approximately 2,300,000 miles. These figures speak for themselves as to the utility of airships.

A British Non-Rigid Airship (N.S.7), built on the Astra-Torres principle.

In illustration of the amount of work which may be carried out by one airship, it may be mentioned that one non-rigid ship was in actual commission for a period of two years and seventy-five days. During that time 2,500 hours were spent in the air, and the total mileage flown was 66,000, equal to more than two and a half times the circumference of the globe.

TYPES OF AIRSHIPS.

Airships as constructed to-day fall into two main classes known respectively as the "Rigid" and "Non-Rigid" types. Rigid construction is usefully applicable only to airships of the largest size, that is to say, to those having capacities of a million cubic feet or more. The non-rigid type, at the present stage of development, includes examples ranging from very small two-seater craft up to sizes having a capacity of nearly half a million cubic feet.

When transport by air becomes a regular feature of the world's commerce it is extremely probable that the longer journeys will be carried out almost exclusively by means of large rigid airships, which even at the present stage are capable of carrying heavy loads over distances sufficient to link up the Continents.

THE FUTURE OF AIRSHIPS.

Although the development of airships has been greatly expedited by urgent necessity arising out of a state of war, the airship is not essentially or exclusively an instrument of warfare. In all probability time will prove the airship, like the steamship, to have a wider and more general application to the arts of peace than of war. Attention is drawn to a few, out of many, civic and commercial purposes for which small airships may be employed.

ADMINISTRATIVE.

Closely allied to the purposes for which these airships were originally developed is the work of maintaining police supervision over large areas of land and sea.

In undeveloped regions where it is necessary to hold in check troublesome native races, where the nature of the country, forest or mountain, renders it essential that observation, to be effective, should be carried out near the ground, and from a craft able to remain practically stationary where required—conditions which cannot be met by aeroplanes—and where, moreover, the absence or scarcity of landing grounds renders the use of aeroplanes dangerous and impracticable, the airship is particularly adapted.

Similarly, territorial waters containing fisheries may be effectively protected, by the establishment of an airship patrol, against illicit exploitation by unauthorised persons.

When used for purposes such as the above, the airship—after the usual manner of police organisations—would be lightly armed for moral rather than material effect. The purpose of the craft would be preventive rather than punitive, and the mere presence of the airship would, in most instances, achieve the desired result.

In computing the advantages of using airships for patrol work of the above kind, it should be remembered that an area of half a million square miles can be kept under observation from a single airship base, and any given part of that area may be visited between dawn and dark of an average day.

MARINE SALVAGE.

The phenomena which renders it possible from a height to distinguish objects beneath the surface of the sea or reposing upon the sea-bed, where the depths are not excessive, can be made use of in combination with the ability of an airship to move slowly or remain stationary over a given spot. Used in this way, an airship should be of the greatest value in locating sunken vessels and in facilitating the execution of salvage operations.

For the above and kindred purposes it is extremely desirable that all maritime and colonial nations should possess at least one or two small airships. This policy has already been adopted by important overseas dominions.

SURVEYING AND PROSPECTING.

For the purpose of carrying out survey or prospecting work in undeveloped tracts of country the airship is particularly suited. The ability to move slowly or remain stationary as mentioned above, and to operate in safety at low altitudes, confers upon the airship unrivalled advantages as a platform for optical or photographic observation.

COMMERCIAL USES.

DELIVERY OF MAILS, NEWSPAPERS, ETC.

One of the most important conditions affecting the financial success of any commercial undertaking employing aircraft for transport purposes is the existence, over the chosen routes, of a regular and sufficient volume of traffic. In this respect the carriage of mails and newspapers is nearest to the ideal.

It is not suggested, however, that aircraft can compete with railways where such exist, but there are many parts of the world where railways are either non-existent or have to be supplemented by other slower and more expensive means of transport in order to fulfil the needs of agriculture or mining districts consisting of a large number of widely scattered settlements. In such districts a general business in the transport of parcels and passengers forms a valuable addition to the regular contract work of carrying mails, etc.

The question as to whether aeroplanes or airships should be used for the foregoing purposes would depend largely on local conditions. Apart from these it may perhaps be stated very generally that, while the initial outlay and cost of upkeep are greater with airships than with aeroplanes, the running cost per ton of load carried is considerably less. Consequently where exceptionally heavy traffic over long distances has to be dealt with, the advantage is entirely with the airship.

PASSENGER SERVICES.

For purely passenger work, where other means of transport are unavailable and where speed is not a decisive factor, the airship is generally to be preferred. It gives a feeling of greater security to the average person, and can therefore command patronage from a much wider section of the public.

In an airship comfort can be provided. The interest of journeys may be enhanced by travelling at low altitudes, which enables local objects to be distinguished and prevents the scenery from being robbed of its beauty by the flattening effects of great elevation.

Pleasure trips from inland centres of population to seaside places and short cruises from health resorts where a large number of pleasure-seekers are congregated in a limited area during the holiday season and are prepared to pay relatively high rates for the novelty of travelling in the air can be made to provide profitable employment for airships of moderate size.

PRIVATE OWNERSHIP.

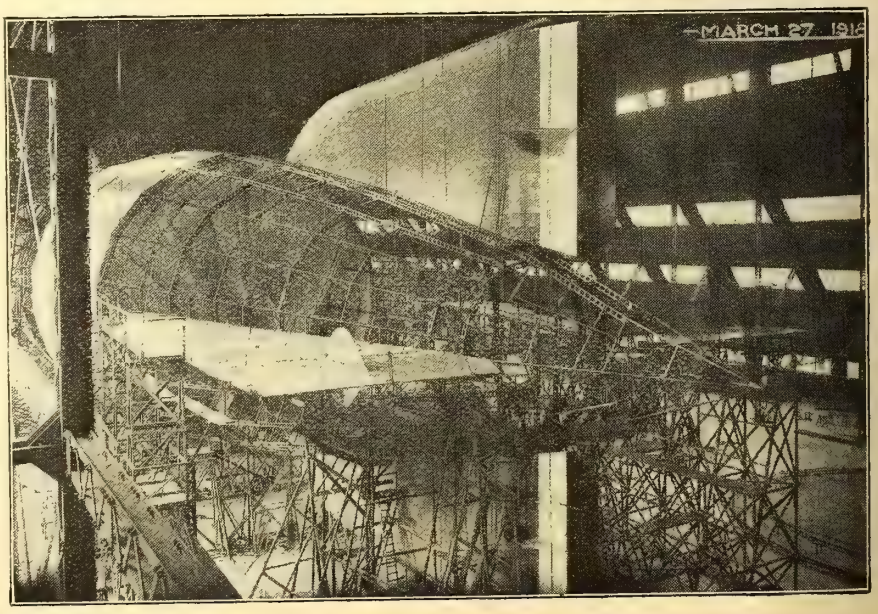
An airship can be suitably constructed and fitted out as an air-yacht, with comfortable state-rooms and appointments to form an excellent alternative or auxiliary to the ordinary yacht. The cost of such a craft compares very favourably with that of a steam-yacht, and would not be prohibitive to those who normally indulge in yachting as a pastime.

PREPARATIONS FOR THE FUTURE.

In view of the facts set out above, Airships Ltd. are preparing designs for a series of airships designed to meet the various purposes to which such aircraft may be immediately applied.

The series will range from ships of approximately 400,000 cubic ft. capacity capable of carrying 30 passengers for 800 miles non-stop at 50 m.p.h. down to a ship of more or less the "Blimp" type of 70,000 cubic ft. capacity, capable of carrying a crew of three for six hours' flight at 48 m.p.h., which, converted to the requirements of private ownership, would be eminently suitable for use as a small air yacht.

Airships Ltd. are therefore in a position to supply anyone who is considering the use of airships of small or moderate size for any commercial or private purposes with estimates and designs for types suitable for such use.



The Tail of R31 under construction at Short Bros.' Works, Bedford.

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THE aim behind all BAT aircraft designs is the attainment of maximum utility—it is to obtain superior speed, load carrying capacity, safety, reliability, and general airworthiness with a minimum of prime cost and subsequent maintenance.

Our range of models covers all types from the mosquito craft of extreme performance and attacking power for national defence, to the high speed load carrier designed for postal and general utility purposes.

Any Government or commercial undertaking intending to employ aircraft should place their requirements before the B.A.T. Company before finally deciding on the type to adopt.

THE machine illustrated above is the B.A.T., F.K. 26—a dual purpose aeroplane equally suitable as a heavy load mail carrier or a four-seater touring machine. Equipped with a Rolls-Royce Eagle VIII. motor, an average speed of over 120 miles per hour is obtained at a fuel cost of under eightpence per mile.

THE B.A.T. Company whose designing capacity under the direction of Mr F. Koolhoven is of the highest standard — a standard which it is determined to maintain—is open to negotiations for the letting of its sole manufacturing licenses in Colonial and certain foreign territories.

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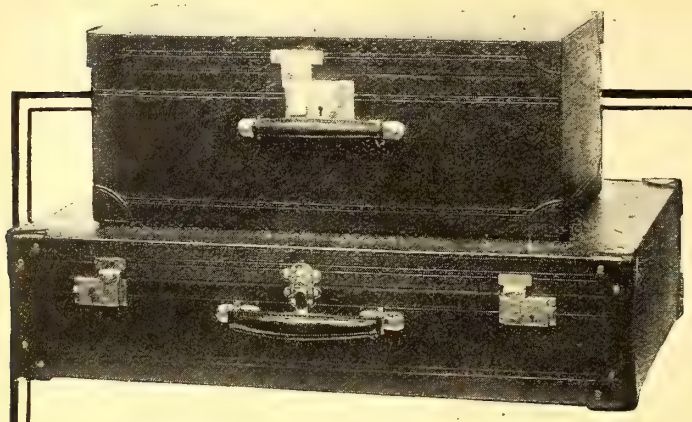

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THE LIFT OF HYDROGEN.

By P. L. TEED (MAJOR, R.A.F.).

The term, "Lift," as applied to airships is equivalent to "buoyancy," and like buoyancy when applied to water-borne ships, it depends on two considerations:

(1) The weight of the ship.
(2) The weight of supporting medium displaced by the ship.

Here the analogy between water and air-borne craft ceases. For, in the case of water-borne ships (other than the submarine), a condition of equilibrium always prevails; if the weight of the ship is increased its displacement is increased, the water line being altered, but a state of equilibrium continues.

The airship, being entirely surrounded by the supporting medium, has no equivalent to the alteration in water-line producing equilibrium. With change in weight of the displaced supporting medium the airship may possess either positive or negative buoyancy.

While the structural weight of the ship remains constant, the weight of medium displaced by the ship is subject to considerable variation.

The following affect the buoyancy:—

(1) The volume of gas in the airship.
(2) The purity of the gas.
(3) The barometric pressure of the air.
(4) The temperature of the air.
(5) The amount of water in the air.

Of the five matters affecting the lift of an airship apart from its volume, the purity of the gas is generally to be taken as the most significant factor, but the combination of temperature and barometric pressure may produce even more important variations.

The maximum purity of hydrogen in an airship does not exceed 98 per cent. by volume, while certain chemical considerations necessitate the deflation of the airship at 80 per cent. by volume.

Under mean atmospheric conditions, viz., temperature 55 deg. Fahrenheit and barometer 29.5 in., the lift of 1,000 cubic ft. of hydrogen at 98 per cent. purity is 69.3 lb., while under the same atmospheric conditions at 80 per cent. purity it is 56.6 lb.—a variation of 12.7 lb. per 1,000 cubic ft. of volume.

Now turning to purely atmospheric effects, 1,000 cubic ft. of 98 per cent. pure hydrogen at a barometric pressure of 31 in. and at a temperature of 20 deg. Fahrenheit gives a lift of 78.3 lb., while an equal volume of gas of the same purity at a barometric pressure of 28 in. and a temperature of 80 deg. Fahrenheit gives a lift of 62.8 lb., a variation of 15.5 lb. per 1,000 cubic ft. of volume.

Having illustrated the variations in lift due to purity and to atmospheric changes, it is perhaps permissible to state that while the lift of 1,000 cubic ft. of hydrogen 98 per cent. pure at a temperature of 20 per cent. Fahrenheit and under a barometric pressure of 31 in. is 78.3 lb., the lift of 1,000 cubic ft. of hydrogen 80 per cent. pure at a temperature of 80 deg. Fahrenheit and under a barometric pressure of 28 in. is 51.2 lb.—a variation of 27.1 lb. per 1,000 cubic ft., which represents the extremes of purity and atmospheric conditions which may easily be met with.

Having dealt with the general principles of lift and illustrated its variations by some examples, the question will now be dealt with in detail.

PURITY OF THE GAS.

It is customary to give the chemical composition of the hydrogen in an airship as so many per cent. pure. This term requires definition.

> By the percentage of purity of hydrogen is meant the percentage of hydrogen contained by volume assuming the impurity to be of the same density as air.

Now it will be seen that if the impurity in the hydrogen is air, then since air in air is without weight, the relative lift of equal volumes of impure hydrogen under the same atmospheric conditions is in the same ratio as their hydrogen contents (by volume).

To sum up.—Lift of unit volume is directly proportional to purity.

ALTERATION IN LIFT BY BAROMETRIC CHANGE.

One thousand cubic ft. of pure hydrogen at 30 in. barometric pressure and a temperature of 40 deg. Fahrenheit weighs 5.5 lb. One thousand cubic ft. of dry air under the same atmospheric conditions weighs 79.6 lb. Therefore, on the basis lift is the difference between displaced weight and displacing weight:—

$$79.6-5.5 \text{ lb.} = \text{Lift of cubic feet of pure hydrogen at } 30'' \text{ barometer and } 400^\circ \text{ Fahrenheit,}$$
$$= 74.1 \text{ lb.}$$

Now assume that the temperature remains constant but that the barometer changes to 31 in. Then by the application of Boyle's Law it will be seen that:—

$$79.6\times 31-5.5\times 31 = \text{Lift per 1,000 c.f. of 100\% pure hydrogen at } 31'' \text{ barometer and } 40^\circ \text{ Fahrenheit.}$$
$$= 82.3-5.7$$
$$= 76.6 \text{ lb.}$$

But the above is an unnecessarily complicated way of arriving at the desired result, for the mathematical expression may be simplified to:—

$$= \frac{31}{30}(79.6-5.5)$$
$$= \frac{31}{30}(74.1)$$
$$= 76.6 \text{ lb.}$$

But 74.10 lb. is the lift of 1,000 cubic ft. of hydrogen 100 per cent. pure at 30 in. barometer and 40 deg. Fahrenheit. Therefore the rule may be expressed:—

> Lift of unit volume is directly proportional to barometric pressure.

ALTERATION IN LIFT BY THERMOMETRIC CHANGE.

By the direct application of Charles' Law it can be shown that:

> Lift of Unit Volume is inversely proportional to the Absolute Temperature.

To summarise the three rules which have already been stated:—

(1) Lift of unit volume is directly proportional to PURITY.
(2) Lift of unit volume is directly proportional to BAROMETRIC PRESSURE.
(3) Lift of unit volume is inversely proportional to ABSOLUTE TEMPERATURE.

From the above the following formula may be deduced to give the lift of 1,000 cubic ft. of hydrogen under any condition of purity, temperature or barometer:—

Lift per 1,000 cubic ft. in lb.—

$$\frac{74.06 \times \%\text{Purity} \times \text{Barometer in inches} \times 500.}{100 \times 30 \times (460 \text{ plus temperature in deg. Fahrenheit}).}$$

$$\frac{12.34 \times \%\text{ Purity} \times \text{Barometer in inches.}}{460 \text{ plus temperature in deg. Fahrenheit.}}$$

THE TEMPERATURE OF THE GAS.

In the formula which has been given it has been assumed that the temperature of the gas is the same as the temperature of the air—a condition which generally prevails in the airship shed, but during flight there is frequently a material difference in temperature between the two. This difference arises in two ways:—

(1) The effect of the sun on the gasbag.
(2) The effect of a quick descent after flying for a considerable time at a high altitude.

In the first case the sunlight striking the gasbag fabric causes this to rise above the air temperature, the heat being in course of time transferred to the gas itself. The gas then expands in accordance with Charles' Law. Now in rigid airships if the gasbag is not full, or in non-rigid airships if there is air in the ballonets, this expansion will cause a greater volume of air to be displaced and consequently an increase in lift to take place.

For example:—At 40 deg. Fahrenheit and 100 per cent. purity 1,000 cubic ft. of hydrogen weighs 5.5 lb., and 1,000 cubic ft. of air under the same atmospheric conditions weighs 79.6 lb. Hence the lift per 1,000 cubic ft. is: 79.6—5.5 lb. = 74.1 lb.

Now assume that the temperature of the gas rises to 50 deg. Fahrenheit. Its volume instead of being 1,000 cubic ft. will be:—

$$\frac{1{,}000 \times 510 \text{ cubic ft.}}{500}$$
$$= 1{,}020 \text{ cubic ft.}$$

But its weight is still 5.5 lb., although the weight of air displaced is not the same; for instead of 1,000 cubic ft. being displaced, 1,020 cubic ft. are displaced, which weigh:—

$$\frac{79.6 \times 1{,}020 \text{ lb.}}{1{,}000}$$
$$= 81.2 \text{ lb.}$$

So the lift of the original 1,000 cubic ft. of gas becomes:—

$$= 81.2-5.5 \text{ lb.}$$
$$= 75.7 \text{ lb.}$$

This alteration in lift by difference in temperature of the gas may at first sight appear to be of mere academic interest, but in large airships this is certainly not the case.

Take the case of a Zeppelin of 1,250,000 cubic ft. maximum capacity containing only 1,000,000 cubic ft. of hydrogen. The ship is flying in equilibrium when the sun comes out and causes the gas temperature to rise from 40 deg. Fahrenheit to 50 deg. Fahrenheit. Then, as has already been seen, the lift of the gas is increased 1.6 lb. for every thousand cubic ft. of gas in the ship at 40 deg. Fahrenheit; but the volume of the gas was assumed to be one million cubic feet; therefore the lift of the ship will be increased:—

$$1{,}000 \times 1.6 \text{ lb.}$$
$$= 1{,}600 \text{ lb.}$$

This alteration in lift during flight in large airships is of considerable importance, and it is consequently necessary that the pilot should always be acquainted with the relative temperature of the gas and air, for which purpose electric thermometers are now fitted inside one of the gasbags recording in the car.

THE AMOUNT OF WATER IN THE AIR.

Though it may not appear of importance, the humidity of the atmosphere has a certain effect on the lift of hydrogen. The greater the amount of water vapour in the atmosphere the less the weight of unit volume of air, consequently the less the lift of unit volume of hydrogen, for the difference between displaced and displacing weight is less.

This alteration in lift due to humidity is not very material, as it does not generally cause a difference in lift of more than 0.3 lb. per 1,000 cubic ft. of gas. However, in the case of "Lift Trials" some adjustment must be made for humidity of the atmosphere. This adjustment can most easily be made by observing the difference in temperature between the wet and dry thermometer and then employing an empirically compiled table which gives the necessary adjustment per 1,000 ft. of gas.

THE LIFT OF AIRSHIPS.

So far the lift of hydrogen and the phenomena which affect it have only been dealt with. Now the lift of airships will be considered. Before dealing with this, two terms require definition :— one, Available Lift; the other, Disposable Lift.

Available Lift.—Available Lift is the total lift of the gas in the airship.

Disposable Lift.—Disposable Lift is the difference between the available lift and the fixed weight of the airship.

The Disposable Lift is that buoyancy which is available for carrying fuel, oil, crew and ballast.

As will be seen, both the available lift and the disposable lift will vary with temperature, barometer, humidity and purity. Consequently a custom has originated in classifying airships on their available lift, assuming the ship to be 100 per cent. full, with hydrogen 95 per cent. pure, the barometer being 29.5 in., the thermometer 55 deg. Fahrenheit, and the air dry.

From the formula for lift already given, it can be calculated that the lift of gas under these conditions is 67.2 lb. per 1,000 cubic ft. Thus the tonnage of existing classes of English airships are :—

S.S.Z. $\frac{70 \times 67.2}{2,240}$ Tons = 2.1 Tons.

C.P. $\frac{185 \times 67.2}{2.240}$ Tons = 5.55 Tons.

N.S. $\frac{360 \times 67.2}{2,240}$ Tons = 10.80 Tons.

In building airships their disposable lift under the conditions of purity, humidity, barometer and temperature already mentioned is generally specified, but when the disposable lift is taken practically, it is improbable that all, if any, of the specified conditions exist; consequently the practically obtained figure must be converted by simple mathematics to what it would have been had the conditions of the specification prevailed.

To convert disposable lift from one set of conditions to another the following must be known :—

(1) Disposable Lift on the occasion of the trial.
(2) Temperature on the occasion of the trial.
(3) Purity of Gas on the occasion of the trial.
(4) Barometer on the occasion of the trial.
(5) Humidity of the air on the occasion of the trial.
(6) Volume of the gas, or fixed weight of ship on the occasion of the trial.

To take an example, let it be assumed that by practical trial 9 tons was found to be the disposable lift of a million cubic ft. airship, 100 per cent. full of hydrogen 98 per cent. pure, when the barometer was 30 in. the temperature 40 deg. Fahrenheit, and the humidity of the atmosphere negligible. It is required to know what would be the disposable lift under the generally specified conditions, namely 100 per cent. full of hydrogen, 95 per cent. pure, when the barometer is 29.5 in., the temperature 55 deg. Fahrenheit, and the humidity negligible.

The first thing to be done is to determine the total lift on the occasion of the practical trial.

By means of the Lift Formula already given, determine the lift per 1,000 cubic ft. of gas on the occasion of the trial. This will be found to be :—72.6 lb. per 1,000 cubic ft. Now the volume of the ship is known to be one million cubic ft.

Therefore $\frac{72.6 \times 1,000}{2,240}$ tons is the available lift,

$= 32.4$ Tons

Now the disposable lift of the ship was, by trial, 9 tons.

Therefore 32.4—9.0 tons is the weight of the ship = 23.40 tons.

Now by means of formula determine the lift per 1,000 cubic ft. of hydrogen under the conditions of the specification. This will be found to be :—67.2 lb.

Therefore under the conditions of the specification

$\frac{67.2 \times 1.000}{2,240}$ tons is the available lift,

$= 30.0$ Tons

But the fixed weight of the ship was found to be 23.4 tons.

Therefore 30.0—23.4 tons is the disposable lift under specified conditions = 6.6 tons.

In the example which was taken the volume of the ship was known but not its fixed weight. Now let it be assumed that the weight was known but not the volume. Under these circumstances, if in other respects the same problem was to be solved, the procedure would be :—

Determine the lift per 1,000 cubic ft. on the occasion and circumstances of the trial. This would be 72.6 lb. per 1,000 cu. ft.

Now the weight of the ship was known to be 23.4 tons.

Therefore 23.4 plus 9 tons is the available lift of the ship = 32.4 tons.

Therefore $\frac{32.4 \times 2240}{72.6}$ thousand cubic ft. is the volume of the ship.

= 1,000 thousand cubic ft. or 1,000,000 cubic ft.

Occasion may arise when it is desired to know the disposable lift of an airship when the conditions of the specifications do not exist and neither the volume nor the weight of the ship is known.

Let it be assumed that on the occasion of the practical trial the disposable lift was found to be nine tons when the ship was 100 per cent. full of gas of 96 per cent. purity, and the barometer was 29.8 in. and the temperature 30 deg. Fahrenheit.

Determine the lift of 1,000 cubic ft. of hydrogen under these circumstances by formula. It will be found to be 72.2.

When this has been done, it is necessary to wait until some of the conditions have altered. Assume on a later occasion that the ship is 100 per cent. full with hydrogen 95 per cent. pure, when the barometer is 28.5 in. and the temperature 60 deg. Fahrenheit. Take the disposable lift, which for purposes of argument will be assumed to be five tons.

Then work out the lift per 1,000 cubic ft. of hydrogen under the conditions prevailing.

This will be found to be 64.4 lb. per 1,000 cubic ft

Between the first and the second trial the disposable lift has altered from nine tons to five tons, and the lift per 1,000 cubic ft. from 72.2 to 64.4 lb.

Now, the difference per 1,000 cubic ft. in lift on the two occasions is : 72.2 — 64.4 lb.

= 7.8 lb.

The difference in disposable lift, 9 — 5 tons

= 4 tons = 8,960 lb.

Therefore, since the fixed weight of the ship has remained constant, $\frac{8.960}{7.8}$ is the volume of the ship in thousands of cubic ft :—

= 1,148.7 thousand cubic ft. or 1,148,700 cubic ft.

The volume being now determined, from the methods already described it is possible to calculate the disposable lift under any conditions whatever.

To summarise, the following are necessary for the conversion of disposable lift :—

Under conditions of lift trial :—

Available lift 100 % full — disposable lift found = fixed weight.

Under conditions to which disposable lift is to be converted :—

Available lift 100 % full — fixed weight = disposable lift.

THE "MAORI 4" SUNBEAM-COATALEN AIRCRAFT ENGINE.

As is fairly well known, the Sunbeam-Coatalen engines, in addition to the work which they have done in aeroplanes, have also been largely used in British airships.

R34 and her sister ships are equipped throughout with the "Maori 4" Sunbeams—which is thus the first aero-engine to have made the return trip from Europe to America and back.

This type of engine is illustrated on page 728, and the following specification gives all its main features.

12 cylinders.
100 m/m bore by 135 m/m stroke.
60 degrees Vee.
4 overhead valves per cylinder.
2 overhead camshafts per block of cylinders, driven by a train of gears.
Volume of cylinders : 12,270 ccs.
Direct drive to propeller shaft. A flywheel is also fitted to these engines.
Articulating connecting-rod system.
Normal revolutions 2,100 per minute.
275 B.H.P. at normal revolutions of engine.
Approximate weight per h.p. : 3.3 lbs.
4 Claudel Hobson carburetters B.Z.S. 38.
Pressure feed to carburetters.
Ignition is by two 12-cylinder magnetos.
A hand starter and electric starter are fitted.
The exhaust pipes are provided with a special arrangement for water cooling.
The water pumps are of specially large dimensions, and a governor is fitted to the engine to prevent over-running. When the engine speed reaches 2,500, the governor automatically comes into operation, and similarly when the oil pressure falls below 20 lbs. per square inch.

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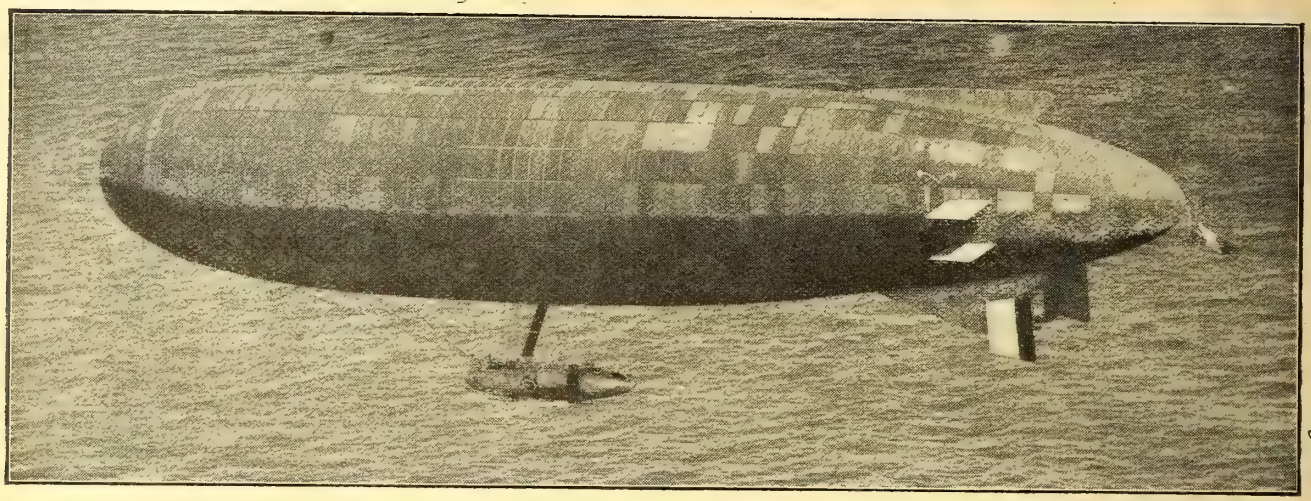
III.—FRENCH AIRSHIPS.



A French C.M. Class Airship. The arrangement of the tail is characteristically French.

MILITARY AIRSHIP FACTORY (Chalais Meudon).

Construction on a large scale both of non-rigid airships and kite balloons has been undertaken by the Chalais-Meudon establishment, in addition to experimental work and tests.

During the first three years of the war, airships were built for the French Army alone. Notable among these vessels are the "Lorraine" and "Tunisie" (1916), of about 10 tons displacement, and the "Capitaine Caussin" (1917), of nine tons. In their general features, these airships are akin to Zodiac practice of the same period.

The Zodiac system of rigging has been adopted, comprising an external girdle along both sides of the envelope and tangential cables to the car.

In each case the car is short, and constructed of steel tubing. Twin propellers are mounted upon brackets on opposite sides, driven by engines enclosed in the car, through shafts and bevel reduction gears.

Pressure in the envelope is maintained by a power blower in the car, from which air passes up to the ballonets through a vertical pipe.

Characteristics.

	"Lorraine" & "Tunisie" (1916).	"Capitaine Caussin" (1917).
Capacity	370,000 cubic ft.	312,000 cubic ft.
Length	305 ft.	267 ft.
Width	50 ft.	46 ft.
Engines and h.p.	2 220 h.p. Clement Bayard	2 240 h.p. Canton Unné
Gross lift	10.6 tons	9.2 tons
Disposable lift	4.4 tons	4.9 tons
Maximum speed	43 m.p.h.	50 m.p.h.
Crew	5	6

THE "T" CLASS.

Following upon the "Capitaine Caussin" in 1917 appeared a smaller type of airship, known as the T.

Six vessels at least were produced of this pattern and taken over by the Navy for anti-submarine patrol duties.

The envelope form of the T class is distinguishable by its extremely high fineness ratio—in the order of 8 : 1. In conjunction with the manner of rigging the car, a short one, close under the envelope, this long envelope must certainly involve the use of an inordinately high internal gas pressure to keep it in alignment. Consequently, the envelope fabric must be heavy, and this is probably the chief reason for the fact that the ratio of disposable lift of this type is low.

The car is streamlined, constructed of duralumin, and provides good protection for the crew. The two power units installed are Salmson Canton Unné engines of 160 h.p. As they are of radial type, it has been possible to economise space and weight by embodying the engines in the framework on opposite sides of the car, each engine facing outboard and driving through shaft transmission and bevel reduction gearing a two-bladed propeller.

Characteristics.

Capacity	194,000 cubic ft.
Length	230 ft.
Overall width	46 ft.
Engines and h.p.	2 160 h.p. Canton-Unné
Gross lift	5.4 tons
Disposable lift	1.7 tons
Maximum speed	50 m.p.h.
Crew	5

THE C.M. CLASS.

A non-rigid airship of medium size on the same general lines as the T class, but with a shorter envelope of more conventional shape. The C.M. class was specifically designed for submarine hunting, and towards the end of the war appears to have become the standard French airship for sea patrols.

The car is constructed of duralumin, and is carefully faired throughout. In this respect the method of mounting the twin Canton-Unné engines flush with the sides of the car is noteworthy.

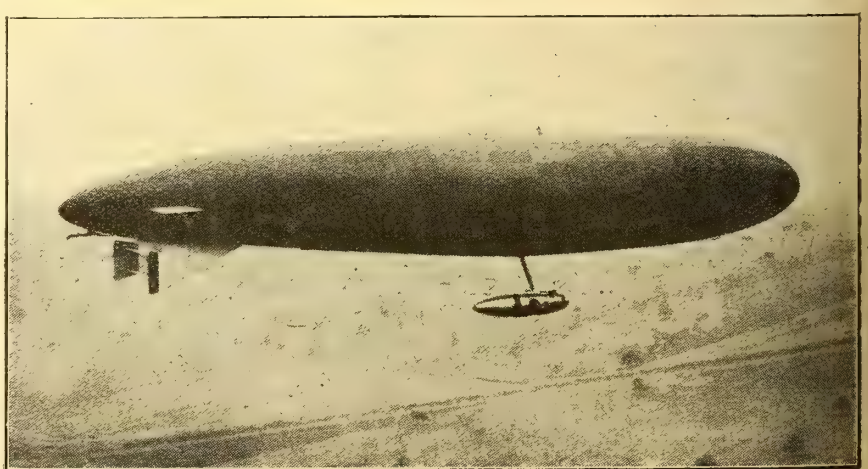
The propellers, carried on outrigger brackets on each side, are driven through bevel gearing by shafts directly coupled to the engines.

A Q.F. gun of light calibre is mounted forward.

Biplane horizontal fins are attached to the tail of the envelope, and a large triangular fin below forms the foundation for the "box" type elevator and rudder control surfaces.

Characteristics.

Capacity	176,500 cubic ft.
Engines and h.p.	2—160 h.p. Canton-Unné.
Gross lift	5.2 tons.



A French airship of the "T" class notable for the fineness of its lines.

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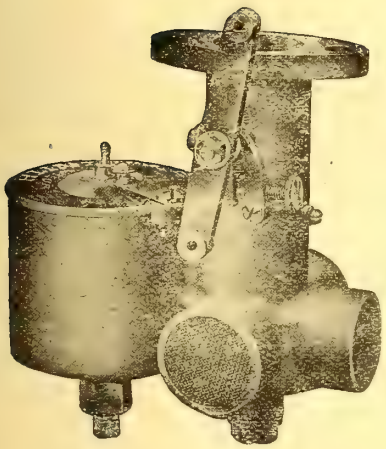

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THE ASTRA CLASS.

Astra Société de Constructions Aeronautique, 13, Rue Couchot and 121, Rue de Bellevue, Billancourt, Paris.

British representative: "Airships, Ltd," 47, Victoria Street, London, S.W.

This firm was founded by M. Surcouf for the production of ordinary balloons. Constructed early Lebaudys, later Astras, and finally the Astra-Torres type, noted principally for the unique trefoil section of the envelope.

Large vessels built by the firm have been used during the war by the French Government. Vessels with one and two cars have been constructed, of which details are available concerning the sister ships "Alsace" and "Pilatre de Rozieres," built in 1915

In general appearance these airships are similar to the British N.S. Class.

The Car of a French C.M. Type Airship. The mounting of the Salmson engines should be noted.

CHARACTERISTICS.

Capacity .....495,000 cubic ft.
Length .....295 ft.
Diameter .....54 ft.
Engines and h.p. .....2 220 h.p. Chenu.
Gross lift .....14.2 tons.
Disposable lift .....6.5 tons.
Maximum speed .....40 m.p.h.
Cruising speed .....80 m.p.h.
Crew .....6.

LATER TYPES.

Two later types of Astra non-rigid airships of smaller volume were constructed in 1917 for anti-submarine operations. The first vessel of this new series was reported to have a capacity of approximately 210,000 cubic ft. and two 170 h.p. Renault engines.

The second type was somewhat larger, with a capacity of 234,000 cubic ft., giving a total lift of 6.7 tons and a disposable lift of 2.4 tons. With two 200 h.p. Hispano-Suiza engines, this type of airship attained a full speed of 50 m.p.h. and an endurance of 10 hours.

CLEMENT-BAYARD CLASS.

Usines Clement-Bayard, quai Michelet, Levallois-Perret (Seine). (Seine).

The principal products of this firm, before the outbreak of war, were large non-rigid airships, with streamlined shaped envelopes from which was suspended a girder nacelle of great length intended to distribute the load.

ZODIAC CLASS.

Société Francaise des Ballons Dirigeables et d'Aviation Zodiac, 10, Route du Havre, Puteaux, Seine.

The Zodiac Company maintained a fair output of successful airships during the war period.

Two non-rigid airships, built to the order of the French Army during 1915-16, are notable as being the largest non-rigids constructed in recent years. They are the "D'Arlandes" and "Champagne," each of 530,000 cubic ft. volume. When the French Military Airship Service was disembodied, these vessels passed to the Naval authorities.

A distinguishing feature of Zodiac design is the method of attaching the car suspension cables to the envelope by means of long reinforced fabric girdles attached to the envelope on both sides. Considerable success has been achieved in rigging the car close up to a long, finely streamlined gasbag, despite the natural difficulties of this system. Gas pressure is doubtless high.

The stabilising surfaces of the Zodiac closely resemble those of the productions of the Chalais-Meudon establishment, illustrated in the photographs of the C.M. type airships. In brief, the arrangement consists of a large vertical fin below the tail, carrying box elevators and rudders, with one or more small supplementary horizontal fins attached to the sides of the envelope immediately above.

All Zodiac airships are equipped with a power-driven blower in the car to maintain pressure in the internal ballonets. An air duct, of large diameter, through which the air passes from the car to the envelope, is a recognisable feature of the make.

"D'ARLANDES" AND "CHAMPAGNE."

CHARACTERISTICS.

Capacity .....530,000 cubic ft.
Length .....335 ft.
Diameter .....49 ft.
Engines and h.p. .....2 220 h.p. Zodiac
Gross lift .....15.2 tons
Disposable lift .....7 tons
Maximum speed .....43 m.p.h.
Cruising speed .....32 m.p.h.
Crew 6

LATER TYPES.

"VEDETTE ZODIAC" (1916).

Capacity .....77,600 cubic ft.
Gross lift .....2.23 tons
Engines and h.p. ..... 2 70 h.p. Anzani
Maximum speed (about) ..... 50 m.p.h.

"VEDETTE ZODIAC" (1917).

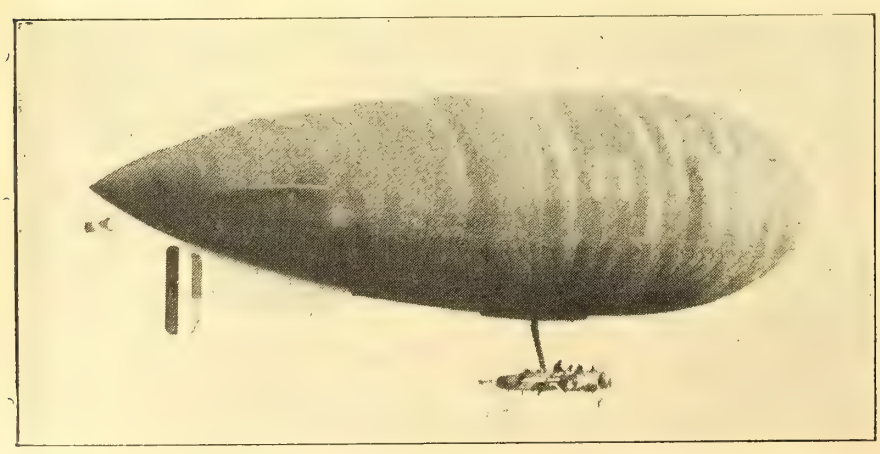
Capacity .....97,000 cubic ft.
Engines and h.p. .....2 60 h.p. Renault
Gross lift .....2.8 tons
Maximum speed (about) .....50 m.p.h.

"ECLAIREUR ZODIAC" (1917).

Capacity .....219,000 cubic ft.
Engines and h.p.
2 220 h.p. Hispano-Suiza
Gross lift .....6.3 tons
Maximum speed (about) .....50 m.p.h.

"CROISEUR ZODIAC" (1917-18).

Capacity .....430,000 cubic ft.
Length .....31 ft.
Diameter .....50 ft.
Engines and h.p. .....2 225 h.p. Zodiac
Gross lift .....13.3 tons
Maximum speed .....47 m.p.h.



The "Eclaireur Zodiac" type of French Airship.

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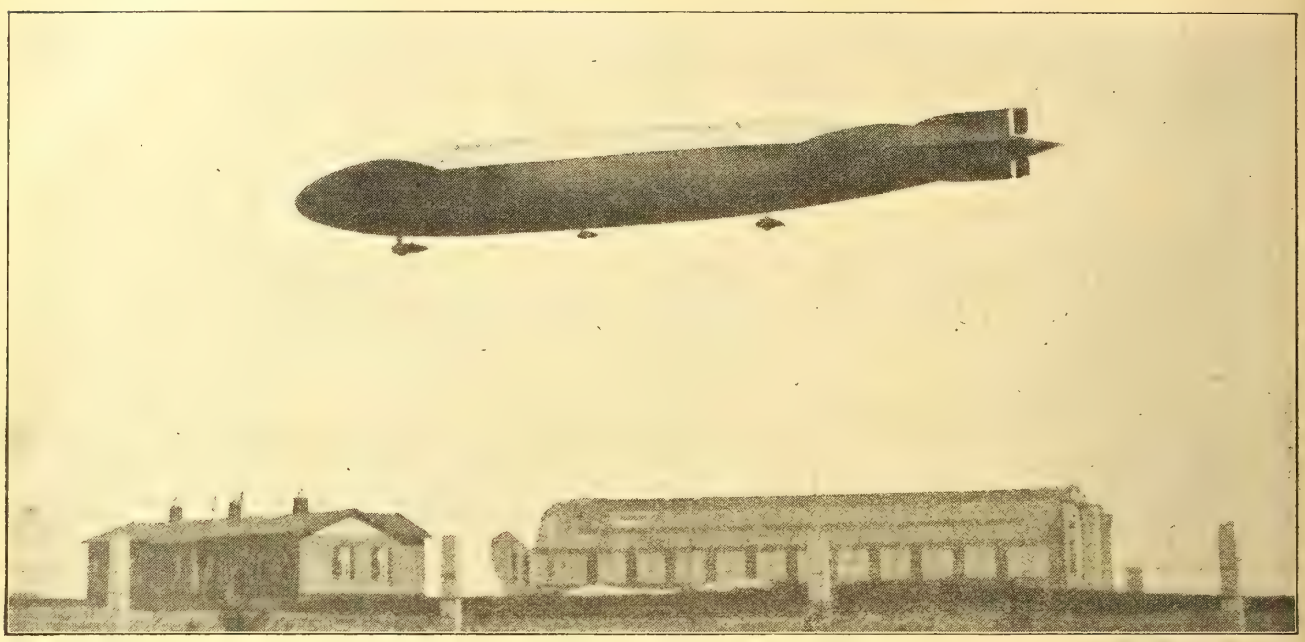


One of the German Zeppelins of the "Height-climbing" class. The peculiar painting should be noted. This ship is black below to reduce the effect of searchlights from below and white above to reduce the heating effect of sunshine.

NOTE.—A total of about 120 airships are believed to have been constructed by the Zeppelin Company for the German Army and Navy, and about 20 by the Shütte-Lanz Company for the Navy. The German Military Airship Service was disbanded probably during the summer of 1917, and the few Zeppelins that it then possessed passed to the control of the German Admiralty.

The year 1918 was disastrous to the Naval Airship Service, for in addition to war losses, including the practical extinction of Tondern Station by British aeroplanes and the destruction on her first war flight of the L70, their latest and best vessel, involving the death of Captain Strasser, the Leader of Airships (Fuhrer der Luftshiffe), six Zeppelins of a new type were destroyed by an explosion at Ahlhorn. Thus it happened that at the time of the Armistice only nine airships—all Zeppelins—were in commission and on the active list.

In the stress of the last few months of Germany's war effort, the production of new vessels appears to have been reduced, but that the Germans had by no means lost faith in rigid airships is shown by the fact that designs had been prepared for Zeppelins of much larger size and greater capabilities than any others yet constructed.

The capacity of these vessels would probably have been somewhere in the region of 5,000,000 cubic feet, and the "ceiling" of the projected vessels would undoubtedly have been very much higher than the 22,000 feet already attained. It is therefore possible that raiding might have again become a practical proposition, though this work was never regarded as the primary function of the German Airship Service—sea reconnaissance was the most important of its duties.

ZEPPELIN CLASS.

The Zeppelin airship in commission at the close of hostilities belonged chiefly to what is known as the long-range class, with the possible exception of one or two training airships, and the L71, which was the second vessel recently constructed of a new and improved class. Included with the training ships may have been the famous L14, on which many notable Zeppelin pilots learned their art, a vessel built in 1915 that established a tradition of its own for charmed longevity, and was still heard of well towards the end of the war.

From the appended table of dimensions and performance may be gathered the progress of Zeppelin development from L1 to L70 of the naval classes, and the following notes furnish additional particulars of the airship latterly employed.

ZEPPELIN L40 (HEIGHT-CLIMBING) CLASS.

Airships of this class were constructed in 1917. The capacity (2,000,000 cu. ft.), overall dimensions, and general arrangement were almost identical with those of the previous L30 Class, and, as these features also recur, without material variation, in the British R33 Class, a detailed enumeration is unnecessary.

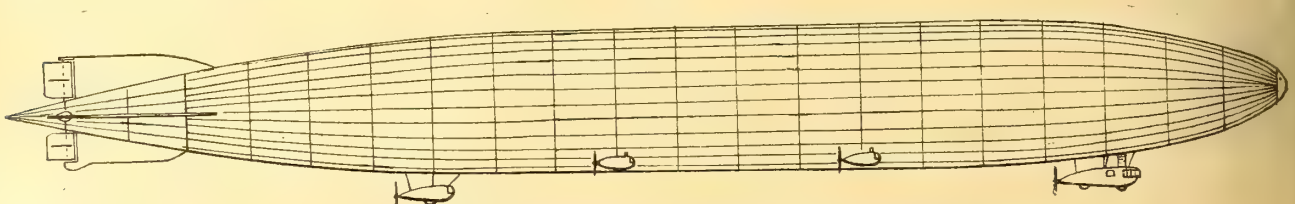
With the object of saving weight, however, many improvements were introduced in the construction of the hull, and it may be said that the process of lightening was carried to such a point that these airships were capable of the highest performance with safety only at great altitudes where the aerostatic and aerodynamic forces experienced are less—e.g., at roughly 16,000 feet the principal stresses on a rigid airship are nominally halved.

The truss system of stiffening the main circumferential girder frames was modified and lightened and minor economies in weight were effected wherever possible. The gondolas were made considerably smaller and more attention paid to reducing their air resistance by streamlining. This development applied principally to the forward gondola, but it was also evidenced in the wing gondolas, as is shown in the accompanying photographs of the wreck of the L49.

The engines installed were five 240 h.p. Maybachs distributed as in the case of R33—one in the aft section of the forward gondola, one in each of the twin "wing" gondolas, and two in the sternward gondola. A full speed of 62 miles per hour was attained by these airships, which were capable of a static climb to 21,000 feet. In the raids on Britain a load of bombs was carried amounting usually to about 2½ tons.

ZEPPELIN L57 (LONG-RANGE) CLASS.

These airships, commissioned late in 1917 and early in 1918, probably comprised L57 to L65, and were 50 ft. longer than the above-mentioned L40 class, but not otherwise dissimilar in general appearance.



An outline drawing of the German L70 class of rigid airship.

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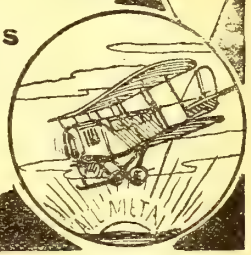

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The gas capacity was increased to 2,200,000 cubic ft. and the extra lift so secured, supplemented by a further addition in disposable lift effected by certain improvements in design, resulted in a better all-round performance.

Four streamlined gondolas, similar to those of the "height-climbing" class, were fitted, but in place of the 240 h.p. Maybach engine the newly-developed 300 h.p. engine of the same make was adopted, five engines being installed as before. Thus the power was increased to a total of 1,500 h.p. and the speed to 65 miles per hour.

Many long flights were accomplished by Zeppelins of this class, including an attempt to fly from Jamboli (Transylvania) to East Africa with 12 tons of medical stores. The airship was ordered back by wireless and landed at her base after covering about 3,000 miles.

ZEPPELIN L70 CLASS.

Two vessels of a new type, L70 and L71, were commissioned in 1918, L70 meeting destruction by British Naval forces in August of that year. They were the largest, most powerful, and most efficient airships ever built. Possibly L71 may fly again under another flag.

In size these airships retained the same dimensions as their predecessors of the "long-range" class, the length being 693 ft., diameter 79 ft., and capacity 2,200,000 cubic ft. The gross lift was 66.64 tons, and the disposable (useful) lift 38.84 tons, which, although this type of craft was very heavily engined, amounted to more than 58 per cent. of the total lifting capacity.

The design, whilst displaying no fundamental departure in principle from precedent, represents the highest standard of development yet achieved. It was the product of 12 years of effort on the part of the Zeppelin designers.

A point of recognition was the number of the gondolas, of which there were six, an addition of two "wing" gondolas, making four in all, having been occasioned by the greater number of engines installed, as compared with former classes.

The gondolas thus comprised one double gondola forward containing, in separate sections as is usual, the controls, W/T and an engine, an after gondola containing the auxiliary control position and two engines, and four "wing" gondolas, each with one engine, arranged in two pairs spaced at equal intervals intermediately.

The engines, seven in number, were the Maybach 300 h.p. type, giving a total of 2,100 h.p., with which a full speed of 77.6 miles per hour was obtainable.

Flying at an economic speed of 45 miles per hour, the L70 class of airship was capable of cruising for nearly eight days, covering 8,000 miles in still air.

THE DEVELOPMENT OF NAVAL ZEPPELIN AIRSHIPS, 1912-1918.

In the following table an attempt has been made to demonstrate the progressive growth in size and performance of the Naval types of Zeppelin airships.

A considerable number of Military airships and a few passenger models were produced in the early days of development, with a consequent diversity of characteristics.

As, however, the Naval models during this period were generally similar in dimensions to their contemporaries, it is convenient to confine the figures to the Naval types, as representative of the whole.

Information concerning certain of the Naval series is scanty, and various recorders of Zeppelin data give divergent figures in some instances. There is no means at the present of securing absolute accuracy, and therefore certain of the values in the table below may be incorrect. Generally, they can be accepted as being not far from the mark, erring, if at all, on the side of underestimation.

	1912 L1.	1913 L2.	1914-15 L3—L8.	1915 L11—L19.	1916 L20—L24.	1916 L30—L39	1917 L40—L56	1918 L57—L65.	1918 L70.
Capacity, cu. ft.	882,500	918,000	1,059,500	1,130,000	1,235,500	2 000,000	2 000,000	†2,200.000	†2,200 000
Length, ft.	495	525	525	561	561	643	643	693	693
Diameter, ft.	52.1	54	60.7	60 7	66	78.75	78 75	79	79
Gross liit, tons	25.0	28	32	34.3	40,2	59.5	59.5	66.4	66.4
Disposal lift, tons	8 7	8.9	—	15.7	—	27	30.5	—	38.8
Cars	2	3	2*	2*	2*	4*	4*	4*	6*
Engines, No. and h.p.	3- 180 h.p. Maybach (540)	4—180 h.p Maybach (720)	3—180 h p. 1—240 h p. Maybach (780)	4—220 h.p. Maybach (880)	5—220 h.p. Maybach (1,100)	6—220 h p. Maybach (1,320)	5—240 h p. Maybach (1,200)	5—300 h.p. Maybach (1,500)	7—300 h p. Maybach (2,100)
Airscrews	For'd 2-2 Bl. Aft. 2.4 Bl,	4—4 Bl. "Wing"	4-2 Bl. "Wing"	2—2 Bl Pu her 2—2 Bl. "Wi g".	2—2 Bl. Pusher 2—2 Bl. "Wing"	4—2 Bl. Pusher 2—2 Bl. "Wing"	4—2 Bl. Pusher	4—2 Bl. Pusher	6—2 Bl. Pusher
Crew	16	17	18	18	18	22	22	†22	30
Speed (full), m.p h.	47	49	50	55	59	60	62	†63	77.6
Height (Maximum static rise)	—	6,000	9.000	10,000	11,500	14,000	21,000	22,000	20,900
Endurance (full speed), hours	—	13	14	25	30	54	46.3	†65	55
Endurance (cruising speed), hours	30(Endurance test)	20	26	60	†67	110	92.5	†150	177

* Forward car divided into two separate sections. † Estimated.

V.—ITALIAN AIRSHIPS.

Note.—The majority of the Italian airships are officially designed and built, or procured, by the "Stabilimento Construzioni Aeronautica" at Rome, which is the aircraft factory of the Italian Government, and provides airships and kite balloons to both the Naval and Military authorities. The official designs emanate from the Institute Centrale dell' Aeronautica adjoining the works.

It is necessary to explain that the semi-rigid in Italy has been developed on two distinct principles. Firstly, there is the official design, having as its characteristic a keel composed of a number of separate rectangular sections, constructed of steel tubing, which are ball-jointed together so that the whole is free to bend in a vertical plane, whilst constituting a beam for the purpose of distributing the suspended weights of the car evenly along the envelope.

The correct shape of the envelope in this design is partially dependent upon internal gas pressure, but the head of pressure necessary is very considerably less than in a non-rigid airship. Consequently, a lighter fabric can be used, and, in the aggregate, sufficient weight may be saved to compensate for the weight of the keel system.

The second principle is represented by the Forlanini and in lesser degree by the Usuelli. In these airships the keel is a rigid beam which distributes the suspended weights in a similar manner. The Forlanini design has merit in this respect, but it lacks the advantages derived from the flexibility of the official type.

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Four primary classes of airships (excluding the D.E. class) were projected—viz., the Piccolo (P)—small Medium, (M)—medium, the obsolescent Veloce (V)—fast, and the Grande (G)—large. The latter, a proposed rigid airship, was abandoned during the war, and a large semi-rigid, known as the A class, was introduced in its stead.

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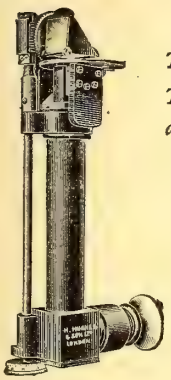

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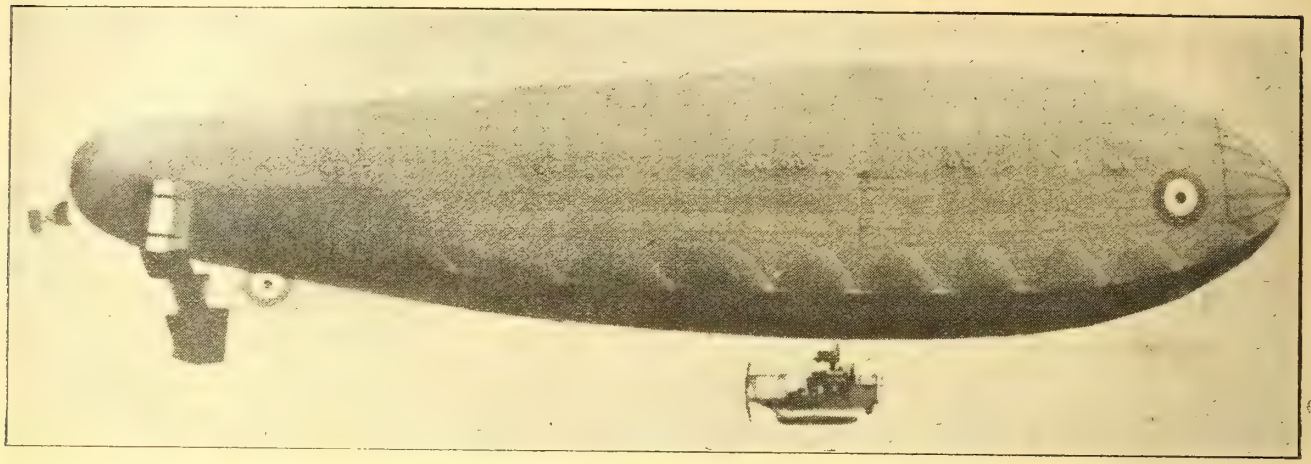


An Italian Ship of the "M" Class.

P and P-VELOCE CLASSES.

These are old and obsolescent airships, now mostly used for instruction. In general appearance they are similar to the D.E., M and V types, and represent the intermediate size between the two first-mentioned models.

The P is the earliest of the official Italian designs. Two 75 h.p. Fiat engines are installed, which are usually carried on outrigged bearers like those of the S.S. Twin. With these engines a speed of 40 m.p.h. is obtained.

The P-Veloce is the same type of airship fitted with two 225 h.p. Fiat engines. As it attains a maximum speed of 56 m.p.h., it is the fastest of all Italian airships, except, perhaps, the latest Forlanini vessels. Its range of action is limited.

CHARACTERISTICS.

(Common to P and P-Veloce).

Capacity	176,500 cubic ft.
Length	203 ft. 6 in.
Width	39 ft.
Height	70 ft. 6 in.
Gross lift	5·4 tons
Crew	3

M CLASS.

During the war the M type has undergone considerable modification, and the following notes must be taken to refer to the improved type now being built with two, three, and perhaps four engines. Two engines apparently constitute the standard.

The envelope is divided by diaphragms into six gas chambers, each fitted with two valves. A ballonet extends internally from the bow to near the tail, and is joined to the lower part of the envelope on either side of the keel. At the forward end the ballonet encloses a valve in the extreme nose, the entrance of air being regulated by shutters on the principle of a Venetian blind.

Perforated diaphragms are inserted in the ballonet. Whilst permitting air to pass, these serve to check the tendency of the air to surge towards the lower end when the airship is inclined.

The keel (sectional hinged type) is attached at the bows to a radial nose-stiffening framework, and at the stern forms the foundation for the attachment of a large vertical stabilising fin and the control planes. A narrow fin is attached to the top of the envelope.

The weight of the car is communiated from the keel to the envelope by means of parabolic wires sewn into the envelope between each keel-joint. Also, circumferential bands pass round the envelope at each of these places, and internal wires connect the keel to two longitudinal canvas girdles along the top of the envelope—producing a small lobe in the centre.

A gun platform is provided above the bows.

The car is short and bulky. Two engines are carried in bearers on the sides of the car, each driving a propeller at the rear through long shafting. These propellers are of variable and reversible pitch. In certain of the illustrations of an M-type car, a third engine is shown mounted on a gantry above the others.

CHARACTERISTICS.

Capacity	441,000 cubic ft.
Length	265 ft.
Width	59 ft.
Height	89 ft.
Engines and h.p.	2 280 h.p. Itala
Gross lift	13.8 tons
Crew	5

V CLASS.

Following the advent of the M class, a limited number of larger semi-rigids were built to a new design, known as the V. It appears that the development of this type has lapsed, and some of its proved good points have been incorporated in a revised model of the M.

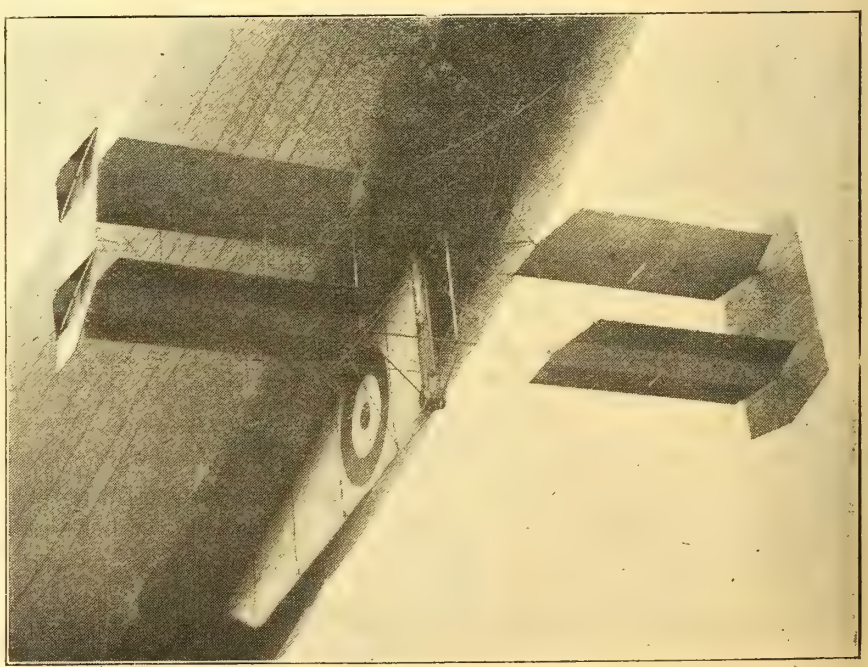
The V is distinguishable from other Italian airships of the official series by the absence of a long, single vertical fin below the keel. In lieu thereof it has two small triangular fins and larger vertical control planes. A long top fin is also fitted.

CHARACTERISTICS.

Capacity	553,000 cubic ft.
Length	287 ft.
Width	62 ft. 4 in.
Engines and h.p.	4 130 h.p. Itala
Gross lift	17 tons
Maximum speed	51 m.p.h.

D.E. CLASS.

The Dirigible Exploratore type of semi-rigid airship was produced chiefly for submarine hunting, and corresponds in size and functions with the British S.S. Zero type. It is interesting as demonstrating that the semi-rigid prnciple can be success-



The Tail Surfaces of an Italian Airship of the M Class.

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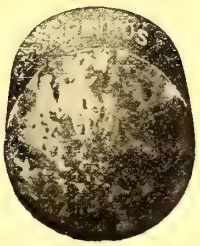

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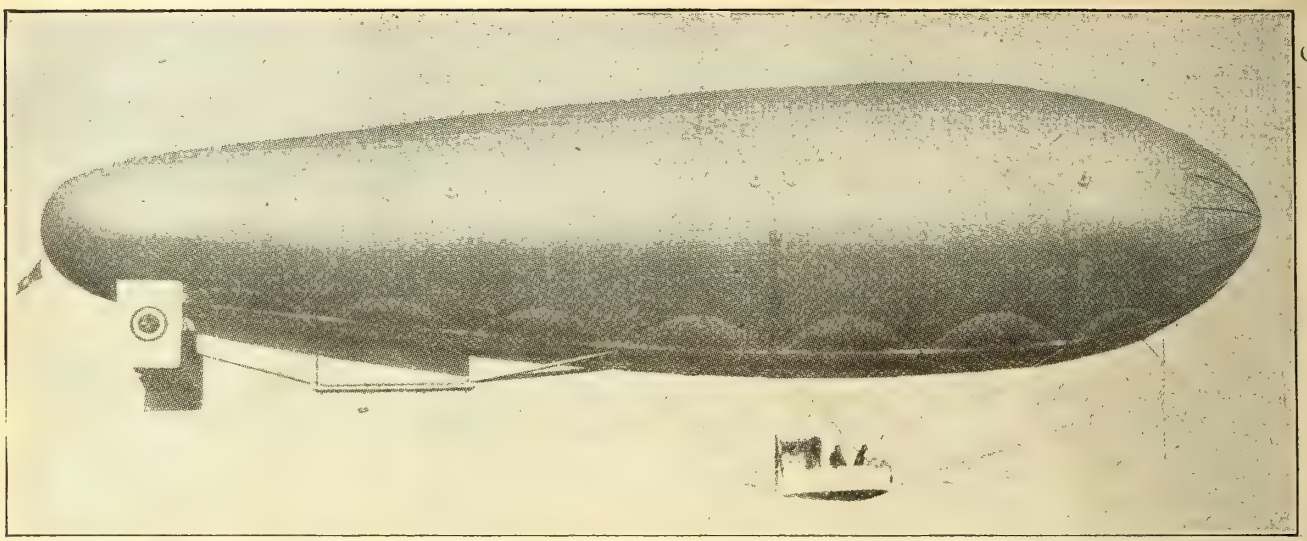

An Italian Airship of the " Dirigible Esploratore " Class.

fully applied to an airship of so small a capacity as 100,000 cubic ft.

The envelope is divided by fabric diaphragms into four gas compartments, to reduce the loss of gas in case of localised damage. One long air-ballonet extends along the inside of the envelope, above the keel. A shutter valve in the nose of the airship (where pressure is relatively high) admits air to the ballonet.

At the after end of the keel is attached a long stabilising fin, which forms the perpendicular of a number of triangular frames. The control planes are of " box " type, fitted at extremity of this fin.

In each of the above features, the D.E. is representative of the officially designed types.

The car is short and, although roomy, appears to afford little comfort for the crew. A Fiat engine of 100 h.p. is mounted on a gantry above the car, and drives directly a propeller of conventional pattern.

CHARACTERISTICS.

Capacity	92,000 cubic ft.
Length	159 ft.
Width	34 ft. 6 in.
Height	55 ft. 9 in.
Engines and h.p.	1 100 h.p. Fiat
Gross lift	2.8 tons
Maximum speed	42.5 m.p.h.
Crew	4

FORLANINI CLASS.

Manufacturers: La Società Leonardo da Vinci. Offices: Via Baccacio 21, Milan.

Although limited in number and use, the semi-rigid airships built by the Società Leonardo da Vinci, near Milan, to the designs of Enerico Forlanini, have developed very considerably in size and capabilities during the war. The latest projected model, when completed, will be the largest airship, other than of the rigid type, in existence.

Generally, the following characteristics are typical of all airships of Forlanini design :—

A rigid triangular steel girder constructed of light steel tubing, lattice fashion, extends internally from end to end, along the bottom of the envelope.

The gas is contained in a compartmented gasbag (usually with 12 gas chambers) from which the lift is transferred directly to the top of the keel girder evenly along its length. The whole is surrounded by an outer cover of silk, and the ring space between the inner and outer envelopes constitutes the air ballonet of the airship. Air enters through a valve in the nose.

The car is attached rigidly to the keel, and encloses the control cabin and two or more engines. Two variable pitch propellers are mounted on brackets on the sides of the car and driven through shafting and bevel gears.

A peculiar feature is the installation of a small air compressor actuated by shafting from the engines. From a receiver, air is available at different pressures for operating the gas valves, for the petrol system and for inflating the bumping bags under the car.

In the case of the F3, it is stated that biplane elevators are fitted on the sides of the car to increase the dynamic lift of the airship. The " box " control planes of this vessel comprise ten rudders and eight elevating planes attached to a large fin below the tail end of the keel.

Characteristics of Forlanini Airships.

An indication of the development of the Forlanini vessels from the beginning is furnished by the following table :—

	F1. Leonardo da Vinci.	F2. Citta di Milano.	F3.	F4.	F5.	F6	*F8.
Capacity, cu. ft.	115,250	416,500	487,000	487,000	628,000	628,000	990,000
Length, ft.	132	238	297	297	295	295	361
Width, ft.	46	59.4	59.4	59 4	65.6	65 6	75 5
Engines and h.p.	40 h.p. Antoinette	2—85 h.p. Isotta-Frachini (170)	4—100 h.p. Fiat (400)	2—160 h.p. (320)	2—240 h.p. Fiat (480)	4—240 h.p. Fiat (760)	4—350 h.p. (1,400)
Gross lift, tons	3 32	12	14	14	19.1	19.1	30
Disposable lift, tons	—	—	—	—	9.55	9.36	15.04
Max. speed (sea level) m.p.h,	31	40	46	45	43.5	45.8	49.7
Max. speed (at 13,000 ft) m.p.h	—	—	—	—	49 7	55	62.2

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VI.—UNITED STATES AIRSHIPS.

A United States Naval Airship of the "B" class.

NAVAL AND MILITARY

A large number of non-rigid airships of diverse types were constructed in America during the last year of the war, mainly for the purpose of submarine hunting. The designs were prepared by the Bureau of Construction and Repair, Navy Department, and contracts placed with the Goodyear Tyre and Rubber Company, Akron, Ohio; the B.F. Goodrich Company, Akron, Ohio; and the Connecticut Aircraft Corporation. Since the declaration of armistice it has been announced that the American Navy will continue to devote money to the development of lighter-than-air craft, and proposals have been published for the construction of three or four rigid airships and a considerable number of new non-rigids.

In addition, the Balloon and Airship Division of the Department of Military Aeronautics contemplates the building up of a fleet of small, single-engine airships of the non-rigid type, which it is intended to use for fire control work, and also in connection with coast fortifications and military liaison duties.

An initial order for six airships of about 75,000 cubic ft. has been let, one half in the U.S.A. and the others in Europe.

COMMERCIAL.

Various schemes are on foot to start the construction of commercial airships, but nothing definite has as yet been accomplished.

The Goodyear Tyre and Rubber Company have completed the designs for a 750,000 cubic ft. airship of the semi-rigid type, reminiscent of Forlanini practice, which is to be 400 ft. long, 65 ft. in diameter, and is to be driven by two 450 h.p. engines. Accommodation is provided for twenty-four passengers, and the endurance at 60 m.p.h. is estimated at 2,000 miles. This ship has been designed for trans-continental transport.

The Connecticut Aircraft Corporation have tentative plans for the construction of a 300,000 cubic ft. airship of the non-rigid type, with belly-band rigging. This airship is to accommodate twenty passengers, and be fitted with two engines totalling 400 h.p. A maximum speed of about 60 m.p.h. is expected. The engines will be located in separate cars, rigged forward and aft, while the passenger car will be located amidships.

The B.F. Sturtevant Company, which has had some experience with light structures by building vanadium steel aeroplanes to Grover C. Loening's designs, is investigating the possibility of building rigid airships and operating them for passenger transport between New York and Chicago.

B CLASS (NAVAL).

SUBMARINE SCOUT AIRSHIPS.

B1—B33 (1917-1918). Built by Goodyear (24), Goodrich (7), and Connecticut Aircraft Company (2).

A small type of non-rigid airship, proportional in size to the British S.S. class. Capacity, 75,000 to 84,000 cubic ft.

The envelope design is conventional. Tangential rigging is employed for the car suspension, the attachment of the cables to the envelope being effected either by a rigging girder or by finger patches.

Air is supplied to the ballonets by a power blower in the car or, alternatively, by a blower pipe interposed in the propeller slipstream.

The arrangement of the stabilising fins varies. A horizontal fin is attached on either side of tail, and in some ships two vertical fins are placed on the under side; on others, one vertical fin is placed above and one below. All control planes are balanced.

The car follows the lines of a tractor aeroplane fuselage, with accommodation for a crew of two. Floats are provided on the landing carriage to permit of a descent upon water.

CHARACTERISTICS.

	GOODRICH TYPE A.	CONNECTICUT TYPE B.
	(Rigging by belly-band.)	
Volume	80,000 cubic ft.	75,000 cubic ft.
Length	167 ft.	156 ft.
Width	33 ft.	35 ft.
Height	50 ft.	45 ft.
Total h.p.	100	
Engine	Curtiss OXX-2	Hall-Scott A-7a
Airscrew	1 tractor	
Full speed	50 m.p.h	44-47 m.p.h.
Full speed endurance	10 hours	
Rate of climb	700 ft. per min.	
Static ceiling	7,000 ft.	

	GOODYEAR TYPE F (12).	GOODYEAR TYPE FA (12).
	(Rigging by finger patches).	
Volume	77,000 cubic ft.	84,000 cubic ft.
Length	160 ft.	163 ft.
Width	31.5 ft.	31.5 ft.
Height	45 ft.	45 ft.
Total h.p.	100	100
Engine	Curtiss OXX-2	Curtiss OXX-3
Airscrew	1 tractor	1 tractor
Full speed	45 m.p.h.	49 m.p.h.
Full speed endurance	10 hours	
Rate of climb	700 ft. per min.	
Static ceiling	7,000 ft.	

C CLASS (NAVAL).

C1—C15 (1919 and building, nine by Goodyear and six by Goodrich).

Coastal patrol airships designed for escort duties and submarine hunting.

These airships are not remarkable for any particular features, apart from demonstrating the practicability of applying the patch system of suspensory attachment to non-rigid airships of fairly large size. Finger patches are used in the Goodyear airships, and horseshoe patches in those built by the Goodrich Company.

The envelope has the same silhouette as that used for the British non-rigid airships, and is laid out upon analogous lines.

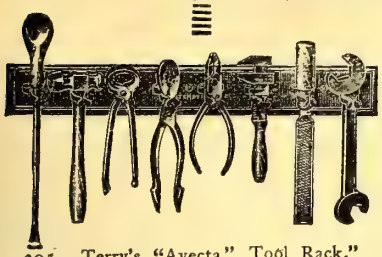
A large car is fitted with two engines mounted upon outrigger bearers towards the forward end, and twin propellers. Ample accommodation for the comfort of the crew is provided.

The air supply system for maintaining pressure in the ballonets consists of two blower pipes in the wake of the propellers. The bore of these pipes appears to be small, in view of the size of the airship, probably indicating a slow rate of descent.

A point of recognition is the large single vertical fin under the hull.

CHARACTERISTICS.

Volume	170,000 cubic ft.
Length	190 ft.
Width	43 ft.
Height	54 ft.
Total h.p.	300



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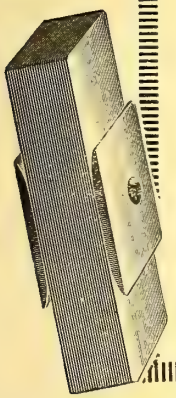

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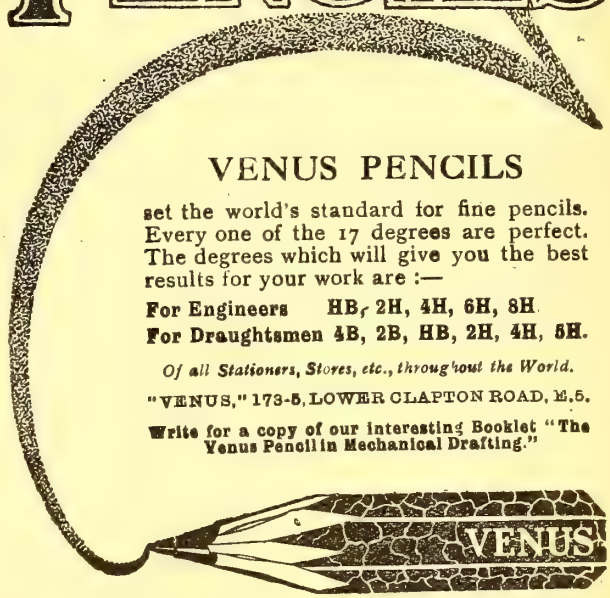

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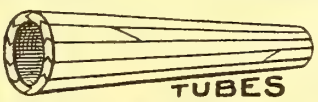

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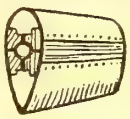

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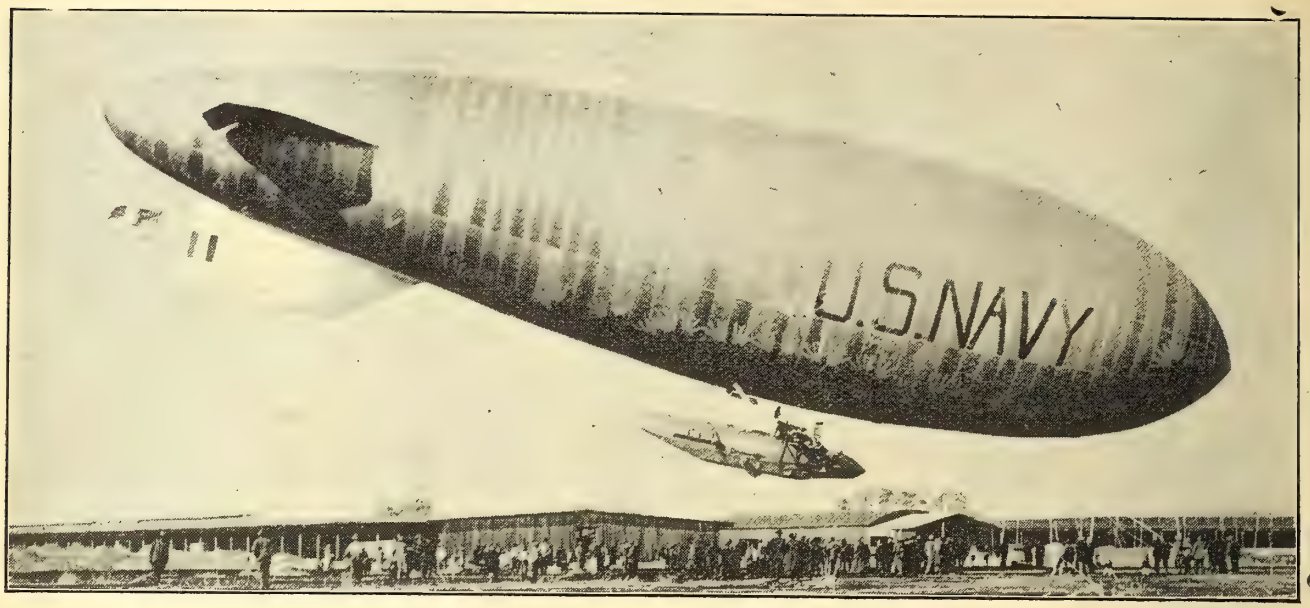

A "C" type Airship belonging to the U.S. Navy.

Engines	Two 150 h.p Hispano-Suiza.
Airscrews	2.
Full speed (alleged)	60 m.p.h.
Full speed endurance	10 hours.
Rate of climb	1,000 ft. per min.
Static ceiling	8,000 ft.
Complement	4.

D CLASS (NAVAL).

D1—D8. Building or to be built, five by the Goodyear Tyre and Rubber Company, Akron, Ohio, and three by the B.F. Goodrich Company, Akron, Ohio.

Medium-sized airships of the non-rigid type, intended for coastal patrol duties.

As in the case of the C class, the suspensory rigging is attached to the envelope by stuck-on patches.

CHARACTERISTICS.

Volume	180,000 cu. ft.
Length	198 ft.
Width	43 ft.
Height	54 ft.
Total h.p.	250
Engines	Two 125 h.p. 6-cyl. Union
Airscrews	2
Full speed (alleged)	60 m.p.h.
Full speed endurance	12 hours
Rate of climb	1,000 ft. per min.
Static ceiling	8,000 ft.
Complement	4

Description.—Non-rigid type, trimmed by ballonets; external rigging, to finger patch (Goodyear) and horseshoe patch (Goodrich). Designs of the Bureau of Construction and Repair, Navy Department.

E CLASS (NAVAL).

A refinement of the Submarine Scout class of small non-rigid airship. Actual figures as to the size of this type are not available, but it is presumed to be about 100,000 cu. ft.

The design of the envelope and the system of car suspension is based upon standard practice.

A point of interest is the large area of the balanced rudder and elevators, the shape of which is also distinctive. A top fin is fitted.

An air blower pipe in the slipstream of the propeller conveys air to the ballonets, and for use in emergency a power-driven blower is installed in the car.

The car has clean lines and is arranged much in the same way as a "pusher" aeroplane nacelle. An undercarriage, equipped with floats, is fitted at the after end, and under the nose of the car there are two small bumping bags.

The engine is a 150 h.p. Thomas.

OTHER COUNTRIES.

Beyond the nations hereinbefore mentioned none have carried out any airship work of note.

Japan is known to have possessed at one time a curious experimental airship of native design, and it is distinctly likely that during the late war she may have acquired small airships of Allied make and have reproduced them.

Otherwise, so far as can be discovered, the rest of the world has been absolutely inert in the matter of airships.

An Airship of the U.S. Navy's E class.

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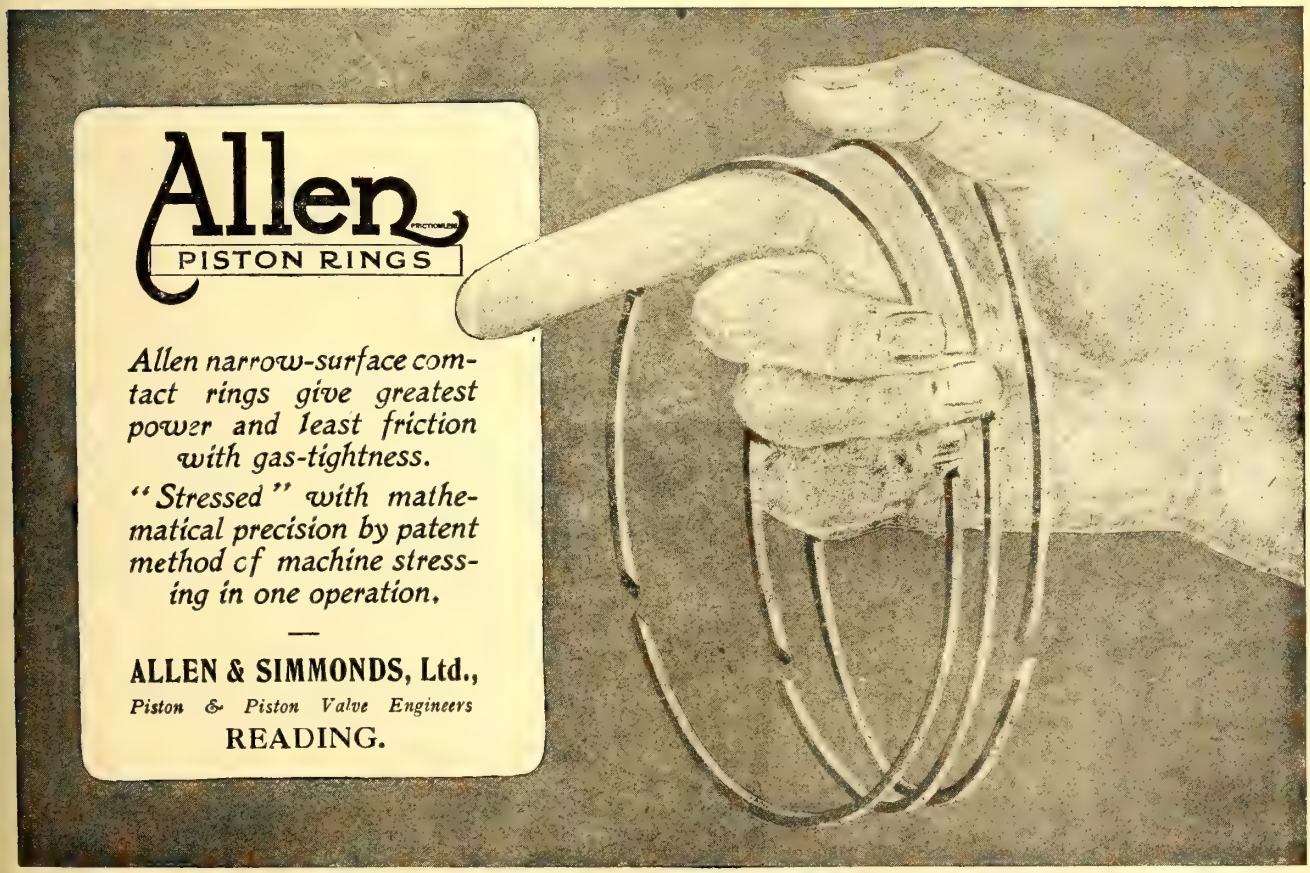


COMMERCIAL AERONAUTICS & CIVIL AERIAL TRANSPORT

NOTES OF THE WEEK.

GREAT BRITAIN.

THE OFFICIAL VISIT TO HOLLAND.

Sir Frederick Sykes, K.C.B., C.M.G., Controller-General of Civil Aviation, left Felixstowe for Amsterdam on Aug. 12th by flying-boat. The boat arrived at Amsterdam after a flight of one hour 55 minutes.

Sir Frederick officially visited the Amsterdam Aircraft Exhibition, and was received by General Snyders and the British Chargé d'Affaires, Mr. Robertson.

The following officers were among those who accompanied Sir Frederick in four other flying-boats:—Colonel Waterhouse, Major Bernard, Major Leslie, Major Clayton, Captain Burling, Captain Nowail, Captain Faux, Captain Mackworth, Lieut. Walsh, Lieut. Snelgrove, and Lieut. Tapper.

Although the boats had not flown the Atlantic the crews were entertained at an official lunch, and later at an official banquet. Despite this fact they were able to fly home two days later.

Sir Frederick and his party left Amsterdam at noon on Aug. 14th, and arrived at Felixstowe at 3.30 p.m.

THE LONDON-PARIS AIR SERVICE.

If the Civil Aviation Department gives permission in time, the Aircraft Transport and Travel, Limited, will start a daily aerial service to Paris on Aug. 25th, weather permitting.

The machines used will be of two types, the D.H.4a and the D.H.16, both with limousine fuselages. The former will carry two and the latter four passengers. Accommodation will be provided for one handbag per passenger. The machines will leave at 12 noon in each direction, weather permitting, and the average time of flight is estimated at 2¼ hours.

Parcels will be carried at 7s. 6d. per lb., but if arrangements are made to carry them regularly a substantial reduction to 3s. 9d. per lb. is made.

They will be accepted at the American Express Company, 6, Haymarket, S.W.1, till 10.30 a.m. daily, and at the Hounslow aerodrome till 11.30 a.m. daily.

Passengers and parcels will be taken in a motor from the company's office to Hounslow, and they will be similarly conveyed from the Le Bourget aerodrome to the Place de l'Opéra, Paris, and vice-versa. At first only one machine per day will make the journey each way, and therefore tickets must be secured in advance at the American Express Company or at any of the aerial booking agencies. The price for the single fare is twenty guineas.

Although the service is an experimental one, it will be continued for at least six months, and at all events much valuable experience will be gained. Both types of machines to be used have a cruising speed of 100 m.p.h. The Aircraft Transport and Travel, Limited, are out to prove that a small machine with a high speed is of very much more use in commercial flying than a large machine with larger capacity but a comparatively slow speed.

According to the "Times" of August 19th, Farman machines are to be used on a weekly service entirely for passengers. Carrying twelve passengers, they will fly from London on Thursdays and return from Paris on Fridays. If the demand requires it, further flights will be made.

The first ticket for the first trip has been sold by the Lepaerial Travel Bureau to Mr. Pinoli, the restaurateur.

FOR CLOSER ALLIANCE.

Waring and Gillow, Ltd., who control the Alliance Aerodrome Company, contemplate opening up aerial communication between their various houses upon the Continent and elsewhere. The London-Madrid flight was the initial trip.

A NEW AGENCY.

The London agency of the United Aircraft Engineering Corporation has been established at 123, Pall Mall, S.W.1. The president of the Corporation, Mr. F. G. Diffin, paid a short visit to this country for the purpose of establishing the agency, and has now returned to the United States of America.

The London agency recently purchased from the Disposal Board 98 D.H.6 machines with 90-h.p. Curtiss engines, and these are being offered for sale. A representative of THE AEROPLANE was informed that negotiations are now being made, but that so far no important sales have been completed. The price asked for the machines is in the neighbourhood of £300 each. Some of them may be exported.

It has been reported in the Press that a number of these machines have been sold to a concern called "The Yellow Taxi Co.," of Chicago. The report is unconfirmed, but it ought to be true.

The United Aircraft Engineering Corporation, which has its headquarters at 52, Vanderbilt Avenue, New York, has been in existence for the last two or three years, and has done much work in the construction of aerodromes, planning of aerial routes, and so on. At the end of this year the Corporation will begin the manufacture of aeroplanes and engines, which so far has not been undertaken.

A FALSE REPORT.

It was announced in the "Morning Post" last week that the Handley Page Company will start a regular passenger service between London and Amsterdam. Inquiries made by THE AEROPLANE show that this announcement is incorrect. Probably it is due to a misunderstanding as the Handley Page Company had under consideration the scheme of running a daily service between London and Amsterdam for visitors to the Amsterdam Aero Show. The scheme was dropped, however, when it was discovered that the aerodrome at Amsterdam was unsuitable for the purpose.

AN AERIAL TOUR.

A large Handley-Pape machine left Cricklewood on August 17th with seven passengers. The pilot is Major Tryggve Gran, a pre-war aviator and Antarctic explorer. The passengers are his wife, Capt. Steward, Capt. Meisterlin, a representative of the Royal Aero Club, and two mechanics

At a height of 10,000 to 13,000 ft. they crossed the Channel and landed at the Soesterberg Aerodrome, near Amsterdam, for lunch. They left there at 4.30 p.m. and landed on the Danish island of Langoland at 10 o'clock, where they spent the night.

At 8.30 a.m. on August 18th they proceeded to Copenhagen, where they arrived at 9.30 a.m. (75 miles). They were received with great enthusiasm by an enormous crowd.

After a stop at Copenhagen for a few days they intend flying to Christiania and Stockholm and back to England *via* the North Sea.

FREE FLIGHTS.

The "Daily News" is offering 175 free flights on Saturday, August 23rd, at the following places:—Cricklewood, 100; Southend and Hastings, 20 each; Great Yarmouth, 15, Cowes, Isle of Wight, and Paignton, 10 each.

On Monday, August 25th, they offer 15 free flights at Derby.

The flights at the Isle of Wight were postponed on Saturday, August 16th, until Tuesday, August 19th, on account of the weather.

BEXHILL.

On August 12th, Major Fowler, of the Easthourne Aviation Company, who was flying with a passenger in a seaplane, saw a girl bather in difficulties in the sea. He went to her assistance and brought her safely to shore.

BLACKPOOL.

Flying has proceeded as usual at Blackpool during the past week. The weather has been ideal for the "wakes" and large crowds gathered daily to watch the machines. The Avro five-seaters are doing the bulk of the work. The passengers seem to prefer these to the tandem seater.

BRIGHTON.

One five-seater Avro and two three-seaters made 70 flights during the week, ending Aug. 17th, taking up 172 passengers.

HARROGATE.

An Airco D.H.4a and a D.H.6 are taking up passengers at Harrogate, where joy-riding is quite a popular pastime.

HERNE BAY.

On the afternoon of Wednesday, Aug. 13th, an Avro machine flew from Margate to Herne Bay, where passengers were taken up. In future a machine will be available there twice a week on Wednesdays and Thursdays.

LONDON.

CRICKLEWOOD.—Handley Page, Limited, have now taken up nearly 3,000 paying passengers.

HENDON.—A D.H. 10a with Liberty engines, piloted by Capt. Gathergood, flew to Amsterdam on Aug. 14th.

It is now announced by the proprietors of the London Aerodrome that the Hendon-Brighton-Hendon Air Race arranged to

take place on August 30th and the Hendon-Manchester-Hendon Air Race arranged to take place on September 20th have been postponed. The new dates will be announced later.

HOUNSLOW.—The following cross-country flights were made in Avros during the week ending Aug. 17th:—Two each to Brighton and the Isle of Wight, and one each to Chatham, Hamble and Swansea. The machines made return journeys on every trip, except on that to Swansea. A five-seater Avro went to the Eastney Fair for four days and took up 388 passengers.

An Avro machine loaded with sixty brace of grouse was flown from Perthshire to Hounslow on August 12th in eight hours. The grouse were served at dinner the same night at Prince's Hotel, Piccadilly.

A Vickers-Vimy aeroplane carrying twelve passengers flew from Amsterdam to Hounslow on August 15th in three hours.

MARGATE.

A total of 232 passengers was taken up at Margate for the week ending Aug. 17th. Among the passengers was Dame Stancombe Wells, who is well known in Ramsgate. As several people desired to be flown to Folkestone, the Avro management arranged the trip.

NOTTINGHAM.

The big flying scheme for taking up between 2,000 and 3,000 passengers at Nottingham in the middle of September is maturing. The proceeds are to go to a local charity. It is intended to use "the Forest" in the centre of the city for the flights, which are being arranged jointly by Sir Jesse Boot and the Avro Co.

SOUTHAMPTON.

The Supermarine flying-boat daily service from Southampton to Bournemouth, which has been running for some weeks, was officially opened by the Mayor of Southampton on Saturday, August 16th. The mayor and other prominent Corporation members were given flights from the Royal Pier, Southampton Water.

SWANSEA.

During the week ending Aug. 17th, three three-seater Avros made 136 flights and took up 258 passengers. A daily flight was instituted to Llanwrtydd Wells. The machine lands in the grounds of the Abernant Hotel and takes up passengers during the day.

VENTNOR.

On August 12th the motor-launch service run by Messrs. Spencer Bros. was held up, owing to shortage of petrol. A supply of "Shell" was conveyed in a Supermarine flying-boat, enabling the service to be continued.

WESTON-SUPER-MARE.

One Avro machine took up 228 passengers for the week ending Aug. 17th.

A good many "would-be" passengers were disappointed on account of the numbers wishing to fly. A three-seater machine will be available this week, and will relieve the pressure somewhat.

WINDERMERE.

The Avro seaplanes have been very busy during the week, taking up passengers for two guineas a flight round the Lake. A trip of 15 minutes is given, that is about 10 minutes in the air, and four or five minutes on the water, as they do not rise or alight on the "Narrows" in front of the shed, owing to the crowded state of the water there.

The class of passengers who come here for flights consider, as a rule, that they get very good value for their two guineas, but one day a cheerful gentleman blew in and said that 10s. 6d. was his price for a flight. When Capt. Pixton told him that it could not be done for that, he expanded a bit and said that he would "gi'e another bob."

IRELAND.

The Great Northern Aerial Syndicate, Limited, of Liverpool, wrote to the Queenstown Urban Council asking to be put in communication with estate agents or landowners at Queenstown with land for sale within two miles of the town. They require 50 acres of land suitable for the accommodation of airships of 310 to 860 feet. Lloyd's List states that the larger airships are for trans-Atlantic service, and the smaller for local service.

CANADA.

Two American aviators, with the first permit ever granted by the Canadian military authorities, flew across the international boundary on July 12th on a visit to the Aerial League of the British Empire at Montreal.

Apropos the way in which aircraft are being used in Australia and Canada for rounding up herds of cattle, V. Steffanson, the Arctic explorer, is in the Canadian Rockies completing his report for the Canadian Government, and obtaining material for his book. On July 15th he was at Vancouver on his way to Banff. The explorer expressed the opinion that the herds of caribou in the northern lands were destined to solve the problem of a cheap and plentiful supply of meat for Canada.

The difficulties of rounding up the caribou in the country are very great, owing to its rough and frozen nature. The flocks could be easily herded by a flying machine of a type suitable for landing on water and snow.

An expedition has set out in a steamer for Battle Harbour, Labrador, with four Canadian training aeroplanes, to survey, explore, photograph and map the approximately two million acres of forest in the territory tributary to Battle Harbour. The boat was expected to leave Port Hastings, Cape Breton, on July 15th.

Capt. Daniel Owen, flying officer, R.A.F., is in charge of the expedition, and in addition to the pilots and mechanics there are wireless operators, surveyors, a naturalist, a medical officer, a surgeon, and a cinematograph photographer.

The base will be established at Battle Harbour, whence the machines will fly in pairs daily over the forests. Photographs will be taken with aerial cameras of the same type that were used during the war.

Estimates of the cost of the future development of the country will be made from the photographs and the data obtained by the surveyors.

The expedition is able to keep in touch with their offices at Boston by the wireless telegraph, and daily reports of their progress will be made. The project is financed by a syndicate of Boston bankers.

The entire aeroplane equipment was purchased from the United Aircraft Engineering Corp. of New York, the concern that recently purchased the entire flying equipment of the Royal Air Force in Canada. It was also noted in last week's issue of THE AEROPLANE that this corporation had bought 700 aircraft engines and a large number of aeroplanes from the Aircraft Disposal Dept., Ministry of Munitions.

Many famous aviators have entered for the New York-Toronto air contest. Among the Canadians are Col. W. A. Bishop, V.C., D.S.O., and Col. Barker, V.C. Col. Barker will fly over Toronto with H.R.H. the Prince of Wales, who is to be the starter. [Or perhaps he will not.—ED.] The race is to be held on August 25th.

CENTRAL AFRICA.

The Congo Mission of the Disciples of Christ have written to The Curtiss Aeroplane and Motor Corporation.

They are thinking of replacing their motor launches with flying boats for communication between their various stations.

They also wrote that small aeroplanes could land in the central streets of the native towns, which are straight, smooth and usually clear of grass and other obstructions, and not less than 100 feet wide.

[With American aeroplanes they would possibly be nearer Heaven, if farther from the Altitude Record.—Ed.]

FRANCE.

On Monday, Aug. 11th, the Farman "Goliath," piloted by Bossoutrot, flew from Paris to Casablanca with eight passengers.

By covering 2,050 kms. in 17 hours 25 minutes without a stop, the "Goliath" claims to have beaten all records for distance and duration for commercial aeroplanes.

In flying over Spain it was necessary to climb to 4,000 metres to get over the Sierra Morena and the Sierra Guadarama ranges.

On the 14th, at 11.30 a.m., the machine left Casablanca for Mogador, (300 kms.), which was reached at 1.20 p.m. It is proposed to complete the flight to Dakkar by night to avoid the disturbed air conditions which prevail in this part of Africa during the daytime.

The "Goliath" reported that she had passed Port Etienne at 3.30 a.m. on Aug. 16th. She then had only 375 miles to cover to reach Dakar. Up to Aug. 19th, no further news had been heard of her.

On August 13th, a Farman "Goliath," known as "Goliath II." (piloted by M. D'Ors), flew from Toussons-le-Noble, near Paris, to Copenhagen. Two passengers, a mechanic, and some diplomatic papers were carried.

A landing was made at Soesterburg, the Dutch military aerodrome, near Utrecht, and the journey was resumed next morning. The actual flying time for the 700 miles was 8¾ hours.

MM. Vaillement and Deniau arrived at Salonika on Aug. 14th, having flown from Marseilles *via* Naples. They left Salonika the following morning for Constantinople, whence they will fly to Cairo.

It is reported that a passenger service between Le Havre and Deauville is being effected by a "Zodiac" airship of 3,000 metres cubic capacity.

GERMANY.

The Deutsche Luft Fahrt Reederei, which started passenger traffic before the war with the Zeppelins Viktoria Luise, Hansa, and Sachsen, will start a regular service between Berlin and Friedrichshafen. On the Swiss lake a Swiss steamship company will run a connecting steamer service.

The voyage is to take seven hours, with a stop at Munich. It is understood that the airships are of a new model built exclusively for peace purposes.

The Hannoverische Waggenfabrik is to start a regular service to the Harz. The service will begin as soon as the works at Gosler are ready.

The Rumpler works in Augsburg inaugurated the first passenger flight in the Bavarian Alps. A regular service is being planned.

The first aerial limousine built by the Deutsche Flugzeugwerke has made its maiden voyage over Leipzig. The passengers are accommodated in an enclosed sound-proof cabin.

HOLLAND.

The Avro "Baby" which won the Sealed Handicap at the Aerial Derby in June has left Hamble for Amsterdam, where it will be exhibited at the E.L.T.A. Aircraft Exhibition. The pilot is Capt. Hamersley. Another three-seater Avro has also left, and Major McMinnies is also taking over a five-seater. This will raise the number of Avro machines at Amsterdam to a total of seven.

According to the "Nieuwe Rotterdamsche Courant" of Aug. 13th, the plans for aviation transport in Holland have begun to materialise. The Vickers Consortium have decided to join the originators of the scheme. The capital is to be 10 million guilders. The new company intends to organise a regular post and passenger inland service, and to connect this with England by means of a seaplane service.

The first projected routes are (1) Flushing-Rotterdam-Hague-Amsterdam-Groningen, (2) Flushing-Hertogenbosch-Arnhem and connections with Germany, and (3) Amsterdam-Utrecht-Arnhem-Maastricht and connections with the South.

The Combine proposes to be ready to start in 1920. The plans include the construction of an aeroplane factory, aerodrome, a flying school, and the necessary roads to connect—by motor-car—with the town or/and railway stations.

The Dutch correspondent of THE AEROPLANE writes:—

A usually reliable source states that the Dutch Government intends to negotiate for the acquisition of 24 Airco machines.

On July 21st the Nederlandsche Vliegtuigfabrick was founded in Amsterdam. The company proposes to build aeroplanes and make all spare parts, to trade in such aeroplanes, to establish or encourage the establishment of flying schools, aerodromes, landing grounds, and the exploitation of aeronautical exhibitions, etc. The capital is 1,500,000 florins. The director is A. H. G. Fokker.

The Nederlandsche Automobile en Vliegtuigenfabrick is taking a financial interest in the new company, but the works will continue to specialise in building motor-cars, although the Government orders granted to the company, which are at present in hand, will be fulfilled at the Trompenburg works.

It is understood that Mr. Fokker is at present building an entirely new type of passenger aeroplane different from those now in use, which are simply war aeroplanes fitted with seats for passengers.

ITALY.

In the August 6th issue of THE AEROPLANE it was noted that a Caproni biplane on a flight from Milan to Venice had crashed near Verona on August 2nd. The Italian correspondent of THE AEROPLANE writes:—

"The only idea now held is that the machine, as the result of overstrain or shock, disintegrated in the air, though the firm point out that the number of passengers (16) was not abnormal. Ocular witnesses, as is usual on these sad occasions, saw everything imaginable happen. The fact that parts of the machine were distributed over a radius of a mile, and that the bodies of the victims were all over the district, one even in the river and another totally missing, points to disintegration at a great height.

"Major Ercole, the new C.O. of the Verona camp, found half the propeller intact on its shaft, which he considers practically disposes of the supposition that an airscrew came adrift and cut up the tail of a fuselage, one of the first asserted causes of the accident. The firm are stated to be holding to the idea that an explosion occurred, though nothing was found singed or burnt."

Mario Stoppani's flight from Madrid to Rome *via* the Gulf of Lyons, Marseilles, Genoa, Pisa and Grosseto, some 1,200 miles non-stop in 11 hours on August 6th was a distinctly good performance. The machine was a SVA with 200 h.p. Spa engine.

Messrs. Nieuport-Macchi's M.1 has a two-storied or floored car. It took up 27 M.Ps. for a cooling trip round Rome the other day. Another member flew in a Sva. The never-contented are complaining that an opportunity was lost because nothing happened.

The Sicilian Auto Club has announced a seaplane competition to be held on September 14th. The route will be Palermo, Milazzo, Catania, Syracuse, Cape Passero, Marsala, Trapani, Palermo.

SPAIN.

Major de Havilland, flying an Airco machine with a Napier Lion engine, arrived in England from Spain on August 13th. He reported very successful demonstration work there, and thinks that there are great possibilities for aerial mail services in that country owing to the indifference of the railway services.

The train journey from Barcelona to Madrid takes twelve to fifteen hours. Major de Havilland flew the distance in 2 hrs. 25 min., and from Madrid to St. Sebastian (train, ten to twelve hours), in 2½ hrs.

SWEDEN.

Prince William of Wied's jewels and other valuables were dropped from an aeroplane in Sweden because the German banks were no longer willing to take the responsibility of keeping them.

According to Reuter, the German Dr. Stockhausen, who picked them up, said that there was no intention of deceiving the Swedish Customs authorities.

SWITZERLAND.

The Swiss aviators, Comte and Mittelholzer, on August 10th made a tour of the Swiss Alps by flying from Schwamendingen, near Zurich, over Lucerne, and the Bernese Alps, including the Finsteraarhorn, Jungfrau, Mont Leone, Mischabel, and Mont Cervin, landing at Lausanne.

In the afternoon they flew over Mont Blanc and the Matterhorn, landing at Bellinzone, and returned to Zurich a few days later, having covered a total distance of 1,200 kms.

The Italian correspondent of THE AEROPLANE writes:—

At Bellinzona, just over the Italo-Swiss frontier, active work on hangar building is going on. It is said that a service between that town and Zurich is shortly to be started.

A Concours, open to Military pilots only, is being held under the ægis of the Director of Swiss Aviation. The prizes are rich. As the nature of the country requires, attention is chiefly paid to landing manœuvres.

Tests of landing to be made by aviators of different stages of proficiency from the newly fledged to those having more than 10 months' flying experience.

Reports from Germany of go-ahead projects for transporting the Hun all over the land are apparently being taken au-pied-de-la-lettre by the Federal Authorities.—I. S. H.

UNITED STATES OF AMERICA.

When the 27th Division was returning to America on the Leviathan, an Aeromarine flying boat was flown ten miles out to sea and dropped upon the deck pouches containing messages of welcome to the American troops.

This demonstration convinced steamship officials of the practicability of speeding up trans-Atlantic voyages by releasing the ship immediately on loading and not waiting for the ship's papers to be fully prepared. The papers could be dropped onto the ship by an aeroplane when the ship was at sea, and thus many hours could be saved.

The White Star Line interested the U.S.A. Post Office Department, and an official experiment was decided up.

The "Adriatic" left New York for Southampton on Aug. 14th at 12.30 p.m. A flying boat left New York at 1.30 p.m. with 100 lbs. of late mail, caught up the liner and circled over it. A long weighted wire was let out from the flying boat, which manœuvred until the wire was caught by a cable stretched between the masts of the "Adriatic." The machine then dropped the other end of the wire, to which was attached a waterproof bag containing the mail. This fell into the water and was hauled aboard the liner.

The Pacific Aviation Company of San Francisco has established an aerial taxi service on the Pacific Coast.

Five hundred passengers have been carried already on a Glenn-Martin and a Curtiss machine.

The U.S.A. air mail service was placed upon an equal footing with all other means of mail transportation on July 18th.

The Postmaster-General has now fixed the postage at two cents an ounce, the regular postage rate for first class matter.

Arrangements are being made to put on the New York—Washington route the three fastest aeroplanes in the service. These have a capacity for 18,000 letters and a maximum speed of 132 m.p.h.

The New York-Chicago aerial service enables the department to save in train expenses more than twice the cost of the air mail service on that route.

The Curtiss Aeroplane and Motor Corporation has purchased the Atlantic City Airport. The airport is the official flying field of the Aero Club of America, the Aerial League of America, the Pan-American Aeronautic Federation, the Atlantic City Aero Club, and the National Aerial Coast Patrol Commission.

It is the only place in the world affording facilities for land and water aircraft practically in the heart of the city. It is also claimed to be the only flying ground in the world having five and ten kilometre courses marked with regulation towers as required by the International Aeronautical Federation for testing the speed of aircraft.

It has two frontages of 3,400 ft., and has a railway siding within 300 ft. Mr. W. W. Mountain, the vice-president and general manager of the Curtiss Company, has stated that one hundred thousand dollars will be spent to improve the airport and make it "the world's aeronautical show-window."

The WORLD of AERONAUTICS

NEWS OF THE WEEK FROM ALL QUARTERS

Further Honours for the C.A.S.

Those who take the trouble to study the "London Gazette" will have noticed that Air Vice-Marshal Sir Hugh Trenchard has been gazetted colonel of the Royal Scots Fusiliers. The honour is on both sides—the Royal Scots Fusiliers are honoured by having as their colonel the man whose handling of the Royal Flying Corps saved the British Army, and the Chief of the Air Staff is honoured by becoming colonel of the distinguished regiment in which he served as a subaltern.

A Deserved Reward.

The "Court Circular" of Aug. 12th announced:—

The King has been pleased to signify his intention of conferring a baronetcy of the United Kingdom on the following:—

William Joynson-Hicks, M.P.—Raised 17th and 23rd Service Battalions, Middlesex Regt. Public services.

Though this is ostensibly the reason for the honour thus deservedly conferred on Sir William Joynson-Hicks, one prefers to believe that the real reason is the service which he has rendered to aviation in general and to the Royal Flying Corps in particular by leading the various agitations which led to reforms of various kinds.

All those who have worked with Sir William in the cause of aviation will rejoice at this reward for good work.

Thoroughness.

When Major-General Sir Frederick Sykes was appointed Controller-General of Civil Aviation he expressed his intention of becoming a civilian, knowing as he did that some of the inefficiency of Service offices is caused by the false importance or subordinance given to individuals by a uniform. Sir Frederick has now been gazetted as having been placed on the Retired List of the Army and as having retired from the R.A.F., so that he becomes definitely a civilian in future. At any rate, his thoroughness in divesting himself of both Army and Air Force rank shows that he is very much in earnest.

The Abolition of Control.

Several papers state that all control over Civil Aviation is to be withdrawn, and that the Department of the Controller-General of Civil Aviation is to be abolished. While fully recognising the good work done by Sir Frederick Sykes in drawing up the International Aeronautical Convention, it would be hard to work up any real grief over the demise of his Department so far as the personnel is concerned. Apart from what he himself has done, one cannot trace any good thing which has been done by his Department, and one can certainly trace a good deal of harm. Civil Aviation needs a certain amount of control, but not of the kind from which it has suffered hitherto.

The "Times," which seems to have constituted itself Defender-in-Chief of the Civil Aviation Department, has been publishing a list of its achievements. Among the first of these it places the publication of a map showing the location of aerodromes. The accuracy of the work of the Department may be gauged by the fact that it showed Cattewater (Plymouth) as the terminal aerodrome in the West, omitting to mention that Cattewater is a seaplane station.

It is also alleged, in favour of the Department, that 40,000 people have been carried as passengers since the Civil Aviation Regulations came into being. One would be equally justified in claiming that they had been carried *in spite of* the Department.

Canadian Air Board Appointments.

The Air Ministry issues the information that the Canadian Civil Service Commission, Ottawa, state that a Canadian Air Board having been constituted, the following appointments have become available at the following initial salaries:—

	Per annum.
Secretary	$3,000
Supt. of Certificate Branch	3,600
Supt., Government Flying Operations	4,500
Medical Officer	2,400

All salaries are subject to annual increase. These appointments would be for three years, renewable, and candidates who do not secure appointments may be eligible for other positions under the Air Board, probably including the following:—Assistant Secretary, two Inspectors in the Certificate Branch (one for Pilots and Navigators, and one for Aeroplanes and Mechanics), a Flying Officer in Operations Branch, and an Equipment and Supply Officer in Operations Branch. Candidates selected must be willing to take the air.

Applications should be made to the office of the Director of Air Services, Canadian Air Office, Oxford Circus House, London, not later than Aug. 21st next. Preference will be given to Canadian citizens. Any R.A.F. officer selected must relinquish his R.A.F. Commission on appointment.

A Professorship of Aeronautical Engineering.

The Vice-Chancellor of Cambridge University gives notice that the election of a Francis Mond Professor of Aeronautical Engineering will take place at 3 p.m. on Friday, Sept. 26th, at the University Offices, St. Andrews Street.

Candidates for the vacant professorship are requested to communicate with the Vice-Chancellor, and to send such evidence as they may desire to submit to the electors, on or before Friday, Sept. 19th.

The Lord Advocate and Sir John Hunter.

There is a very pretty argument in progress between Mr. Clyde, Lord Advocate of Scotland, and Sir John Hunter, lately Chief of the Air Ministry's Works and Buildings Department. Sir John apparently thinks that certain people should be prosecuted for various alleged crimes, while the Lord Advocate says that a prosecution would fail for lack of evidence. On such a question it seems wiser to back the Lord Advocate, who may be presumed to know something about his job. One is inclined to wonder whether Sir John is quite infallible at his own work. There are some quaint stories about concerning his ideas as to the works and buildings necessary for the handling of seaplanes into and out of the water at seaplane stations, and if those stories are true the country is a good deal richer because the proposed works were never put in hand.

The Schneider Cup Race.

The following are the entries for the Jacques Schneider International Race to be held on Wednesday, September 10th:—

The Sopwith Aviation Co., Ltd. Sopwith biplane with 450 h.p. Jupiter Cosmos engine. Pilot, Mr. H. G. Hawker, O.B.E., A.F.C.

A. V. Roe & Co., Ltd. Single-seater float machine with Siddeley-Deasy 240 h.p. Puma engine. Pilot, Capt. H. A. Hamersley, M.C.

Supermarine Aviation Co., Ltd. Single-seater pusher-type flying-boat with 450 h.p. Napier Lion engine. Pilot, Squadron Commander B. D. Hobbs, D.S.O., D.S.C.

Fairey Aviation Co., Ltd. Fairey seaplane with 450 h.p. Napier Lion engine. Pilot, Lieut.-Colonel Vincent Nicholl, D.S.O., D.S.C.

The Royal Aero Club had at the time this issue went to press received no particulars of the three French entries. The Italian entry is a Savoia by the Societa Anonima Costruzioni Aeronautiche.

The Afghan Scandal.

It is alleged that the aeroplanes used in the brief Afghan War just concluded were "all more or less obsolete, having been sent out three years before." Yet the "Times," which makes this charge, is the paper which started the crusade to cut down the Air Force Vote to a sum on which it would be impossible to support an Air Force. Consistency is sometimes advisable, even in journalism.

What is Economy?

The Harmsworth Press is busy inveighing against those women war-workers who were its pet heroines during the war. The W.R.A.Fs. come in for more than their share of abuse as a Government extravagance. Somebody must cook and wash-up for the R.A.F. Which are cheaper at the work, women who know their job, or able-bodied men who don't, and who might be better employed doing a man's work?

A Useful Purpose Again.

On August 12th the last of the host of Air Ministry officials and clerks, beauteous or merely male, who have so enjoyed the late splendid war, evacuated their dug-outs at the Hotel Cecil, and have dug themselves in at Empire House, Kingsway. With unconscious humour someone remarked that the Hotel will now be put to a useful purpose again.

That German Aviette.

A story has been going round the Press, accompanied by a photograph, stating that a "motorless aeroplane" has been raised by man-power at the Templehofer Field, Berlin, to "a height of 50 metres." The machine shown in the picture is apparently the fuselage and undercarriage of the earliest type Fokker monoplane, fitted with gull-shaped wings of at least 25 feet span. The Germans claimed at one time to be supermen. One of them must certainly be a superman if this machine ever left the ground.

Anyhow, the machine cannot be "the first real flying machine," as the "Daily News" alleges, for Messrs. Weiss and Keith, as well as Mr. Kemp and Mr. Gnosspelins have already achieved some success with "flappers."

The WORLD of AERONAUTICS (continued)

A Photographic Officers' Dinner.

The first annual dinner of photographic officers of the R.A.F. was held on the night of August 11th at the Café Royal, Regent Street. Major F. C. V. Laws presided, and Lieut.-Colonel Moore-Brabazon, M.P., was present.

The Sale of Aerial Cameras.

The Disposal Board of the Ministry of Munitions announces that, from time to time, apparatus suitable for aerial photography will be available for sale.

Attention is also drawn to a quantity of cameras, plates, tripods, and other accessories, suitable for ground work, kinema cameras, together with a small quantity of films. The stock is in London, and information can be obtained at Caxton House, Westminster.

An Inquiry.

The inquiry into the relations of the British Cellulose and Chemical Manufacturing Co. and Government Departments has now been published, and it will cause general satisfaction to the Aircraft Industry to know that this sound firm has come out with flying colours. The Committee has expressed the opinion that "nothing amounting to favouritism of the company has been shown by the Aircraft Department." One now wonders if the investigation was prompted by people jealous of this enterprising firm's success.

The Case of Miss Douglas-Pennant.

The Select Committee appointed by the House of Lords to inquire into the dismissal of Miss Violet Douglas-Pennant from the Women's Royal Air Force met on Aug. 15th to consider their procedure. The Committee sat in private.

The chairman, Lord Wrenbury, afterwards said that the procedure the Committee had adopted was that Miss Violet Douglas-Pennant has been invited to lodge not later than four o'clock on Wednesday, Sept. 3rd, with the secretary of the Committee (the Hon. E. A. Stonor) at the House of Lords, a statement of her case. This statement is to be confined to the facts which she deems relevant, and is not to include the evidence by which she will seek to support her case.

Arrangements will be made by which any person who, in the opinion of the Committee, is interested, and who wishes to take part in the inquiry, may obtain a copy of this statement. Applications for a copy should be made not later than Wednesday, Sept. 3rd, to the secretary of the Committee, supported by a statement of facts sufficient to show that the person applying is a person entitled to receive a copy.

Any such person, who wishes to advance further facts, may (not later than four o'clock on Tuesday, Sept. 23rd) lodge with the secretary of the Committee as above a statement of such further facts (without the evidence as before). A copy of every such statement of further facts to be supplied to Miss Douglas-Pennant at her request not later than Tuesday, Sept. 30th.

The Committee will hear evidence upon the facts alleged in the several statements, or such of them as they deem relevant, and will not allow the parties (without special leave given by the Committee) to travel beyond those statements or so much of those statements as the Committee determine to be relevant. But the Committee reserve the right to hear any other party they think proper, and to extend their inquiry to any further matters which they deem to fall within the limits of their reference.

The inquiry will be held in public, the Committee reserving power to sit in private at any time they think proper. The parties will be heard by counsel if they so desire.

Sources of Information.

The following letter appeared in the "Morning Post" of August 15th:—

Sir,—Having regard to the publicity that has been given to this matter in the House of Commons and elsewhere, should not the fact that, as a public accountant, I found it necessary to resign my appointment as Honorary Chief Auditor of Works Accounts, Air Ministry, in December last, be brought to notice?

I was first associated with the Air Ministry, December, 1917, to March, 1918, as Chairman, Board of Financial Control, and subsequently as Adviser to the Finance Department

On being invited to rejoin the Ministry in May, 1918, I accepted the honorary position of Chief Auditor of Works Accounts, fully aware of the state of affairs in connection with aerodrome construction accounts, and only resigned when it became impossible to contend against the thinly disguised obstruction encountered. The experience I had of lack of administrative ability, and ignorance of the most elementary form of accounting on the part of responsible heads of departments was probably unique.

I placed the whole facts in connection with the matter before the Exchequer and Audit Department, and also the Treasury in February last, owing to the refusal of the Air Ministry to do so. Presumably the result of this action was the appointment by the Treasury of the Committee, under the chairmanship of Sir Maurice Fitzmaurice, referred to by Mr. Winston Churchill in the House of Commons on Tuesday last.

Surely there should be a proper inquiry in public to ascertain the facts, and to find out who has created the "Smoke Screen," quoting the Lord Advocate of Scotland, that has allowed an auditor to resign without comment or reference to the "Shareholders."—Yours, etc.,

ARTHUR C. ROBERTS.

9 and 10, Pancras Lane, Queen Street, August 14th.

[One is glad to see Sir Arthur Roberts thus assisting in clearing up the financial scandals of the Air Ministry, and one hopes that when Parliament assembles after the Recess he and his colleague, Mr. Bertram Jones, will take the matter further. Mr. Bertram Jones was also concerned with the Supply Department, and should be able to bring forward much information of high value to any Committee of Enquiry.—ED.]

A Souvenir of a Fine Flight.

On Saturday, Aug. 16th, H.M. the Queen of Spain accepted a gold cup as a souvenir of the arrival of the first commercial aeroplane to make a non-stop flight from London to Madrid on an Alliance aeroplane with a 450 h.p. Napier "Lion" engine. The cup was presented by the pilot, Capt. W. R. Curtis, R.F.A., and Mr. J. A. Peters. At the same time Her Majesty was handed a letter from her mother, Princess Beatrice.

Information Wanted.

Is it a fact that the Admiralty has recently placed orders on its own account for seaplanes "for experimental purposes" with one or two aeroplane constructors in this country? The rumour is very persistent, and if based on fact the act seems wholly commendable. The only thing that makes one doubt it is that it seems far too sensible a thing for the Admiralty to do.

The "Daily Express" Prize.

The "Daily Express" has received a cablegram from the Mayor of Johannesburg congratulating that paper upon its offer of the prize of £10,000 for reliability flights, South Africa and India.

The Royal Aero Club.

COMMITTEE MEETINGS.

A meeting of the House Committee was held on Aug. 12th.

A meeting of the Committee was held on Aug. 13th.

The following new members were elected:—Capt. John Alan Bott, M.C.; Major William Grahame Chambers, R.A.F.; Donald Robert William Gedge; Lady Sybil Grant, Lieut. Edgar Wikner Percival, R.A.F.; Lieut. Reginald James Read, R.A.F.; Major Henry Joseph Cecil Smith, R.A.F.; Capt. Francis Edward Fitzroy Smyth, R.A.F.; Lieut. Kenneth George Withers, R.A.F.

On the recommendation of the Flying Services Fund Committee, Col. C. R. Samson, D.S.O., was appointed to fill the vacancy on the Flying Services Fund Committee caused by the resignation of Col R. H. More.

THE BRITISH RECORD FOR SPEED IN A CLOSED CIRCUIT.

The following British record for speed in a closed circuit was granted:—

SPEED IN A CLOSED CIRCUIT.

Date.	Pilot.	Machine.	Motor	M.P.H.
June 21st, 1919.	Capt. G. H. Gathergood.	Airco 4.	Napier "Lion," 450 h.p.	129.3

THE JACQUES SCHNEIDER INTERNATIONAL RACE.

The following entries have been received:—

Great Britain.—Sopwith Aviation Co., Ltd., Kingston; Supermarine Aviation Co., Ltd., Southampton; A. V. Roe and Co., Ltd., Manchester; Fairey Aviation Co., Ltd., Hayes.

France.—Three entries (particulars not yet available).

Italy.—"Savoia."

The race will take place on Wednesday, Sept. 10th. The course is 200 nautical miles, exclusively at sea, in a circuit of about 20 nautical miles, embracing Bournemouth, Swanage and Christchurch

Messrs. S. E. Saunders, Ltd, of Cowes, have kindly placed their sheds and slipway at the disposal of the Club for the competing machines.

THE AUSTRALIAN GOVERNMENT £10,000 PRIZE FOR A FLIGHT FROM GREAT BRITAIN TO AUSTRALIA.

The following entries have been received:—Lieut. Bert Hinkler, Lieut. C. Kingsford Smith and Lieut V. Hendle, Mr. Harry Alexander Rigby, Alliance Aeroplane Co., Ltd., Martinsyde, Ltd.

The attention of the competitors is drawn to the following supplementary regulations:—

1. No start will be permitted until subsequent to September 8th, 1919.
2. Machines must have a flying range of at least 500 miles
3. A competent navigator must be carried, who may be the pilot.
4. Competitors must satisfy the Royal Aero Club that landing places are available.
5. At the request of the Australian Government it has been decided that the motor or motors may be changed en route.

AIR NAVIGATION REGULATIONS AND FREE BALLOONING.

The Royal Aero Club has received a letter from the Air Ministry stating that the revision of the Air Navigation Regulations as affecting Free Ballooning is under consideration

In the meantime, the Air Council will, on the application of the Club, consider any special exemption required.

COMING EVENTS.

AUGUST.

Amsterdam Aircraft Exhibition. (Still open.)

Thursday, August 21st.—R.A.F. Annual Athletic Meeting at Stamford Bridge.

Sunday, August 24th to Sunday, August 31st.—The "Avenir's" Tour de France Aérien is due to start.

SEPTEMBER.

Monday, September 1st.—Last day for presentation of British machines for the Schneider Cup Competition.

Wednesday, September 10th.—Schneider Cup Competition, Bournemouth.

DATES TO BE ANNOUNCED LATER.

Hendon-Paris-Hendon Air Race.

The "Daily Express" £10,000 Prize Competitions.

Hendon-Manchester-Hendon Air Race.

AIRCRAFT IN PARLIAMENT

HOUSE OF LORDS.

On August 14th, on the motion of Earl STANHOPE, the following were appointed a Select Committee to deal with the inquiry concerning Miss Violet Douglas-Pennant:—The Earl of Denbigh, the Earl of Kintore, Lord Methuen, and Lord Wrenbury. The noble Earl intimated that he had given notice that on the following day he should move the addition of Lord Glentanar to the Committee.

* * *

HOUSE OF COMMONS.

The following oral answers were given on Aug. 11th:—

FORCES OF INDIA (AEROPLANES).

Major-General SEELY, replying to Captain R. Terrell, said. Owing to transport difficulties there has been delay in supplying the forces of India with the required number of machines of suitable types. There has been adverse criticism on the types employed. We did not get the right type of machine for the purpose, but that is being remedied.

Major-General SEELY, replying to Mr. Billing, said: The officers responsible for selecting the types used were aware that machines which will fly in this country will not fly in India

* * *

The following written answer was given on Aug 11th:—

WOMEN'S ROYAL AIR FORCE.

Major-General SEELY, replying to Lieut.-Commander Kenworthy, said: The numerical strength of the Women's Royal Air Force at the dates mentioned by my hon. and gallant friend was as follows:—

	Officers.	Other Ranks.
Jan. 1st, 1919	545	24,911
July 1st, 1919	434	18,282
Aug. 1st, 1919	407	15,700

The force is being demobilised as quickly as circumstances will permit with the object of reducing the numbers to about 3,200, at which figure it is intended the post-war strength of the force shall be fixed.

* * *

The following oral answer was given on Aug. 12th:—

ANTI-AIRCRAFT SERVICE (GENERAL SERVICE MEDAL).

Mr. J. JONES asked the Secretary of State for War if he will reconsider the question of granting the general service medal to the members of the anti-aircraft service.

Captain GUEST: As I have already stated, the question of an award to those who served at home during the war is under consideration.

Mr. J JONES: Is the hon. and gallant gentleman aware that large numbers of these men were actually in danger, while some men who have the medal were never near the firing line and were never in any danger?

Captain GUEST: There is a certain amount of truth in what the hon. Member says. The men composing the committees considering the question have been in the operations and on home service during the war. The War Office has been largely guided by their advice.

* * *

The following written answers were given on Aug. 13th:—

CONTRACTS (SELECT COMMITTEE'S REPORT).

Mr. DAWES asked the Under Secretary of State to the Air Ministry whether he was aware that the Select Committee on National Expenditure have recently reported in connection with certain clothing contracts that (1) the replies given to them by Major Cockburn, R.A.F., were contradictory and unsatisfactory; that (2) they were unable to attach any credence to the statements made to them by Colonel Latimer, R.A.F.; and that (3) the replies given to them by Colonel Bersey, R.A.F., were very unsatisfactory, and that (4) this officer ignored the request of the Committee to come before them for further examination. (5) What are these officers' war records? Are they still on the active list? and (6) what action, if any, will be taken with the matter?

Major-General SEELY said that the answer to the first two questions was in the affirmative, and to the third the complaint was that Colonel Bersey did not attend at all and not that his replies were "very unsatisfactory."

As regards (4) a letter was sent from Colonel Bersey's solicitors explaining his non-appearance. The Air Ministry is not aware of anything in his conduct to show that he wishes to avoid examination. At present he is attending in London to give evidence before the O'Sullivan Court of Inquiry.

As regards (6) he could not make any statement until the findings of the above-mentioned Court of Inquiry were received.

In answer to (5):—

Major Cockburn was transferred from the Army to the Royal Air Force as from April 1st, 1918, and was employed at Headquarters up to Oct. 24th, 1918, first with the Directorate of Manning and then in the Directorate of Air Quartermaster Services. He was then transferred to Headquarters Midland Area, where he remained until he was demobilised on Feb. 21st, 1919.

Colonel Latimer was employed in an administrative position first at South Farnborough, and then at the Air Ministry, from Oct. 12th, 1916, until May 3rd, 1919, when he relinquished his commission.

Colonel Bersey joined the Service on Oct. 20th, 1917, and was employed in an administrative capacity under the Air Board and Air Ministry until Sept. 30th, 1918, when he was transferred to No. 7 Royal Air Force Reception Depot, where he remained until his transfer to the unemployment list on April 25th, 1919.

* * *

The following references to the Royal Air Force are abstracted from the debate on the third reading of the Consolidated Fund (No. 2) Bill in the House of Commons on August 12th:—

Major-Gen. SEELY made a statement which he had promised the House with regard to the expenditure of the Air Ministry and certain specific complaints.

Major-Gen. SEELY said that the point was constantly raised outside the House that we were extravagant in that we put up Estimates of £66,000,000 for the Royal Air Force. The great proportion of that amount was for the finishing of war contracts (we had arrangements to produce 50,000 aeroplanes per year), and it had no relation whatever to the ordinary Estimates for the Air Ministry.

At the time of the Armistice we had 30,000 officers, and 20,000 of these had been demobilised. We had then 264,000 cadets and other ranks, of which 203,000 had been demobilised; 210 aerodromes and landing-grounds had been given up out of 386.

The number of staff of the Ministry at the date of the Armistice was 806, it had now been reduced to 402. We had 2,145 hired premises and hotels; 1,927 had been given up, and 37 more were in process of being given up.

The number in the Women's Royal Air Force had been reduced by not quite half. They were going to be reduced to about 3,000 and would do all the work of domestic service, for which women were more suitable than men.

General charges of extravagance against the Air Ministry were constantly made. He asked that specific cases should be shown. Three such cases had been ventilated in the House and in the Press.

The first was the statement in a letter to the "Times" that aeroplanes were being recklessly destroyed and that most horrible waste was going on at Farnborough. He went down there and had never seen a business so well organised.

Major-Gen. SEELY said: "The officer in charge was a man who had made a speciality of salvage work, and had earned the thanks of his superior officers in France, owing to his great skill and the saving of millions of money to the public by his salvage."

Every part of an aeroplane that could be sold was collected and sold by auction or otherwise. The officer assured him that the business did just pay.

Major-Gen. SEELY said: "I am not sure that it will be found, when full accounts are made up, that it does not pay to go through this elaborate business, but at least we have saved tens of thousands, probably hundred of thousands of pounds, by the meticulous care shown by these people at Farnborough in the difficult art of breaking up an aeroplane and salving the parts."

The next case was the Air Ministry cars. There had been sixty-eight; now they had been reduced to twenty-two. There were thirty-three allotted cars for officers going to particular places. These had now been reduced to six. Sir F Banbury's Committee had investigated the question of the cost of these cars. A mistake had been made and it was assumed that the touring cars cost £2,700 a year to run, whereas that amount covered the total cost of 238 vehicles. He had been working out the cost of running a motor-car and believed it worked out at £593.

The next specific allegation related to Blandford. This case had been made much of by the Press and especially by the "Times." A letter which the "Times" made much of stated that the camp should not be there at all, that a railway should not have been built to it, that it costs 4s. 7d. a day to get the girls to work and that there appears to be as many lorries as there were when the camp was full.

Blandford had proved to be one of the healthiest places in England. The railway must have paid for itself over and over again in taking the amount of equipment and stores necessary for this huge depot which had to equip and send out 800 men a day.

The whole of the pay, pensions, gratuities and records of the men of the R.A.F. were done at the depot. The girls had to be kept to do the work. There was no room in the camp for them. It would have cost much more to move the depot. The cost of getting the girls to work was £4 5s. 3d. for three months, which worked out at 11.3d. and not 4s. 7½d. There were 133 lorries in use; there are now 33.

They were building up the new Air Force at the same time as they were reducing the old. In desiring to carry out his duty he had reduced too fast. He did not leave his office as a rule before eight. General Trenchard, General Sykes, and their officers were always there still. These men had been working for the last few months from ten to fourteen hours a day. They were gravely overworked.

Major-Gen. SEELY said: "I saw General Trenchard this morning and he said to me, 'I wish you would tell those to whom you speak that I long to hear any cases of extravagance.'"

It was sometimes definitely asked in the Press, "What is the good of the Royal Air Force? Is it worth while keeping it? Millions of money is unnecessarily spent on it." Already this year the R.A.F. had saved millions of money and thousands of precious lives. The Afghanistan rebellion of 1879 was fought with extraordinary skill by Lord Roberts, but it cost £14,000,000 and thousands of lives. This year a similar rebellion occurred, and two men knowing India well, Sir William Birdwood and General Sir O'Moore Creagh, the Commander-in-Chief in India, both said that aeroplanes shortened the war very considerably.

During the rebellion in Egypt all communications were cut for several days and all had to be carried by air. In 1882 Lord Wolseley crushed a similar rebellion in a couple of months, but it cost £1,800,000. The largest estimate of the cost of the work done by the Air Force in Afghanistan and Egypt worked out at £43,000 each. To this had to be added the cost of the other troops, but it has been said that bombing stopped the Afghan War and aeroplanes the Egyptian rebellion. It can be said that the Air Force has saved tens of millions of pounds.

The LORD ADVOCATE (Mr Clyde) said that the Renfrew aerodrome was contracted for by the War Office near the end of 1917. It was taken over by the Air Ministry and reconstituted on Feb. 8th, 1918. At the end of 1918 the Air Ministry became aware that the affairs of the contractor were in a state of extreme mismanagement. Some £50,000 or £60,000 had been spent for which there was no work to show. This sum of money was not to be the subject of contemplated criminal proceedings.

The only information lodged with his Department (the Criminal Department of Scotland) was in reference to proceedings for £286 4s. 5d. made up of paltry sums of £89 5s. 2d. and £196 19s. 3d.

In the middle of Feb. 1919, when the investigations were complete, it was obvious that any idea of prosecution for the first of these two sums must be abandoned.

Mr. CLYDE said: "The reason was that it was not possible to obtain evidence by which you could define particular entries in the accounts as being ungenuine, false or inaccurate." With regard to the second sum he had the inquiries exhausted as the evidence was exceedingly thin and the difficulties in regard to identification were very great.

The bookkeeping was in a state of confusion and could not be checked in an ordinary way.

Where work has to be done under dirty and disagreeable conditions, what is called dirty money is often paid to the men. In this case dirty money was paid for the dirty work done. It was entered in the wages sheet on the week succeeding the week in which the payments were actually made. Care was not taken to enter the amounts of the dirty money opposite the names of the men who received it. A very large number of men were employed on this work. That dirty money system was a very bad practice, but he came to the conclusion that there was nothing left of the criminal charge and wrote a letter to that effect to the Air Ministry on March 6th.

Sir JOHN HUNTER was grievously disappointed. Mr. Clyde had an interview with him in which Mr. Clyde told him that even if the prosecution for the £286 ended in success, which it would not, it would carry no distance at all to the recovery of the £50,000 or £60,000 which Sir J. Hunter thought to be lost. Mr. Clyde advised him to raise civil proceedings for the recovery of the £60,000.

Mr. CHURCHILL said that Sir D. Maclean had referred to the clothing contract case which is associated with the activities of Miss Douglas-Pennant. He had been trying to induce her to state a case for inquiry on any charge of corruption or immorality without success. But charges had been made by a Miss O'Sullivan in regard to a particular contract, and an inquiry was ordered on the moment that those charges were made. That inquiry is taking place now, and will be made public.

In regard to the Renfrew aerodrome, one of the allegations was that a military officer who was involved in the proceedings was not tried by court martial on the demand of Sir John Hunter. The officer was a Canadian lieutenant employed under the Air Ministry in Sir John Hunter's department.

Mr. CHURCHILL said: "Sir John Hunter wrote to the Adjutant-General to demand that the officer should be placed under arrest, but the reason he gave was this: 'I am unable to formulate any definite charge against him under civil or criminal proceedings, but I demand that he shall be placed under arrest.' The Adjutant-General, not unnaturally, refused to take such a step against a Canadian officer, who is to a very large extent, except in case of emergency, outside the War Office jurisdiction, unless there is the prosaic formality of a definite charge in the first instance."

This officer was detained by the Canadian authorities at their request for upwards of three months, until the Crown Council in Scotland and the Lord Advocate's Office definitely reported that no charge against him could be made the subject of a criminal investigation

When Mr. Churchill became responsible for the Air Ministry in January he had many misgivings about the state of the aerodrome works finance and contracts of the Air Ministry. At the end of February Sir James Stevenson drew his attention to the state of the finances and accounting. He was advised to appoint Messrs. Price, Waterhouse, and Company, one of the best firms of chartered accountants in the country, to make a special expert investigation into the whole of this subject.

He expected that the staple topic of the Report of the Committee of National Expenditure would have been on this investigation, which had been in operation for four or five months. Instead a very large proportion of the Report was occupied by the somewhat sensational evidence given by Sir John Hunter, which, as the Lord Advocate has shown, related not to £60,000 as was apparent from the Report, but only to very much smaller sums.

Mr. CHURCHILL next spoke on the subjects of Army and Air Force finance.

He said that it has been arranged with France that by Oct. 31st our forces on the Rhine will be reduced to the dimensions of a strong brigade, four or five thousand men. The Air Force will be reduced to the dimensions of a single squadron. The expenditure this year depends upon what is happening, but that of 1920-21 should depend on policy, and that is still in the hands of Parliament and the Cabinet. They can decide on the size of the Army and the Royal Air Force, or how much they will spend on each.

We had practically no Air Force before the war, and at the end of the war we had the finest Air Force in the world The demobilisation of the Air Force has gone faster than that of the Army. Since the Armistice the Army has been reduced to about a quarter and the Air Force to about a fifth.

With regard to the permanent structure of the Air Force, he said he had instructed Sir Hugh Trenchard that he must provisionally frame his scheme within £25,000,000 a year, which is equal to something less than £12,000,000 a year at a pre-war basis. An earnest and resolute effort must be made to reduce the costs of the national Government. "I believe that it will be found, in these four or five years after the war, that the best course for the armed forces of the Crown is to aim at scientific progress and quality rather than mere numbers or instant readiness for action."

Mr. WALLACE said that when the Air Ministry demanded over £60,000,000 for a year of peace for the Air Service the Chancellor of the Exchequer should have had it reduced by at least 50 per cent. or resigned his office. He continued:—

"I read wonderful accounts in the newspapers of what the Air Ministry is doing. I saw the account the other day of a wonderful new airship which the Air Ministry had ordered. It took 200 men to bring this airship safely to land. A statement of that sort leaves me very cold. I am not uninterested in the development of aviation It would interest me more, however, very much more, if I saw 200 men in this House banded together determined to bring to earth Government Departments who at the present time are floating, complacently and buoyantly, in an atmosphere of extravagance!"

He hoped that the Prime Minister would take this matter of retrenchment in hand. Commercial firms should develop commercial flying, and the Government should let it alone.

Mr. RAPER: "So far as the Air Force is concerned, I will simply say that I hope the Government will see their way to allow ex-Air Force officers and mechanics to volunteer for service with General Judevitch, and that the Government will see their way to grant these officers and men the necessary facilities and permission and to supply General Judevitch with the necessary machines and equipment. I suggest this as one means of assisting Finland and of strengthening her position as the bulwark of Western Europe against the poisonous flowing flood of Bolshevism."

* * *

The following oral answers were given on Aug. 14th:—

ROYAL AIR FORCE (ESTABLISHMENT).

Major-Gen. SEELY (Under Secretary of State for Air) replying to Mr. BETTERTON said that the saving which could be effected in expenditure by a revision of the R.A.F. establishment was under consideration and a provisional establishment has been drawn up which shows very substantial reductions. The results will be embodied in the Air Estimates.

SUFFOLK AERODROMES (RELEASE OF LABOURERS).

Major-Gen. SEELY replying to Lieut.-Col. GUINNESS said that the number of men employed on the removal of surplus material at Aldeburgh and Orfordness has now been reduced to six and thirty-three, respectively. Any bona fide agricultural labourers amongst them are to be immediately released for work on the land. In addition forty men, including some local labour, have been employed by the Air Ministry on the very urgent work of repairing sluices and sea-walls, which should be finished in about a month from now. He was not aware that Sir J. Hunter had these places in mind when he referred to the 70,000 men whom he described as not having earned their money.

Major-Gen. SEELY replying to Lieut.-Commdr. KENWORTHY said that the two aerodromes were started long before the war and not to meet the submarine menace.

COMMERCIAL AIRCRAFT (COMPETITIVE DESIGNS).

Lieut.-Col MALONE asked the Under Secretary of State to the Air Ministry whether it was proposed to hold a competition for commercial types of aircraft; and, if so, when particulars would be published.

Major-Gen. SEELY: Yes, Sir. During the war the paramount necessity in aircraft design was military efficiency, but for the successful development of aviation the first essential is safety. The Government have accordingly decided to institute a competition with a view to obtaining a type giving greater safety. Any machine which succeeds in qualifying will represent a great advance in respect of safety and comfort over any machine at present in use.

The Treasury have agreed to the competition, and I am sure that, even at this juncture, the House will not grudge the funds for the prizes. Prizes will be offered for three types of aircraft—a smaller aeroplane, a larger aeroplane, and a seaplane, respectively. In addition to the advantage to civil aviation the lessons learnt will be of the greatest value to the Royal Air Force.

The precise terms of the competition will be announced in a few days. If all the competitions are won, the amount required for prizes would be about £4,000.

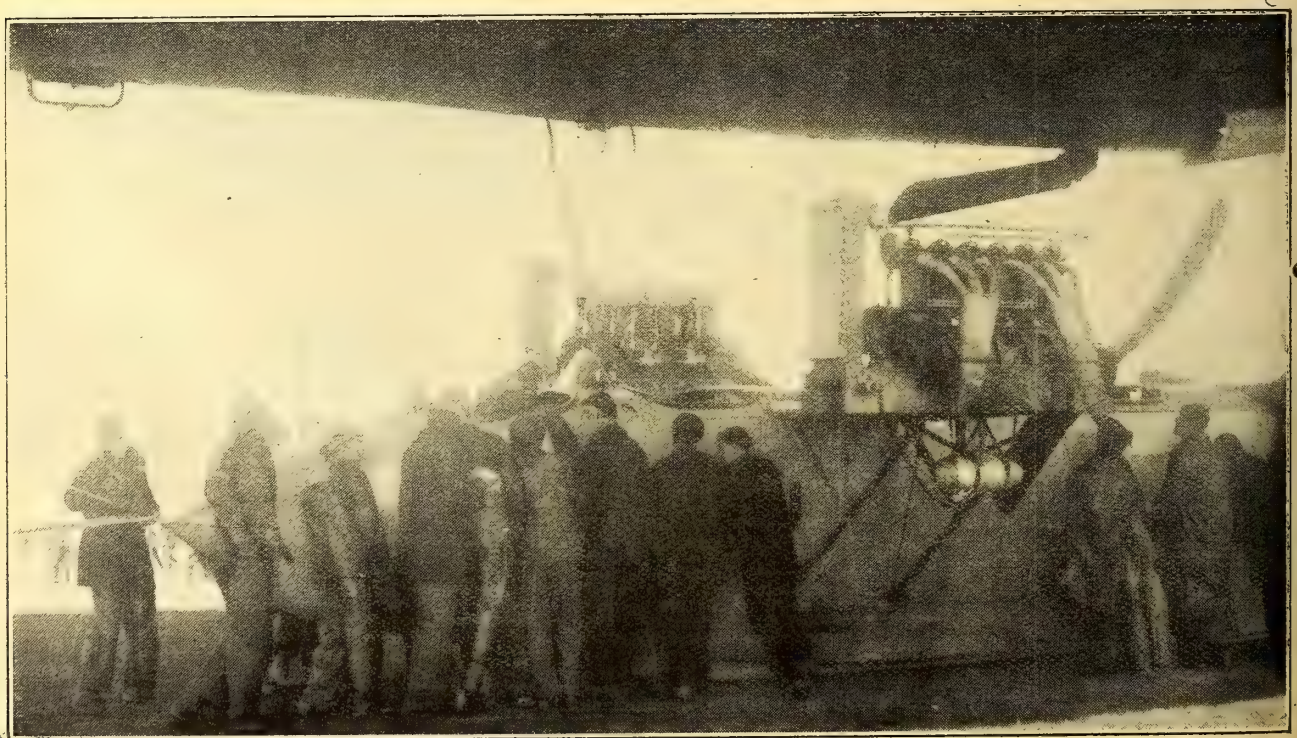
The following written answer was given on Aug. 14th:—

BRITISH ARMY AND AIR FORCE (STATISTICS).

Mr. FORSTER replying to Major FARQUHARSON said that the number of men who have served in the Army and Royal Air Force from the beginning of the war till Nov, 1918, was 5,756,252; the number discharged or demobilised to the end of July, 1919, was 3,719,050, and the number discharged invalided to the end of July, 1919, was 722,903. These figures do not include the R.N.A.S.

CONTRACTS (SELECT COMMITTEE'S REPORT).

In the last issue of THE AEROPLANE oral answers on the above subject were taken from the "Times." The date on which they were given was stated by error as Aug. 4th. They were given on Aug. 11th.



The Power Plant and Car of an American C Class Naval Airship.

NAVAL & MILITARY AERONAUTICS

GREAT BRITAIN.

FROM THE COURT CIRCULAR.

BUCKINGHAM PALACE, August 12th.

Lieut. W. A. Coryton (R.A.F.) had the honour of being received by The King.

NAVAL.

ADMIRALTY, August 11th.

The King has been pleased to give directions for the following appointments in recognition of services during the war :—

O.B.E. (MILITARY DIVISION).

Lt. J. R. P. Clarke, R.N.V.R.—For valuable services in the Anti-Aircraft Corps.

Comdr. G. Grenville-Grey, R.N.V.R.—For valuable services in the Anti-Aircraft corps.

Lt.-Comdr. I. D. C. Howden, R.N.V.R.—For valuable services in the Anti-Aircraft Corps.

M.B.E. (MILITARY DIVISION).

Actg. Gnr. E. D. Lamb, R.N.—For valuable services in the Anti-Aircraft Corps.

ADMIRALTY APPOINTMENTS.

The following appointments have been made :—

AUG. 12th.—Wt. Mech.—H. A. Woodman, to "Argus," Aug. 11th.

AUG. 14th.—R.A.F.—Lt.-Col.—R. E. Peirce, D.S.O., A.F.C., to "Queen Elizabeth," as Fleet Flying Officer, on staff of Commander-in-Chief, Atlantic and Home Fleets, June 15th.

AUG. 16th.—Sub-Lts. J. M. D. Hunter and E. E. Norse to "Furious," Aug. 15th.

* * *

It is announced that Admiral Sir Doveton Sturdee, Commander-in-Chief at the Nore, with the approval of the Air Ministry, has cancelled the orders issued by him in March, 1918, under the Defence of the Realm Regulations, prohibiting approach to the air stations at the Isle of Grain, Eastchurch, Leysdown, Manston, and Westgate, and the Kite Balloon Station at Sheerness.

MILITARY.

FROM THE "LONDON GAZETTE."

WAR OFFICE, August 11th.

REGULAR FORCES.—Gen. List.—To be temp. Sec. Lt. :—Actg. Serjt. G. I. Godwin, R.A.F., while empld. as an Officer Instr., July 28th.

INFANTRY.—E. Surr. R.—J. W. Squire (temp. Sec. Lt., R.A.F.) to be temp. Sec. Lt., Feb. 15th, with seny. Oct. 31st, 1917 (since promoted temp. Lt.).

OVERSEA FORCES.—CANADA.—Can. Engrs.—Temp. Capt. H. S. Quigley, M.C., C.M., ceases to be secd. for duty with the R.A.F., July 5th.

EASTERN ONTARIO R.—The following temp. Lts. cease to be secd. for duty with the R.A.F. :—S. B. Nelson, W. G. Jewitt, July 24th.

W. ONTARIO R.—Temp. Lt. W. P. Harris ceases to be secd. for duty with the R.A.F., March 10th.

ALBERTA R.—Temp. Capt. F. R. McCall, D.S.O., M.C., D.F.C., ceases to be secd. for duty with the R.A.F., June 23rd.

BRIT. COLUMBIA R.—Temp. Capt. (actg. Maj.) P. A. Landry, O.B.E., ceases to be secd. for duty with the C.A.F. as Liaison Officer, May 15th; Temp. Capt. H. R. Denison ceases to be secd. for duty with the R.A.F., June 18th (substituted for "Gazette" notification, July 3rd, page 8,377).

CAN. MACH. GUN CORPS.—Temp. Capt. F. R. Alford, M.C., ceases to be secd. for duty with the R.A.F., July 27th.

CAN. FORESTRY CORPS.—Temp. Lt. W. A. Scott ceases to be secd. for duty with the R.A.F., May 31st.

CAN. AIR FORCE.—Temp. Capt. D. R. MacLaren, D.S.O., M.C., D.F.C., British Columbia R., to be temp. Capt., May 22nd.

SASKATCHEWAN R.—Temp. Lt. H. B. P. Boyce ceases to be secd. for duty with the R.A.F., April 15th.

TERRITORIAL FORCE.—INFANTRY.—7th Bn. Hampshire R.—Sec. Lt. K. L. Bulkley (Lt., R.A.F.) to be Lt., and to remain seconded, Sept. 1st, 1918.

WAR OFFICE, August 12th.

REGULAR FORCES.—INFANTRY.—N. Staff. R.—Lt. H. S. Shield, M.C. (attd. R.A.F.), resigns his commn., Aug. 13th.

WAR OFFICE, August 13th.

REGULAR FORCES.—COMMANDS AND STAFF.—ATTD. TO THE GENERAL STAFF.—Station Accountant Officers, Class GG.—To be temp. Capt. while so empld.—Lt. A. V. Faulks, R.A.F., July 16th.

WAR OFFICE, August 14th.

REGULAR FORCES.—Hdqrs. of Admin. Servs. and Depts.—Station Accnt. Officers, Class GG.—And to be temp. Capts. while so empld. :—Lt. R. Whyte, R.A.F., June 20th; Temp. Lt. E. Oliver, M.C., M.G. Corps, Aug. 1st.

REGULAR FORCES.—OVERSEAS FORCES.—Canada.—Can. Art.—Temp. Lt. T. I. Findley, M.C., ceases to be secd. for duty with R.A.F., July 31st.

NOVA SCOTIA R.—Temp. Lt. H. N. Price ceases to be secd. for duty with R.A.F., July 31st.

QUEBEC R.—Temp. Lt. J. E. Cole ceases to be secd. for duty with the R.A.F., July 31st.

MANITOBA R.—Temp. Maj. J. A. Dennistoun ceases to be secd. for duty with the R.A.F., June 9th (substituted for "Gazette" notification, May 30th).

SASKATCHEWAN R.—Temp. Lt. A. H. Bill ceases to be secd. for duty with the R.A.F., July 30th (substituted for "Gazette" notification, July 30th, page 9817).

ALBERTA R.—Temp. Capt. M. K. Ryan ceases to be secd. for duty with the C.A.F. as Capt., Technical, Aug. 4th.

BRIT. COLUMBIA R.—Temp. Lt. W. E. Lambert ceases to be secd. for duty with the R.A.F., July 31st.

WAR OFFICE, August 16th.

REGULAR FORCES.—ESTABLISHMENTS.—R.F.C.—Mil. Wing.—Equipment Officer, 2nd Class.—Capt. E. H. J. Visct. Falmouth, C. Gds., Spec. Res., vacates his appt., July 2nd, 1918.

OFFICIAL COMMUNIQUÉS.

The following communiqué was issued at Simla on August 11th :—

We bombed the Wazir camp at Miranshah on the 9th, inflicting some casualties.

An aeroplane reconnaissance on the 10th reports no enemy between Murgha and Fort Sandeman.

* * *

On August 13th, British aeroplanes again bombed the fortress of Kronstadt. Hits were observed.

* * *

The Finnish General Staff states that two British aeroplanes crashed at Koivisto. The casualties resulting therefrom are unknown.

* * *

It has been reported by the newspaper "Helsingen Sanomat" from the usual unreliable source that the town of Olonetz has been bombed by the British aeroplanes. The source of this information, a fugitive from Petrosavodsk, said that leaflets stating that the British were arriving at the last-named town on August 20th were also dropped.

AIR FORCE.

FROM THE "LONDON GAZETTE."

AIR MINISTRY, August 8th.

DENTAL BRANCH.—G. Packman is granted a temp. commn. as Capt., Aug. 1st.

The following are granted temp. commns. as Lts. :—P. E. Bernard, R. H. More, Aug. 1st.

CHAPLAINS BRANCH.—The Rev. H. E. Ruddy, M.A., is transferred to unempld. list, July 28th.

MEMORANDA.—The following Overseas Cadets are granted temp. commns. as Sec. Lts., with effect from Feb. 15th, and relinquish such commns. with permission to retain the rank, from the day following termination of the standardised voyage in the case of those claiming immediate repatriation and from the day following demobilisation in England in all other cases :—452046 A. F. Cook, 18279 I. C. Lowry, 87202 F. W. Mansell.

The following Cadets are granted Hon. commns. as Sec. Lts. :—178758 R. A. C. Mitchell, Dec. 4th, 1918; 37392 R. F. Fletcher, 175174 L. R. Harris, 25051 G. F. Moss, 175478 W. R. McKinley, Dec. 6th, 1918; 171893 D. A. Turnure, Dec. 14th, 1918; 113225 C. A. Bristow, Jan. 8th; 176169 C. F. Ball, 175081 C. A. Boulter, 175182 D. H. Evans, 100301 J. S. Kirk, 175758 L. Leffler, 176253 F. W. Logan, 176357 C. W. Savage, 175157 J. A. J. Thompson, 175625 G. E. R. Williams, Jan. 16th; 177190 H. Aubert, 176205 A. E. Baker, 178410 W. J. Barrett, 176741 P. J. T. Bates, 175367 F. Bennett, 177399 W. H. R. Blankley, 137416 J. L. Bott, 177614 V. K. Bowker, 178614 I. C. Boyes, 155154 J. A. Bridger, 127854 E. A. Brown, 177682 H. J. Brown, 142307 T. Cairns, 177090 H. L. Calder, 177483 J. Campbell, 177236 W. P. Cartwright, 177811 W. H. Chaick, 176752 R. S. Charlesworth, 175247 G. S. Cheshire, 175998 V. M. Clare, 177096 L. E. Clubb, 177254 C. A. Clark, 178748 L. Coleman, 177522 D. W. Cutler, 156504 F. Dann, 177567 W. R. Davies, 176762 P. Dean, 176072 B. R. C. Durrage, 177921 E. A. Dutton, 177406 W. Eadie, 177527 J. Edwards, 177480 P. A. D. Edwards, 177161 F. H. Evans, 177493 R. E. Ferris, 177691 H. W. Fryer, 177167 C. R. Gardner, 175920 T. C. C. Garrett, 177130 F. R. Hardley, 177531 J. M. C. Hardstone, 176624 L. J. R. Harris, 177324 R. G. E. Harvey, 177053 A. Hicking, 177633 F. J. H. Hill, 128479 A. E. Hoath, 177054 T. Holloway, 176036 W. Holman, 177459 A. H. W. Holt, 177009 T. M. Hough, 177272 J. R. B. Howlett, 177277 W. J. Hughes, 176094 E. T. F. Hunt, 177325 R. S. Hutchins, 178776 L. C. Ingram, 177046 J. A. Issett, 177602 L. M. James, 177656 O. L. Jones, 177212 A. Kay, 177667 S. Kendrick, 175274 A. D. Kirkbridge, 177415 E. T. Lambeth, 177541 G. Manchester, 123301 G. J. Matthews, 177450 A. Metcalfe, 175834 H. W. Mills, 110652 F. G. Moody, 175071 W. C. Mortimer, 177036 R. D. Mould, 177232 J. R. Norris, 177751 J. H. Offer, 177019 E. R. Osler, 176910 R. Parker, 177023 T. E. Rose, 177305 A. P. Stevens, 176703 W. J. Stockdale, 178390 M. C. Stone, 176986 E. C. Vere, 177344 P. H. White, 177681 G. Whittington, 176466 C. G. Wilkinson, 176289 G. A. Williams, 176899 E. A. Wood, 177186 I. Wynne, 177039 T. J. Yoreth, 177911 W. L. Young, Jan. 17th; 126381 C. Turner, Jan. 23rd; 137307 W. D. E. Clayton, 110811 T. H. Dyson, 175750 F. J. Jordan, Jan. 25th; 110100 C. C. Emmett, Jan. 26th; 175611 A. J. Macfarlane, 175086 A. W. Strutt, 158038 W. R. Tucker, 200829 G. S. Westmucket, Jan. 27th; 128061 H. M. D. Davis, Jan. 30th; 117709 A. J. Davis, Feb. 1st; 128568 A. Bowman, 128903 G. F. Constable, Feb. 3rd; 200194 R. P. Bostock, 93514 M. H. Brooks, 117863 J. J. Chantry, 127305 J. M. Caldicott, 2411 A. T. Davis, 176921 B. Dodd, J. J. Macnamara, 176030 E. C. Read, 204615 W. J. Reed, 177338 H. F. Tressider, Feb. 4th; 175240 C. M. Bethune, 203031 W. S. Eales, 117175 F. C. Edwards, 77505 H. B. Moon, Feb. 6th; 276770 W. Johnson, Feb. 8th; 38241 G. I. Blow, 175179 A. B. C. Duncan, 137383 C. E. A. Griffin, 244544 L. J. D. Henly, 203146 P. Hough, R. A. Jago, 28282 F. H. Kidd, 175137 L. D. Knight, 110525 R. Robertson, 434 L. T. Smith, 175007 H. C. Staight, Feb. 9th; 110093 A. R. Clacher, Feb. 11th; 176268 H. T. Ollerenshaw, Feb. 12th; 177730 P. W. Brown, 178615 G. R. Brierly, 170135 W. H. F. Bailey, 178591 B. E. Clark, 181344 H. C. Donaldson, 179192 N. L. Derham, 175689 H. A. E. Drescher, 177259 J. A. Denholm, 178752 T. C. Edwards, 179400 C. F. Foreshaw, 150075 G. C. Farley, 178816 E. C. Goodson, 179438 S. H. Harries, 178648 F. C. Kirkpatrick, 179892 B. P. Lord, 177539 S. C. Luck-Horam, 179278 B. L. Middleton, 178924 A. V. Pearson, 179241 F. W. Patterson, 180857 W. G. Pearce, 178227 A. C. W. Stephens, 117568 A. V. Stedman, 178838 E. C. Wood, March 19th; 178133 J. Baggulley, 180748 F. R. Elvy, 177711 W. G. Falconer, 100252 C. J. W. Faulkner, 200645 R. Gibson, 181085 W. C. Hayden, 180826 S. E. Hancock, 179252 G. B. Holmes, 176678 A. James, 177785 H. R. J. Jones, 176046 A. H. Jones, 178114 N. R. Law, 181931 A. M. McGill, 178829 F. R. Pickworth, 180694 W. Swift, 177830 H. Swift, 180700 S. B. Ward, 180701 E. V. Ward, 238476 A. S. Williams, March 20th; 175238 J. L. Arnott, 181173 F. E. Chapman,

180877 R. C. Cornelius, 178256 L. Griffiths, 177588 A. G. Giles, 176180 A. J. Holt, 181130 L. E. Hough, 177715 T. C. Hare, 178823 C. F. Jenkins, 179256 H. B. Jenkins, 177569 C. Kenyon, 178584 H. Kingham, 177282 F. B. Mitchell, 202510 S. C. Stead, 179427 C. Verbin, March 21st; 180651 F. W. Bullock, 128623 D. Graham, 176042 S. H. Potter, March 24th; 179018 J. R. Birch, 117956 J. W. Briscoe, 178973 A. Burgess, 178912 H. H. Butler, 206208 G. D. Carter, 176322 T. H. Copre, 178805 H. H. Crooks, 179428 C. E. Dennison, 128467 W. H. Foden, F29960 B. H. Garside, 170476 D. Gray, 178819 G. E. P. Ham, 179232 R. B. Harold, 179139 C. Harvey, 181925 F. A. Henslowe, 179401 W. B. Hollis, 181357 W. A. E. Holmes, 178821 A. L. Hubble, 179441 J. Hughes, 110708 G. A. Hunter, 181359 S. G. C. Jones, 179207 H. P. Ford, 178827 H. V. Mahoney, 17887 B. Meddings, 178721 W. Palmer, 128304 A. Plaisten, 35629 C. W. Raydon, 179462 L. V. Rees, 181934 J. E. M. Rogers, 178936 M. P. Selfe, 178835 J. S. Sheddon, 95160 W. Smith, 187906 C. Solomon, 179415 P. G. Stevenson, 178933 G. E. Stokes, 179219 P. Stone, 176390 C. Thomas, 179087 H. Thompson, 128724 E. W. Turner, 117606 J. C. Ward, 179116 T. Watson, 179247 G. G. Wesley, March 25th; 180771 J. G. Robinson, 175724 H. Williams, March 27th; F1283 F. W. Holleyman, March 28th, 211346 L. C. J. Nunn, March 30th; 316039 E. Haynes, 316040 G. H. Sealy, April 2nd; 870062 C. W. Richards, April 6th; 2483 H. W. Read, April 10th; 109029 E. J. W. Timson, April 13th; L/8681 E. F. Farnell, April 15th; 202984 C. G. Holmes, April 20th; 65403 J. G. Bowes, April 22nd; 177244 H. K. Anstey, 110929 A. T. Baines, 177554 G. L. Taylor, April 25th; M/4385 R. J. Daly, April 30th; 316050 J. H. Chattaway, May 14th; 208245 H. Rogers, June 13th; 209953 A. W. Lamond, July 8th.

Lt.-Col. A. Christie, C.M.G., D.S.O. (Capt. (temp. Lt.-Col.), Royal R. of Artillery), relinquishes his commn. on ceasing to be empld., Aug. 2nd.

Transferred to unempld. list:—Maj. (actg. Lt.-Col.) C. Jarrott, O.B.E., from (S.O.), April 25th; Capt. P. P. C. Penberthy, from (S.O.), April 30th; Capt. E. P. Stapleton, O.B.E., from (S.O.), July 22nd; Maj. A. E. Loder, from (S.O.), July 26th; Capt. H. F. Atkinson-Clark, M.V.O., O.B.E. (Scots Guards), from (S.O.); Capt. M. Skitt, from (S.O.); Capt. A. F. Wickenden, from (S.O.), Aug. 1st.

Capt. C. H. S. Taylor relinquishes his commn. on account of ill-health contracted on active service, and is granted rank of Lt.-Col., June 30th.

The notification in "Gazette," April 29th, concerning Maj. J. W. K. Allson is cancelled.

The notification in "Gazette," July 18th, concerning H. P. MacDonald is cancelled.

Air Ministry, August 12th.

R.A.F.—The follg. temp. appointment is made:—Staff Officer, 2nd Class (Air).—Maj. G. S. Trewin, A.F.C., July 6th (substituted for notification in "Gazette," July 18th.

Flying Branch.—Sec. Lt. W. D. Wood is antedated in his appointment as Sec. Lt. (A.), May 10th.

The following Flight Cadets are granted temp. commns as Sec. Lts. (S.):—A. H. Murphy, Oct. 19th, 1918; A. C. Kennedy, Oct. 25th, 1918; W. F. McCunn, R. E. Parker, H. Small, Nov. 1st, 1918.

The following relinquish their commns. on ceasing to be empld.:—Sec. Lt. H. R. Herbert (Lt., E. Ont. R.), Feb. 28th; Lt. S. D. Morrison (Lt., Nova Scotia R.), April 20th; Capt. G. H. Morton (Capt., Brit. Col. R.), May 26th; Sec. Lt. (Hon. Lt.) H. B. Kennedy (Lt., Can. Fld. Art.), June 1st; Lt. H. T. Singleton (Lt., R. Dublin Fus.), July 24th; Sec. Lt. (Hon. Lt.) W. M. F. Bayliss (Lt., Lancers), July 26th.

Transferred to the unempld. list:—Capt. N. H. Fletcher, Feb. 7th; Lt. C. E. Pither, March 19th; Sec. Lt. A. Douglas, May 15th; Sec. Lt. T. C. Stranger, June 6th; Lt. (actg. Capt.) W. F. Findlay, June 11th; Sec. Lt. C. C. R. Thompson, June 13th; Lt. R. W. Redding, June 26th; Lt. T. E. Rogers, July 3rd; Sec. Lt. A. J. Storm, Sec. Lt. A. R. T. Thompson, July 10th; Capt. (actg. Maj.) F. S. Moller, M.C., July 11th; Sec. Lt. J. Freeman, Sec. Lt. A. B. Ryan, Sec. Lt. G. J. D. Ryan, Sec. Lt. E. W. Swackhamer, Sec. Lt. W. P. O'B. Sweeney, July 12th; Lt. T. L. Gitsham, July 14th; Sec. Lt. A. B. Miles, July 17th; Sec. Lt. W. A. Peggs (Sherwood Fors.), July 24th; Lt. E. H. Peverell, July 25th; Sec. Lt. J. R. Noble, July 26th; Maj. A. S. Redfern, July 29th; Lt. G. Mortimer, July 30th; Sec. Lt. W. P. Mills, Lt. G. L. Percy, July 31st; Sec. Lt. C. H. Wheeler, Aug. 1st; Lt. B. L. McCarthy, Sec. Lt. (Hon. Lt.) E. P. Whitehead, Aug. 7th; Sec. Lt. W. M. Oosthuizen, Sec. Lt. E. E. Owens, Lt. W. J. Tarring, Sec. Lt. F. H. L. Tindall, Aug. 10th.

Maj. H. S. Shield, M.C. (Lt., N. Staffs. R.), resigns his commn. and is permitted to retain his rank, Aug. 13th.

The date of appointment of the following Sec. Lts. to be Lts. is May 8th, 1919, and not May 8th, 1918, as stated in "Gazette," July 22nd:—A. Beedie, E. A. C. Britton, W. B. Crouch, R. Henderson, C. N. James, W. S. Jenkins, D.F.C., W. H. Jordan, A. D. Kiernander, H. W. Matthews, T. H. Mercer, F. R. Oddy, T. G. Reed, J. W. Sole, A. G. B. Whittaker, L. A. Williamson.

The notification in "Gazette," March 18th, concerning Sec. Lt. H. R. Herbert (Lt., E. Ont. R.) is cancelled.

Administrative Branch.—P. S. Stewart is granted a temp. commn. as Sec. Lt., Aug. 7th.

Transferred to unempld. list:—Capt. R. H. Gee, May 16th; Sec. Lt. J. L. Rhys, May 31st; Sec. Lt. J. MacD. Roberts, July 11th; Lt. P. R. Mattinson, July 18th; Lt. P. H. S. Tozer, July 23rd, Maj. L. P. Walker, July 28th.

Sec. Lt. J. Nowell (Lt., Worc. R.) relinquishes his commn. on account of ill-health contracted on active service, Aug. 12th.

Technical Branch.—Transferred to unempld. list:—Sec. Lt. A. F. Rees, July 2nd; Sec. Lt. R. P. Wilmot, July 12th (substituted for notification in "Gazette," July 29th); Sec. Lt. R. Gowing, July 18th; Sec. Lt. I. Samber, July 28th; Sec. Lt. F. H. Waye, July 30th.

Memorandum.—The following Overseas Cadets are granted temp. commns. as Sec. Lts. with effect from Feb. 15th, and relinquish such commns. with permission to retain the rank from the day following termination of the standardised voyage in the case of those claiming immediate repatriation, and from the day following demobilisation in England in all other cases:—7965 J. Cohen, 222491 R. M. Richardson.

Sec. Lt. A. D. Watts is transferred to unempld. list, from (S.O.), Aug. 1st.

The notification in "Gazette," June 6th, concerning 316200 R. D. Richardson is cancelled.

Air Ministry, August 15th.

R.A.F.—Permanent Commissions.—Lt. W. B. Farrington is granted a permanent commn. as Lt. (A.), Aug. 1st (substituted for notification in "Gazette," Aug. 1st).

The surname of Capt. W. B. Callaway is as now described, and not "Gallaway" as stated in "Gazette," Aug. 1st.

The following temp. appointments are made:—Staff Officer, 2nd Class.—(Air) Capt. A. D. Spiers, Nov. 11th, 1918, and to be actg. Maj. while so empld. till April 30th.

Staff Officers, 3rd Class.—(Air) Capt. V. Buxton, from (S.O.)2, Aug. 2nd; Sec. Lt. A. Jukes, July 13th, and to be actg. Capt. while so empld.

Flying Branch.—Capt. A. W. Bird, D.S.O., to be graded for purposes of pay and allowances as Maj. while empld. as Maj. (A.), May 1st.

Lt. R. G. Rolfe-Rogers to be graded for purposes of pay and allowances as Capt. while empld. as Capt. (A.), May 1st.

Lt. H. C. Leaver to be Lt. (A.), from (O.), June 3rd, 1918.

Sec. Lt. C. L. C. Craft (late Gen. List, R.F.C., on prob.) is confirmed in his rank as Sec. Lt. (A.), Nov. 2nd, 1918.

J. E. Tarlton (Sec. Lt., R.G.A.) is granted a temp. commn. as Sec. Lt. (A.), July 7th, 1918.

T. A. Woodward (Sec. Lt., L'pool R.) is granted a temp. commn. as Sec. Lt. (O.), Nov. 16th, 1918.

The following relinquish their commns. on ceasing to be empld.:—Sec. Lt. F. W. F. Turner, Sept 14th, 1918; Lt. J. G. MacKenzie (Lt., Cent. Ont. R.), March 31st; Lt. H. Cassels (Capt., Can. Highrs), April 14th; Lt. R. Grandy (Lt. (actg. Capt.), R. Newfoundland R.), June 22nd; Lt. (Hon. Maj.) J. L. Booth (Maj., R.E., T.F.), June 30th; Sec. Lt. A. W. Wyncoll (Lt., R. Lancs. R.), July 29th; Sec. Lt. (Hon. Lt.) J. F. D. Tanqueray (Lt., Can. Engrs.), Aug. 6th.

Transferred to unempld. list:—Sec. Lt. G. W. Fitchie, Jan. 24th; Sec. Lt. G. Crosthwaite, Jan. 30th; Lt. N. J. Taylor, Feb. 14th; Lt. J. E. Doe, Feb. 18th; Sec. Lt. L. K. Davidson, Sec. Lt. W. Snaw, March 1st; Sec. Lt. (Hon. Lt.) R. H. Stonmill, M.M., March 14th; Capt. H. J. Wiser, April 1st; Lt. G. S. Frame, April 10th; Lt. S. Humphries, April 11th; Capt. L. H. F. Irving, April 16th; Lt. J. H. Forbes, April 18th; Lt. S. G. Pearson, April 19th; Sec. Lt. W. B. Smith, Lt. P. B. Williams, M.C., April 20th; Lt. J. H. Forman, Sec. Lt. F. W. Wells, April 22nd; Lt. D. Cairns, April 23rd; Sec. Lt. W. N. Simpson, April 24th; Sec. Lt. A. E. Thorp, May 3rd; Maj. J. W. Jardine, May 5th; Sec. Lt. H. A. Scrivener, May 9th; Lt. E. J. Finch, May 16th (substituted for the notification in "Gazette," June 3rd); Sec. Lt. J. B. Weir, May 18th; Sec. Lt. P. H. B. Wood, May 19th (substituted for the notification in "Gazette," May 20th); Sec. Lt. W. G. Campbell, May 20th (substituted for notification in "Gazette," May 20th); Lt. G. A. Welsh, *May* 20th; Sec. Lt. J. E. Taylor, June 13th; Capt. J. S. Smith, June 14th; Sec. Lt. (Hon. Lt.) B. P. Springett, June 17th; Lt. F. P. Watson, June 18th; Lt. C. L. Willcock, June 19th; Lt. C. Thomas, June 24th; Lt. E. H. F. Scott, June 26th; Lt. A. H. Stead, June 28th; Lt. E. J. Furlong, D.F.C., Lt. E. J. Stephens, July 2nd; Lt. T. H. French, D.F.C., Lt. W. Skelton, July 4th; Sec. Lt. E. O. Humphries, July 7th; Sec. Lt. R. C. Tice, July 8th; Lt. I. W. T. Fraser, Sec. Lt. J. M. Freston, Lt. I. de W. Wood, July 10th; Sec. Lt. R. J. Tilney, July 11th; Lt. C. Becker, Sec. Lt. W. L. Dean, Sec. Lt. P. G. Rowe, Sec. Lt. W. J. Sanderson, Sec. Lt. F. J. Seaton, Sec. Lt. M. L. Selkirk, Sec. Lt. E. G. Simpson, Lt. E. S. Smith, Sec. Lt. G. L. Smith, Lt. N. L. D. Smith, Lt. E. L. Smithers, Sec. Lt. (Hon. Lt.) O. B. Thompson, Sec. Lt. S. O. Truby, Lt. C. R. Wrede, Sec. Lt. P. H. Zealand, July 12th; R. A. Stedman, July 14th; Sec. Lt. R. Franklin, July 17th; Lt. M. W. Clark, Lt. G. T. Scott (substituted for the notification in "Gazette," July 29th), July 18th; Lt. H. E. Judge, July 19th; Capt. T. C. Arnot, Sec. Lt. E. T. Shone, July 21st; Sec. Lt. W. E. J. Bloodworth, Lt. C. T. Brown, Sec. Lt. (Hon. Lt.) H. D. D. C. Tiley, July 22nd; Lt. R. H. Speight, July 23rd; Capt. C. C. Sharp, Sec. Lt. E. W. Steele, July 24th; Lt. R. Alton, Sec. Lt. (Hon. Capt.) R. Boumphrey, Sec. Lt. D. E. Dann, Sec. Lt. D. C. Hurworth, Lt. E. E. Wright, July 25th; Sec. Lt. H. G. Dixon, Lt. J. R. H. Hewlett, Lt. J. G. Kingsbury, Lt. (Hon. Capt.) W. L. Pittendrigh, July 26th; Capt. J. H. P. Brain, July 27th; Capt. M. T. Baines, Capt. C. A. Hervey, Lt. R. G. Young, July 29th; Sec. Lt. (Hon. Lt.) H. B. C. Nicholls, July 31st; Lt. E. E. Moodey, Aug. 1st; Sec. Lt. P. S. Joubert, Aug. 7th; Sec. Lt. R. E. Bell, Sec. Lt. G. P. Mitchell, Aug. 10th; Lt. C. W. Davies, Aug. 14th; Lt. R. J. Thompson, Aug. 15th (substituted for notification in "Gazette," July 29th).

The follg. Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank:—H. F. N. Jones (contracted on active service), June 12th; C. Miller (contracted on active service), June 25th; W. R. Elson, E. R. Salter (contracted on active service), July 31st; J. Burdekin (contracted on active service), A. E. Garrison, M.C. (caused by wounds), E. Snell, Aug. 1st.

Sec. Lt. W. D. Wood is antedated in his appointment as Sec. Lt. (A.), May 10th, 1918 (substituted for notification in "Gazette," Aug. 12th).

The rank of Lt. D. F. Brookes is as now described, and not "Sec. Lt.," as stated in "Gazette," May 5th.

The notification in "Gazette," Dec. 31st, 1918, concerning Sec. Lt. D. G. Fraser, is cancelled.

The notification in "Gazette," June 3rd, concerning Lt. G. F. Bell is cancelled.

The notification in "Gazette," July 4th, concerning Sec. Lt. C. Butcher is cancelled.

The notification in "Gazette," July 11th, concerning Sec. Lt. R. J. Acheson is cancelled.

Administrative Branch.—Sec. Lts. to be Lts.:—H. V. Hall, Nov. 2nd, 1918; R. W. Johnson, Aug. 5th.

The following relinquish their commns. on ceasing to be empld.:—Sec. Lt. P. C. Cooper (Sec. Lt., Northants. R.), April 20th, 1918 (substituted for notification in "Gazette," July 22nd); Lt. V. M. McMahon, M.C. (Lt., R. Dub. Fus.), Feb. 9th; Lt.-Col. E. H. Davidson, O.B.E., M.C. (Capt., Gord. Highrs.), June 12th; Lt. C. M. Sinclair (Lt., R.A.S.C.), June 24th; Lt. (Hon. Capt.) W. F. T. James (Capt., Glam. Yeo.), July 9th; Lt. J. Redmond, M.C. (Lt., R.I. Rif.), Aug. 1st; Lt. W. S. King (Lt., R. Newfoundland R.), Aug. 10th.

Transferred to unempld. list:—Sec. Lt. H. R. Cooke, Jan. 28th (substituted for notification in "Gazette" April 1st); Lt. B. C. Budd, Lt. C. P. Creighton, April 19th; Lt. S. M. Pemberton, April 20th; Sec. Lt. E. Sykes, June 2nd; Maj. (Hon. Lt.-Col.) C. P. Foley, June 3rd; Sec. Lt. V. S. Stevens, June 7th; Capt. R. G. Staveley-Dale, June 14th, Sec. Lt. W. W. Smith, July 12th; Lt. E. E. Stock, M.C., July 18th; Sec. Lt. M. T. Saunderson, July 24th; Sec. Lt. A. E. Le Sueur, July 26th; Sec. Lt. R. J. Bright, July 28th; Maj. C. Kent, July 29th; Maj. J. G. A. Baillie, July 30th; Capt. G. S. Kilby, Aug. 1st; Lt. J. Cobley (Middx. R., T.F.), Aug. 4th; Lt. W. Dee, Aug. 15th.

Capt. R. B. H. Lechmere (Dragoon Gds.) relinquishes his commn. on account of ill-health caused by wounds, Aug. 12th.

Lt. H. F. Proctor relinquishes his commn. on account of ill-health caused by wounds, and is permitted to retain his rank, July 30th.

The following Sec. Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank:—C. McI. French, July 12th (substituted for notification in "Gazette," Jan. 21st); C. Hunter, Aug. 6th.

Technical Branch.—Capt. A. D. Spiers to be actg. Maj. while empld. as Maj., Grade (A.), May 1st.

E. L. M. Emtage, July 12th, 1918 (substituted for notification in "Gazette," Jan. 3rd).

Sec. Lt. (Hon. Lt.) R. V. Weeks to be Lt., May 23rd, 1918, without pay and allowances of that rank prior to Nov. 3rd (substituted for notification in "Gazette," May 9th).

Sec. Lt. (Hon. Lt.) L. G. Martin is transferred temporarily to unempld. list, from March 27th to May 29th (substituted for notification in "Gazette," June 17th).

Transferred to unempld. list:—Sec. Lt. W. Brown, Feb. 7th; Sec. Lt. T. Conlan, Feb. 14th (substituted for notification in "Gazette," March 28th); Sec. Lt. R. E. Towler, May 3th; Capt. C. E. Turner, May 17th; Lt. S. Wilson, May 20th; Sec. Lt. W. S. C. Stephens, June 3rd; Sec. Lt. (Hon. Capt.) W. S. H. Smith, June 16th; Lt. R. H. Butler, July 2nd; Lt. J. G. Francis, July 10th; Lt. W. G. Stuart, Sec. Lt. C. W. M. Sabine, July 12th; Sec. Lt. W. G. Willis, July 16th; Sec. Lt. E. R. Veneer, July 18th; Lt. G. D. Harrison, Lt. A. Howard, July 25th; Sec. Lt. J. Bennett, Sec. Lt. (Hon. Lt.) B. L. Blomley, Sec. Lt. (Hon. Lt.) R. A. Law, July 26th; Sec. Lt. L. J. Sterlini, July 28th; Capt. O. Hardee, July 29th; Lt. W. C. England, Aug. 11th.

Lt. C. J. M. Lowe (R.E.) relinquishes his commn. on account of ill-health, Aug. 12th.

Sec. Lt. A. C. Wright relinquishes his commn. on account of ill-health, and is permitted to retain his rank, Aug. 1st.

MEDICAL BRANCH.—Maj. (actg. Lt.-Col.) B. K. Bickford, D.S.O. (Staff Surgn., R.N.), relinquishes his commn. on ceasing to be empld., Aug. 1st.

Capt. R Hall is transferred to unempld. list, July 15th.

Capt. T. E. Mulvany relinquishes his commn. on account of ill-health contracted on active service, and is permitted to retain his rank, Aug. 15th, 1918.

MEMORANDA.—The following warrant officers are granted hon. commns. as Sec. Lts. :—L. L. Lipsky, I. V. Smyrnoff, July 30th.

Capt. M. McK. Wood, O.B.E. (Capt., Gordon Highrs.), relinquishes his commn. on being elected M.P., April 15th.

Lt. W. Lingard, M.B.E., is transferred to unempld. list, from (S.O.), July 31st.

The notification in "Gazette," July 4th, concerning Sec Lt. C. W. Kerr is cancelled. The notification in "Gazette," July 11th to stand.

* * *

The Air Ministry announces that the following stations and landing grounds have been relinquished by the R.A.F. :—

STATIONS.—Torquay Seaplane Station; New Romney; Seaton Carew Seaplane Station; Tipnor Kite Balloon Base; Sheerness Kite Balloon Base.

LANDING GROUNDS.—Lower Beeding, Sussex; Earnley, Sussex; Kingshill (West Malling), Kent; Blackneath (Colchester), Essex; Plungar, Nottinghamshire; South Cave, Yorkshire; Bishopton, Durham; Cairncross, Berwickshire; Burnham-on-Crouch, Essex; Broomfield (Chelmsford), Essex; Appleton Wiske, Yorkshire; Ponteland, Northumberland; New Chapel, Surrey.

* * *

It is stated by Major-General Seely that there is no intention that a rigid airship shall fly to India at present.

* * *

A dinner was given at Claridge's Hotel on Aug. 14th by the Finnish Minister, M. Ossian Donner, to Squadron Leader W. G. Sitwell, D.S.C., R.A.F., and Flight Lieutenant Bailey, R.A.F. The dinner was given to celebrate the recent flight of these two officers from England to Helsingfors and back. General Swinton, of the Civil Aviation Department, was present, and Air Commodore R. M. Grove and Squadron Leader Field, R.A.F., were also there.

* * *

Private Bruckmann, 97th Infantry Reserve Regt., the German prisoner of war whose gallantry in rescuing two British officers from a burning aeroplane was recently made the subject of an Air Ministry communiqué, has left England for Germany. Before leaving England he was presented by a representative of the Royal Air Force with a sum of money and a silver watch and chain. Several thousand German prisoners were paraded at the camp to witness the ceremony.

Pte. Bruckmann was severely burned while assisting the officers.

* * *

Ballantyne, the member of the crew of H.M.A. R34, who recently created a great sensation in America and the English Press, by making the aerial voyage across the Atlantic as a stowaway, has been arraigned by his officers. He was severely reprimanded and informed that he is no longer a member of the crew of R34.

* * *

The Royal Air Force held a series of trials at Queen's Club, West Kensington, on Aug. 6th, with a view of selecting representatives for the championship meeting at Stamford Bridge on Aug. 21st.

Capt. H.R.H. the Prince Albert, K.G., R.A.F., watched the sports, and at the close presented the prizes to the successful competitors. Among others present were Brig.-Gen. T. L. Webb-Bowen, C.B., C.M.G., Col. A. M. Longmore, D.S.O., R.A.F., and Major Owen, R.A.F.

Several well-known athletes were among the competitors, and some very fair performances were recorded. Serjt. P. H. Poingdestre won both the 100 yards and quarter-mile races, the former by a good yard from Lieut. A. J. Moore, in 11 1-5 sec.; and the latter, in which he beat Serjt. R. E. Skinner by five yards, in 54 3-5 sec.

A/M. J. Pratt won the mile and three miles very easily. In both events he made his own pace throughout, and his time of 4 min. 51 3-5 sec. for the mile, and 16 min. 26 1-5 sec., were, in the circumstances, decidedly good.

Capt. Marlowe won the half-mile after a fine race with L. A/C Cook in 1 min. 57 4-5 sec., and A/M F. R. Aggersberg, the 220 yards by half a yard from Cpl. P. Wilmot in 24 1-5 sec.

Serjt. Bellingham took the long jump with 17 ft. 7 in., L. A/M Owen, the high jump at 5 ft., and L. A/M Kitson, the 120 yards hurdles. Boy Downs won the 100 yards and 220 yards races confined to enlisted boys.

The S.D. Earlscourt beat the 143rd Squadron E. two pulls to nothing in the tug-of-war, and the Sixth S.D. Ascot won the mile relay.

A relay race for the W.R.A.F., was won by N. 1 M.T. Wormwood Scrubbs, and in a tug-of-war Kidbrook beat Regent's Park with two straight pulls.

On August 8th the R.A.F. in Ireland held a sports meeting in Dublin. Among the events was an aerial race of 102½ miles. There were twenty-one competitors, the race being won in 1 hr. 9 min. 34 sec., by Lieut. Urmston, R.A.F. Captain Sibley, R.A.F., whose time was 1 hr. 9 min. 35 sec., was the second man in, but was disqualified for passing the post on the wrong side. Lieut. Baker, R.A.F., was third, his time being 1 hr. 11 min. 55 sec.

The following cricket team represented the Royal Air Force against the Army at the Oval on Aug. 15th and 16th :—

Lieut.-Col. Blount, Lieut.-Col. D. Harries, Major E. C. Baker, Capt. S. D. Harrower, Capt. W. H. G. Heath, Capt. P. Burke, Capt. G. F. Earle, Lieut. J. N. Bitton, Capt. L. P. Hoult, Lieut. F. E. S. Creek, and A.M. E. Tomkins.

The match ended in a drawn game on Aug. 16th. At the end of the first innings the score was: Army, 387; R.A.F. (nine wickets), 94. The scores for the second innings were: Army (five wickets), 60; R.A.F., 357.

* * *

Life is dull in the Air Force to those who have the ill luck to be in the North-Western Area in the land of porridge and mountain dew.

Days and weeks slip aimlessly away, and it is found harder to kill time than Huns. The dancing craze which kept messes lively during the winter months has died out, and golf and motor-cycling, or lying about the ante-room are the chief forms of passing away the idle hours.

In Montrose a stray Avro amuses the visitors about once a month, but, as few flying officers are stationed there, the sight of a machine now causes comment, and the shed doors rust on their guides.

About three dozen mechanics keep the floors swept and polish the petrol tins, and have plenty of time left for bathing

Edgill Aerodrome is now practically non-existent, for, after the sale of buildings, etc., it has been gradually demolished, and the ground put up "to let."

Why such a site was ever chosen is one of the countless war mysteries.

Crail is being used as a storage depot for machines, and row upon rows of new unassembled Snipes and Avros fill the hangars all correctly dressed by the right.

A few of the old personnel are left to look after them, and their tired expressions gives one to see how "fed up" they are.

Leuchars has still a few flying officers and as many scout machines whose chief occupation appears to be amusing the crowds by the Tayside coast. They scare the inhabitants of the "jute and jam" city of Dundee with their low stunting, and are reckoned by those hard-headed Scots to be "fair deevils."

Their methods of advertising the Victory Loan were so thrilling that they made people run from "bonds" and banks to the Esplanade to see their exhibition. One, unfortunately, had a dip and lost his machine in the Tay, and was saved from Davy Jones' Locker by the boys of the "Mars" Training Ship near by. Thanks to the reliability of modern engines, many more of them have been saved from similar experiences.

Dundee Seaplane Base has still a large personnel, being one of the four permanent stations in Scotland, but very little flying is being done there.

Turnhouse has been allotted as one of the two aerodromes where civil machines may land, and has a small number of men looking after it, waiting for prop (and lead) swinging.

Gullane is being used as a dispersal centre for the R.A.F., and changes in personnel are so rapid that one never knows from day to day what may happen. About 20 Bristol Fighters and Avros are there and do a little flying if the weather is fine.

Its next-door neighbour, East Fortune, is another of the permanent stations, and, being the home of R.34, is quite a busy and well-known spot. Its sheds are full of craft, mostly of the N.S. type, sometimes used on instructional work.

The other aerodrome in Scotland, Renfrew, is being used as a Stores Depot for all sorts of goods from complete machines to mess teaspoons. It has a large staff of administrative and technical officers.

Last of all, our Scotch Bolo, "The Adelphi," still carries on with great form, and is still as hot on court-martials for bold, bad pilots, etc. The recurring scramble for the Staff allotment of mountain dew and the signing of chits for dances, socials, etc., keep them from being very wearied with themselves.—R. M. D.

FRANCE.

On Aug. 10th President Poincaré conferred the Legion d'Honneur upon Dunkirk. During the ceremony he stated that this town had been bombed 172 times by German aviators.

* * *

The official statistics of the losses of the Service d'Aviation Militaire have just been published, and are as follows :—

From Aug. 4th, 1914, to Nov. 11th, 1918, the losses in the

Army zones were 1,945 pilots and observers killed, 1,461 missing, whose death may be regarded as certain, and 2,922 wounded.

Outside the Army zones 1,927 pilots and observers were killed, bringing the total losses in killed and wounded up to 7,757.

As the full strength on Dec. 1st, 1918, was 12,919 men, the war losses represent 61 per cent., which is believed to be the greatest proportion of losses in any arm of any of the Allied armies. [Presumably, this means 12,919 pilots and observers, exclusive of some hundreds of thousands of mechanics and others. —Ed.]

The production of aeroplanes for the Air Service was 3,460 in 1915, 7,552 in 1916, 22,751 in 1917, and 34,219 during the first nine months of 1918. The aircraft factories employed 12,650 workers on Jan. 1st, 1915, 30,960 on the same date in 1916, 68,920 on the same date in 1917, 131,551 on the same date in 1918, and 186,003 on Nov. 2nd, 1918.

* * *

Six seaplanes under the command of Lieut. (?) de Morcourt, French Navy, will shortly fly from St. Raphael to Casablanca. Alightings will be made at the following places on the way to Casablanca :—Cette, Barcelona, Valencia, Cartagena, Malaga, and Tangier.

U.S.A.

Major Crowell, Assistant Secretary of War, has raised great controversy in the U.S. by advising the formation of a Single Air Service. The War Department agrees with Major Crowell, but the Navy, having presumably benefited by the mistakes of others, is against the amalgamation.

As a result of the reduction of the U.S. Service Estimates for the current year, it seems probable that the Army will be forced to disband its Aviation Service in the Autumn.

* * *

Lieut.-Col. R. S. Hartz is in charge of a Martin Bomber that started on an endurance flight on July 24th and will cross 31 States round the rim of the country.

Starting and finishing at Washington the total distance covered will be 7,805 miles. The flight is planned to test the endurance of the Martin Bomber and the Liberty engine, for recruiting purposes and for the charting of routes and the locating of landing fields.

* * *

It is reported that two U.S. Army aviators, Lieuts. Paul Davis and Harold Peterson, who have been missing since August 10th, have sent letters to the Military Headquarters stating that they are held to ransom by Mexicans for $15,000, and that if the money is not forthcoming by August 16th they will be executed. No official opinion has been given by the War Department.

PERSONAL NOTICES.

NAVAL.

MARRIAGE.

TRAVERS—FRASER.—On Aug. 6th, at Ryton, near Shifnal, Salop, Major H. G. Travers, R.A.F., D.S.C., was married to Hermia, younger daughter of Colonel and Mrs E. A Fraser, of Bodicote Lodge, near Banbury, Oxon, by the Rev. H. P. Fraser, M.A., uncle of the bride.

MILITARY.

ENGAGEMENTS.

CAMPBELL—COLLINGWOOD-ALLEN.—The engagement is announced of Flight Lieut. Hector A. Campbell, A.F.C., Seaforth Highlanders, attd. R.A.F., youngest son of Colonel and Mrs. Campbell, of Larachan, Sutherlandshire, to Ecie Collingwood-Allen, elder daughter of Major and Mrs. H. C. Allen, Charlton Lodge, Shepton Mallet, Somerset.

JENKINS—ROBERTSON.—A marriage has been arranged between Lieut.-Col. F. Howard Jenkins, O.B.E., M.C., R.A.F., second son of the late J. H. Jenkins, M.R.C.S., L.R.C.P., of Lytham, Lancashire, and Harriet Fernelith, second daughter of Duncan J. Robertson, O.B.E., County Clerk of Orkney.

KEMPSON—FEARNSIDE.—An engagement is announced between Capt. William Robert Kempson, R.F.A. (T.), late R.A.F., of Thorpe, Norwich, and Miss Enid Margaret Fearnside, daughter of Col. C. F. Fearnside, I.M.S., and Mrs. Fearnside, of Haven House, Conway.

WATT—MELLINGTON.—The engagement is announced between Capt. William McIver Watt, M.B.E., the Black Watch, attd. R.A.F., only son of Mr. Nat Watt, Commercial Bank House, Musselburgh, and Gwendolen Joyce, younger daughter of Mr. and Mrs. J. A. Christie, Mellington, Charlton Kings, Cheltenham.

MARRIAGES.

MATHER—WHITLOCK.—The marriage arranged between Mr. Harry Mather, late Lieut. R.F.C., eldest son of Walter Mather, Esq., Brierfield, and Chôtee, elder daughter of Lieut.-Colonel G. F. A. Whitlock, C.B.E., R.E., 30, Winn Road, Southampton, took place quietly in London on Aug. 2nd

MELHUISH—EBDEN.—The marriage arranged between James Walter Douglas Melhuish, M.C., late 7th Worcesters and R.A.F., only son of Mr. T. W. W. Melhuish, M.I.C.E., and Mrs. Melhuish, of Clifton Hill, Exeter, and Decima Mary Tenison, only daughter of Mr. and Mrs. Tenison Mosse, of Bank of England, Manchester, and grand-daughter of the late Mon. Alfred Ebden, of Belmont, Rondebosch, Cape Town, took place very quietly on Thursday, Aug. 14th, at the Cathedral, Manchester.

SKINNER—ALLEN.—On Aug. 12th, at St. Anne's Church, Wandsworth, Lieut. Herbert Skinner, Gordon Highlanders and R.A.F., son of Reverend J. Skinner, M.A., Old Deer, Aberdeenshire, was married to Rhoda, younger daughter of Capt. Allen, O.B.E., and Mrs. Allen, Wandsworth, London, by the Reverend H. P. Statham.

AIR FORCE.

DEATHS.

GILMAN.—Lieut. Walter Gilman, R.A.F., who was previously reported missing on July 13th, 1918, after alighting in the sea when returning from a bombing raid, is now officially presumed to have died on or since that date. He was the only son of Mr. and Mrs. William Gilman, Hazelcroft, Alderley Edge, Cheshire, and was 19 years of age.

MOORE.—Lieut. James Gordon Moore, R.A.F., who died on Aug. 14th as the result of wounds received in action, was 24 years of age.

MORRIS.—A two-seater Bristol Fighter aeroplane crashed on Aug. 14th while passing over the riverside village of Hurley, near Marlow. The first arrivals found the machine a total wreck, and the aviator, Lieut. H. S. Morris, R.A.F., badly injured. He was conveyed to Maidenhead Cottage Hospital, where he died a few hours later without recovering consciousness.

ENGAGEMENTS.

CASWELL—EDWARDS.—The engagement is announced between Capt. G. F. Caswell, R.A.F., and May, daughter of George Edwards, J.P., and Mrs. Edwards, of 180, Piccadilly, W., and "Cheniston," Egham, Surrey.

ELLERTON—HUSBAND.—The marriage arranged between Capt. Alban Spenser Ellerton, O.B.E., R.A.F., and Miss Maureen Gilliland Husband, of 69, Belsize Park Gardens, will take place on Sept. 13th, at 11.30 a.m., at the Savoy Chapel. Friends will be welcome at the church.

HARRIS—CAMPION.—The marriage arranged between Capt. Stafford Berkely Harris, A.F.C., R.A.F., and Miss Enid Campion will take place at St. Jude's Church, Southsea, on Aug. 21st, at 2.15 p.m.

JUDGE—EADIE.—A marriage has been arranged, and will take place on Wednesday, September 10th, at Bromsgrove Parish Church, between Captain H. E. Judge, R.A.F., and Olivette, daughter of Mrs. Eadie, Rigby Hall, Bromsgrove, Worcestershire.

MOFFETT.—YERBURY.—A marriage has been arranged, and will shortly take place, between Ritchie Francis Henry Moffett, Lieut., R.A.F., son of J. Ritchie Moffett, of Ladybrand, O.F.S., South Africa, and Hilda Pauline, daughter of Mrs. Yerbury, 26, Milton Road, Acton, London, W.

PRYCE—HARBORD.—The engagement is announced of George, youngest son of the late Lieut.-Col. John Pryce, of Gunley, Montgomeryshire, to Phyllis, eldest daughter of Lionel Harbord, R.A.F., of Mousehold House, Norwich.

SHEPPERD—GODSON.—The engagement is announced between Lieut. Harold E. Shepperd, R.A.F., only son of Mr. and Mrs. E. A. E. Shepperd, of Knockholt, Kent, and Olive Ethel, third daughter of Mr. and Mrs. E. H. Godson, of Heckington, Lincs.

MARRIAGES.

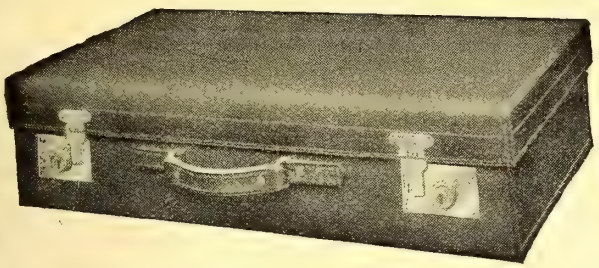
BULMAN—FAIRMAN.—On July 16th, at Christ Church, Sunderland, Major George Purvis Bulman, O.B.E., R.A.F., only son of the late W. W. Bulman, of Alexandria, Egypt, and Mrs. Purvis Bulman, Queen's Club Gardens, was married to Emmeline Preston, youngest daughter of Mr. and Mrs. G. P. Fairman, 21, St. Bede's Terrace, Sunderland, by the Rev. C. W. Froggatt.

DE ROEPER—KEY.—On Aug. 2nd, Major Bruno P. H. de Roeper, A.F.C., R.A.F., second son of Mr. and Mrs. de Roeper, of "Bella Vista," Upminster, was married to Jean Julia Key, only daughter of Mr. and Mrs. W. Garbutt Key, of "Glen Caladh," Hall Lane, Upminster, before the Superintendent-Registrar, at Romford.

DORE—GELLION.—On July 18th, at Holy Trinity Church, Paddington, Charles Noel Gregory Dore, R.A.F., son of the late S. Lammas Dore, Esq., and of Mrs. S. Lammas Dore, of Pinner Hill, Middlesex, was married to Evelyn Emily, daughter of the late Duncan Gellion, Esq., and of Mrs. Duncan Gellion, of 2, Orsett Terrace, Hyde Park, W., by the Rev. F. A. Bealey, Vicar of St. Anselm, Hatch End, assisted by the Vicar of Holy Trinity, Paddington.

BIRTH.

WOOLNER.—On Aug. 7th, at St. Faith's Home, Mount Park Road, Ealing, the wife of Capt. J. H. Woolner, A.F.C., of a daughter.



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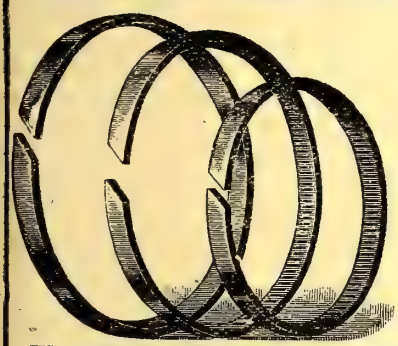
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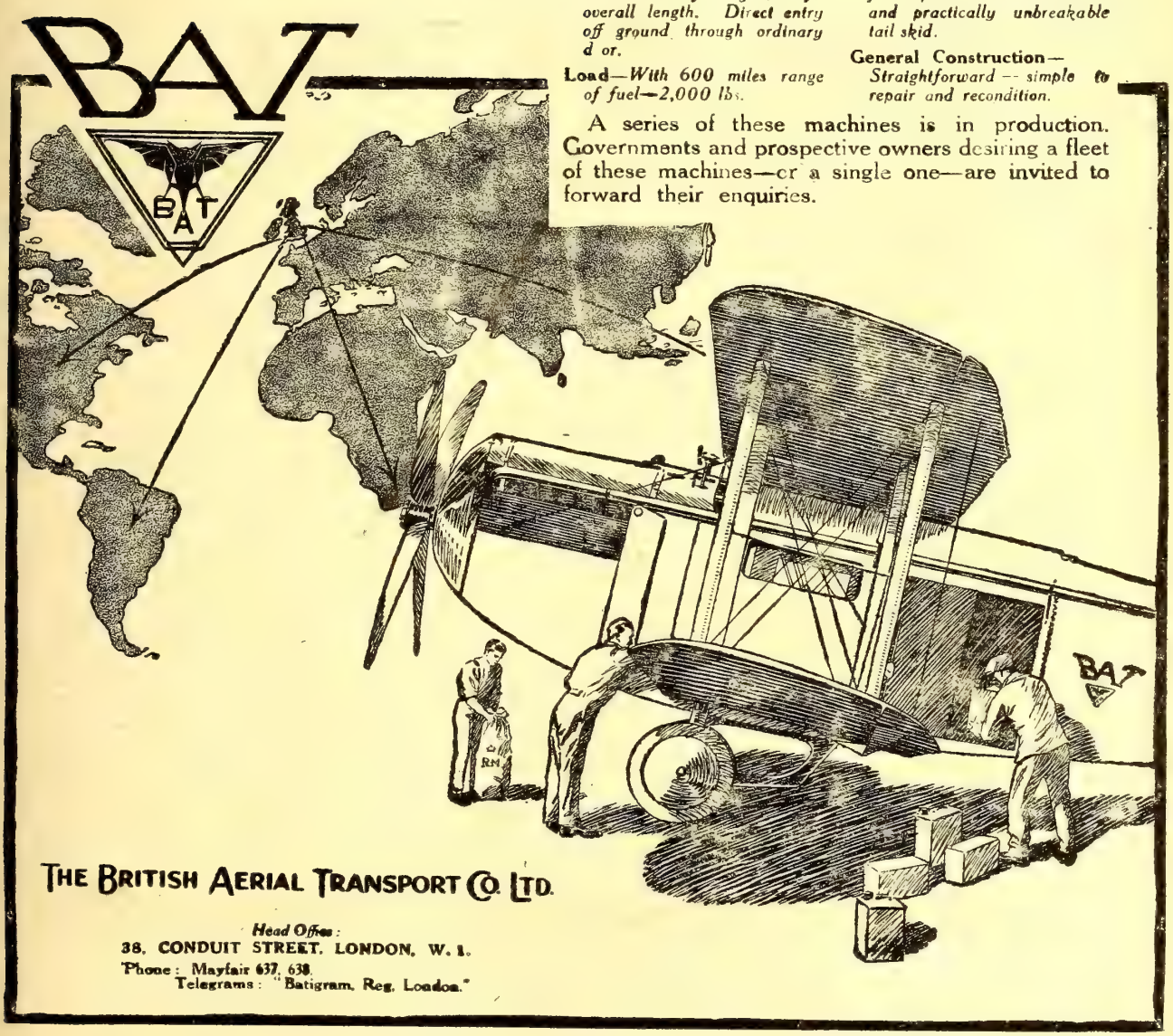

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ON THE AIR MINISTRY SCANDALS.

Doubtless some people are surprised that so little attention is being given by this paper to the Air Ministry scandals which have been occupying so unduly large a portion of the public Press and of the time of Parliament of late. Personally one can see no reason whatever for taking any interest in these scandals, except perhaps in the part in which Miss Douglas-Pennant is concerned.

When one recalls Mr. Lloyd George's connection with the Marconi scandal before the war; when one recalls the openly discussed grafts of high officials during the war; when one knows of the real financial scandals in other departments; and when one knows of the corruption, crookedness, and graft which infested the Technical, Supply, and Inspection Departments of all three Services during the war (chiefly, be it noted, owing to the introduction of numberless civilian officials by our so-called Business Government), the matters which were defended so violently by General Seely with all his usual rhetoric seem so utterly trivial that it is hardly worth while even giving up so much space to them as has been given. After all, what matters a few millions of pounds here or there when for three or four years we have been wasting at least a million a day? If the House of Commons wants an Official Inquiry into the misdeeds of officials concerned with the Flying Services during the war let it turn its attention to something more important.

What is the value of a human life in pounds sterling? It is true that the Flying Services only lost some 2,700 officers and men in all definitely known to be killed; the total casualties were 7,589 killed, wounded, and missing. And of all those killed or wrecked for life it is fairly safe to say that half have been so killed or wrecked by the misdeeds of Government officials.

Let the House of Commons go back before the war to 1912 or 1913, or at any rate to the early days of 1914, when that eminently respectable Tory, Captain Walter Faber, M.P., brought his first "Murder Charge" against the administration of the R.F.C., long before Mr. Pemberton-Billing was howled down by the hangers-on of the Government for saying that R.F.C. officers in the field were being murdered by officials at home. What is the value of the men who have since been murdered by these officials compared with the few millions about which Parliament is now in such a pother?

Subjects for Inquiry.

Let Parliament inquire why, when Colonel Seely (as he then was) stated officially that we had 120 war aeroplanes it was possible for Mr. Joynson-Hicks (as he then was) to prove that we only had 13? Let Parliament inquire why at the outbreak of war we had no British aero-engines, and why, despite the Naval and Military Engine Competition of 1914, British engine production was held back for two years, so that the Royal Aircraft Factory might experiment with engines which never become efficient, and allowed our aviators to be killed in hundreds by better-mounted enemies. Let Parliament inquire why throughout 1915 and 1916 our aircraft constructors were prevented from producing the best aeroplanes in the world while our aviators were being shot down day after day in the contraptions turned out by the Royal Aircraft Factory?

Let Parliament inquire whether and why officers who had the courage to help the Air Inquiry of 1916, which investigated these crimes, were hounded down and hustled out of the Flying Services, despite the guarantee given them that their Service careers would not suffer as the result of their patriotism?

Let Parliament inquire why the healthy competition between the R.N.A.S. and R.F.C., which enabled the R.N.A.S. to acquire the engines and aeroplanes which saved the R.F.C. when the plotters for a Government monopoly of design had failed, was killed by a still bigger monopolist plot, and why all aircraft supplies were concentrated in a single Department which failed as lamentably as did the Royal Aircraft Factory?

Some More Subjects.

There are plenty more subjects into which inquiries can be held if there is any real desire in Parliament to get at the truth and to purify the future of the Royal Air Force. It was commonly reported that certain R.A.F. stations were hot-beds of vice and were the hunting-grounds of procureurs of both sexes. Is that a subject worthy of inquiry? Perhaps Miss Douglas-Pennant will attend to this question.

It is known that drunken debauches were not merely common but customary in many R.A.F. stations. Should that pass without inquiry?

It is known that common bribery and corruption, as well as the higher and more subtle kinds of graft, prevailed throughout the war in the Technical and Supply and Inspection Departments. Is that to be investigated?

It is known that the designs of some firms were accepted without question while better designs by other firms were turned down. Is that to pass unchallenged?

It is known that thousands of pounds were handed out to some firms for experimental work while more promising designs could not obtain one pennyworth of support. Does that meet with the approval of Parliament?

The Sins of the Naval Side.

It is known that our seaplanes were shot down time after time, and that the German Brandenburg seaplanes practically held the Command of the Air over the North Sea till driven from their bases on the Belgian Coast by the British Army. Yet all the while we had in this country seaplane fighters which were far better than the Brandenburgers. Is anybody to answer for the deaths thus needlessly caused?

It is known that because of our lack of seaplanes orders were issued to escort convoys with land-going

aeroplanes which were unfit for land warfare. Who is to be held responsible for the loss of life and material caused by this policy?

It is known that in October and November, 1914, Zeppelins and their sheds were destroyed or damaged in Germany by the R.N.A.S. It was not till 1918 that any more damage was done to German airships and sheds by British aircraft. Who is to be blamed for the immunity of the Germans during the intervening years, and for the loss of life in this country caused by thus allowing the Germans to operate unmolested?

It is known that we had torpedo-dropping aeroplanes before the war and that the R.N.A.S. torpedoed Turkish ships early in 1915. Yet we had no torpedo aircraft at Jutland in 1916, nor when the "Goeben" came out of the Dardanelles in 1918. Who is responsible?

It was known early in 1917 that any sea-going ship to which a kite-balloon was attached was absolutely immune from attack by submarine. Yet the Irish mail steamer "Leinster" and Heaven knows how many other merchant ships and human lives were lost for lack of kite-balloon escort. Who is to be held responsible for these "murders"? Surely not the German submarine commanders and crews, who were merely doing their duty in enforcing an effective blockade, but rather the British Navy which, despite its much-advertised sea-power, failed so fatuously in breaking that blockade.

Camouflage.

Is the whole of this fierce agitation in Parliament merely a vast piece of camouflage designed to hide the real crimes of the Government and its hangers-on, and to side-track public attention from the main line of criminality onto these paltry financial affairs. Either those who are raising the agitation are lamentably ignorant of the graver issues or else they are peculiarly clever fellow-conspirators with the Government Departments concerned.

As for Major-General J. E. B. Seely, C.B., C.M.G., D.S.O., Under-Secretary of State for Air, he seems to be, as he was before the war, merely the dupe of the officials whose crimes he has to hide. He is quite honest and quite simple-minded, for all his cleverness. He is in fact like one of those simple yet cleverly designed jets through which the Huns used to eject poison-gas on our troops in the field, and he performs the same functions. Innocent in himself, he emits the vapour with which the enemies of his owners are doped, and, to his credit be it said, he does it quite efficiently.

But, as Mr. Joynson Hicks wrote in the "Morning Post" on March 16, 1914, "the country will not be satisfied with a mere statement by Colonel Seely." The country's estimate of General Seely to-day does not differ from its estimate of him five and a half years ago.

Certainly another Air Inquiry Committee is needed, but not an impotent affair like that of 1916. If we are to have another, let it be one with power to subpœna witnesses and to take evidence on oath, and let it be one which—on the other hand—may be forced to ask questions which are handed to it by people who are not members of the Committee. Under such circumstances it might be possible to bring some of the real criminals to justice, and to assure to the R.A.F. a clean and wholesome future.—C. G. G.

THE GOVERNMENT COMPETITIONS.

The rules issued by the Air Ministry on August 21st for the forthcoming Government trials for commercial aircraft will be found in full in this issue of The Aeroplane.

It may be said forthwith that as they stand they are totally unsatisfactory.

At the very beginning the types of aeroplane for which the prizes are to be awarded are ridiculous.

The specification for the small type, carrying pilot and passenger, calling for a maximum speed of 100 m.p.h. at least, a minimum speed not in excess of 40 m.p.h. and a climb of at least 500 feet per minute could be met by any competent designer with an engine of 60 h.p., and such a machine in the hands of a competent pilot should pass all the flying tests with ease.

There is nothing in the rules to prevent any maker from entering a machine in this class with a 600 h.p. engine and an enormous surface, commercially useless on account of its cost, but which will defeat any reasonably economically designed two-seater on landing speed, top speed, and general comfort and convenience, except that much-abused word "efficiency" included amongst the list of general features for which marks are to be awarded.

In any case the small two-seater is a machine which has no commercial use which could not be served by very slight modifications to existing machines.

Merely Ridiculous.

Had the limit for small machines been fixed at, say, four or five persons in addition to the pilot, and were there either a scale of permissible power for each passenger up to that limit, or a defined scale of awarding marks on the basis of useful weight carried per h.p., there might be some value attached to the affair. As the rules now stand, they are ridiculous. They call merely for machines designed to carry out a "stunt"—certainly a novel "stunt"—regardless of any consideration of the cost of carrying it out.

The large aeroplane class is—so far as the load to be carried is concerned—rather more reasonable. A 15-passenger carrier is a useful commercial vehicle—if it can be operated at a reasonable cost. But cost, except as regards the cost to the Air Ministry of buying the machine, is nowhere touched upon. There is no word as to cost either of manufacture, of upkeep and maintenance, or of operation, from one end to the other of the whole series of rules.

A Few Good Points.

The competition for seaplanes shows certain good points.

The condition that they must be able to land on a smooth aerodrome and to get off the same is to be commended. Even if it fails to produce any very satisfactory combined water and land undercarriages, but merely demonstrates to the general public that a decently designed seaplane can land, and even get off any reasonable aerodromes on its floats alone, it will serve a useful purpose in encouraging a more extended use of seaplanes.

The mooring-out tests should be valuable, particularly in so far as they call for the machines being brought up to and moored to their buoys without any outside assistance.

These are purely matters of the technique of design, however, and the seaplane tests show no more idea of encouraging economical design than do the aeroplane tests.

The very allocation of twice as large an amount of prize-money for aeroplanes as for seaplanes, in a country like England, is in itself evidence of an absence of vision on the part of those responsible for the drawing up of the rules.

The Neglect of Seaplanes.

Great Britain, with its unequalled network of roads

and railways, is one of the most unpromising of countries for the development of overland aerial transport.

On the other hand, its island condition, the lack of direct communications along the coast-line, and the enormous cross-seas traffic with the Continent render it one of the most promising fields for the intelligent exploitation of seaplane services.

It would seem reasonable, therefore, to have devoted special attention to seaplanes, particularly as during the war seaplanes have been almost entirely neglected; but it may be assumed that, as seaplane manufacturers have been very nearly extinguished in this country, the Air Ministry has considered it safe to treat them with even more contempt than their slightly more vigorous brethren who build aeroplanes.—W. H. S.

EXHIBITION FLYING IN U.S.A.

The Director of Air Service, Washington, U.S.A., issued the following on July 22nd :—

"With the immense popular interest in flying together with the difficulties of living up to the common expectation and the technique of flying, it is remarkable that more accidents have not occurred through the use of makeshift fields. During the Victory Loan Campaign, teams of aviators, flying various types of high-powered, high speed machines, including even captured enemy Fokkers, covered almost the whole United States with the shadow of their wings, sustaining but one accident, and that to a spectator. Flights were made in 88 cities, utilising such fields in the vicinities as happened to be available."

THE "DAILY EXPRESS" PRIZE.

The Advisory Committee on the "Daily Express" £10,000 reliability prize, held its preliminary meeting on Aug. 22nd. The Committee decided to meet again on Aug. 29th, and will then announce the date on which entries will be officially received. Meanwhile, the Committee agreed to the extension of the closing date from June 1st to Oct. 31st, 1920.

Among those present were Brig.-General Sir Capel Holden, C.M.G., D.S.O. (Chairman); Lieut.-Col. F. K. McLean, D.S.O.; Lieut.-Col. A. Raikes, D.S.O.; Capt. G. Mansell; Capt. P. D Acland; Mr. A. Allen; and Mr. H. E. Perrin.

The R34 (1,950,000 cu. ft.; five 250-h.p. Sunbeam "Maori" engines) flying at Pulham Aerodrome, Norfolk. Below is the R24 (924,000 cu. ft.; four 250-h.p. Rolls-Royce engines) moored to a mast during mooring tests.

THE OFFICIAL BRITISH AIRCRAFT COMPETITION

The Air Ministry makes the following announcement:—

A Committee composed of members of the Air Ministry and of the Aviation Industry has been sitting for the past two months under the chairmanship of the Under Secretary of State for Air to consider the question of encouraging the future development of aviation on the lines of increased safety. A large number of witnesses has been called, including constructors and designers and representatives of the public who are interested in aviation. It has been decided, as stated in Parliament, to institute a competition open to the British Empire. Prizes to the value of £64,000 will be awarded by the Government under the conditions which are set out below.

Rules for a Competition for Aircraft to further the Attainment of Safety in Air Travel.

NOTES ON THE COMPETITION

(a) The aim of these competitions is to obtain a real advance in the efficiency and design of aeroplanes and seaplanes, more especially with the view of increasing the safety of air travel. The rules drawn up are intended to secure this object.

(b) As regards the rules for aeroplanes it is recognised that the conditions are, generally speaking, easier for the small machine than for the large. The object in this is to attract a large number of competitors from amongst designers of small machines.

(c) The present competitions are not directly aimed at engine reliability, nor at economy in fuel and oil consumption, although these are of the first importance, but chiefly at the attainment of efficiency in the machine itself. A much longer time is required to produce radical improvements in engines than in machines, and since it is intended that the present competitions should be held early next year, it has been decided to concentrate attention on the machine on this occasion.

Rules.

AEROPLANES.

1. A competition will be held commencing on March 1st, 1920, with the object of ascertaining the best types of aeroplanes which will be safe to travel in, and, in particular, be capable of alighting in and arising from a small space.

2. Two types of aeroplanes will be entered for the competition.
   (a) Small type with a total carrying capacity of two persons (including pilot).
   (b) Large type with seating accommodation for 15 persons (exclusive of crew).

3. Machines and engines must have been designed and constructed within the British Empire. This rule will not, however, apply in the case of such secondary equipment as ignition system carburetters and instruments.

4. Machines are to fulfil all conditions required for a certificate of airworthiness, and are to carry parachutes for all persons for whom accommodation is provided, including crew.

5. Each machine must be capable of flying level at or above the following speeds with full load at ground level:—

SMALL TYPE.—100 m.p.h. LARGE TYPE.—90 m.p.h.

and must also be capable of flying level at or below the following speeds with full load at ground level:—

SMALL TYPE.—40 m.p.h. LARGE TYPE.—45 m.p.h.

Each machine must also be capable of climbing not less than:—

SMALL TYPE.—500 ft. in the first minute, starting from ground level.

LARGE TYPE.—350 ft. in the first minute, start from ground level.

6. LANDING AND GETTING OFF TEST.
   (a) A circle will be marked out on open ground to represent a field surrounded by obstacles. This circle will be of the following diameter:—
   Small machines ..... 175 yards.
   Large machines ..... 275 yards
   The obstacles will be represented by a continuous string or tape with streamers attached, 50 ft. from the ground, of such a nature as to be easily broken by an aeroplane.
   (b) The landing to be made in still air. Still air includes any wind not exceeding 5 miles per hour at ground level.
   (c) During landing the machine is not to side slip nor to turn, after reaching the obstacles until it is on the ground. Once it has touched the ground the machine may turn in any direction.
   (d) The machine to come to a standstill before reaching the marks representing the boundary of the field.
   (e) After landing, the machine to get out of the same field over the 50 ft. obstacle in still air (as defined in sub para. (b), no turn to be allowed until clear of the obstacle on the far side.
   (f) No breaking device operated by the engine may be used during landing.
   (g) Any landing or taking off gear used must be integral with the machine.
   (h) No landing apparatus may be used that in the opinion of the judges would be liable to cause undue damages to an aerodrome, e.g., a claw attached to the machine as used on certain types of German machines would not be allowed, but the ordinary knife edge on a tail skid would be allowed.
   (j) Both landing and taking off to be with full load.
   (k) Each machine will be allowed two trial attempts (which are definitely not to be counted as tests), and thereafter will be allowed four attempts, of which two must be successful.

7. RELIABILITY TEST.
   (a) In the case of the small type, each machine must carry out a series of two flights of 3½ hours each at a speed, through the air, of not less than 80 miles per hour, starting with full load. Between flights machines will be left untouched, and under seal if necessary, a period of not more than 30 minutes being allowed before the second flight, for the purpose of filling up and normal examination.
   No parts of the machine to be adjusted or changed without permission from the judges.
   (b) In the case of the large type, each machine must carry out one flight of seven hours' duration at a speed, through the air, of not less than 75 miles per hour, starting with full load. Pilots may be changed during those flights.

8. Machines must be capable of landing from a height of 500 ft., with their engines switched off or completely throttled down.

9. In a machine having two or more engines, the stoppage or retardation of any one engine must not prevent the machine from flying level nor cause it to get out of control.

10. Machines must be capable of being started from the cockpit or cabin without undue muscular exertion on the part of the pilot.

11. Machines to be capable of flying at cruising speed for 5 minutes without the use of any controls or stabilising devices. Controls may be locked during this test.

12. Machines to be capable of standing unattended and not fastened down in a wind of 10 miles per hour, blowing in any direction with reference to the machine.

13. The design of the machines to be such that the risk of the machines turning over on a rough ground is reduced to a minimum.

14. Each machine to be provided with a complete outfit for pegging it out in the open. This outfit will not be carried as part of the load during tests.

15. In order to be eligible for prizes, machines must fulfil the conditions and tests laid down in Rules 3 to 14 inclusive. Marks will be awarded for soundness and quality of construction, for general features and for exceeding the specified requirements in Rules 5 and 6.

16. "Soundness and quality of construction" will include:—
   (a) Fire protection, including use of self-sealing tanks, position of tanks (from the point of view of safety from fire in event of a crash), fire-fighting appliances and accessibility of same.
   (b) Reliability of petrol, oil, and water systems; and facilities for seeing if all tanks are full.
   (c) Durability of machine, including propeller (any advantages due to metal construction may be taken into account).
   (d) Simplicity of design and accessibility of parts.
   (e) Absence of vibration in the machine.

17. "General features" will include:—
   (a) Efficiency and ease of control.
   (b) Unrestricted field of view to the front for the pilot
   (c) Silence as affecting occupants of the machine, including crew.
   (d) Comfort generally, including warmth.
   (e) Self-starting devices.
   (f) Method of wind screening adopted.
   (g) Convenience for use of instruments.
   (h) Freedom of entry and exit for occupants.

18. With reference to rule 6, marks will be allotted for the capabilities of machines to land in an area more restricted than that used for the tests.

In judging this, the point vertically below the point where the centre line of the machine crosses the tape will be marked on the ground and the maximum distance reached by the wheels of the undercarriage will be measured in a straight line from this point.

19. Marks will be allotted for exceeding the minimum high speed and for flying less than the maximum low speed.

20. The judges will have regard to the method of fitting parachutes and especially to the means of exit by parachute afforded to the occupants of the large machine, and will allot marks for the same.

21. Marks will be allotted for the convenience of pegging out the machine in the open and for the lightness of the apparatus necessary for pegging down.

22. Marks will not be given on account of the number of engines installed.

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23. The following will be the allotment of marks.—

Soundness and quality of construction (Rule 16).—Sub-para. (a), maximum 8; (b) maximum 8; (c) maximum 6; (d) maximum 6; (e) maximum 4. Maximum total, 32.

General features (Rule 17).—Sub-para. (a) maximum 6; (b) maximum 6; (c) maximum 6; (d) maximum 5; (e) maximum 5; (f) maximum 3; (g) maximum 3; (h) maximum 2. Maximum total, 36.

High speed.—For each m.p.h. in excess of required minimum (Rule 5), ½. No maximum.

Low speed.—For each m.p.h. below required maximum (Rule 5), 1. No maximum.

Landing.—For every complete 3 yards less than the distance allowed in 175 yards for small and 275 yards for large machine (Rules 6 and 18), 1. No maximum.

Method of fitting parachutes (Rule 20); maximum marks, 5.

Convenience of pegging-out (Rule 21); maximum marks, 3.

Forfeiture of Marks.

Adjusting or changing parts in reliability test. See Rule 7 (a); maximum marks, 8.

For every two minutes or portion of two minutes in excess of the maximum time allowed for filling—1 mark. See Rule 7 (a); maximum marks, 8.

24. With reference to Rule 6, when carrying out the landing and getting-off test, machines will start with the full load of petrol and oil and will be allowed to fly for 20 minutes. If they have not carried out their tests by the end of that period they must land and fill up again.

25. The type of propeller used on any machine must be the same for all the tests.

26. Full load is to include:—

Instruments as under

Revolution counter; aneroid; air speed indicator; turn indicator; compass; watch; oil pressure gauge (when necessary); air pressure indicator (when necessary); radiator thermometer (when necessary).

Small Type.—Petrol and oil sufficient to fly 450 miles at 3,000 ft. In addition, a load of 440 lb., to include weight of pilot and passenger, if carried, and parachutes.

Large Type.—Petrol and oil sufficient to fly 600 miles at 3,000 feet. In addition, a load of 3,000 lbs., to include weight of passengers, if carried, and also to include parachutes, but not to include the weight of crew.

27. Petrol and oil for the tests and, as far as possible, accommodation (at owner's risk) for the machines will be supplied free by the Government.

28. The judges shall have the right to disqualify any machine that is very seriously defective in any respect.

29. The judge shall have the right to put up a Service pilot to fly any of the machines should they consider it desirable to do so at Government risk.

All tests will, however, be carried out by the entrant's pilot.

30. During or on completion of any flying test if it is necessary to effect any repairs to the machine after landing, it will be considered to have failed in that particular test.

This does not apply to cases where the machine is by the judges' instructions being flown by the pilot other than the entrant's pilot.

31. Any entrant may enter more than one type of machine.

32. If a machines is wrecked during the competition, it may, at the discretion of the judges, be replaced by another, but the replacement machine must carry out the whole programme of tests.

33. The decision of the judges shall be final in all matters affecting the competition.

34. The Government do not accept any liability in respect of accidents during the competition, whether resulting in injury to personnel or damage to the machine, except as specified in Rule 29.

35. The Government reserve the right to adjourn the competition.

36. The Government reserve the right to withhold any or all of the prizes if, in the opinion of the judges, no real advance on existing designs is shown.

37. The Government will, if the entrant agrees, buy the machine of each type winning the first prize, the designs to remain the property of the manufacturers. The maximum prices payable under this head will be:—

Small Type.—£4,000. Large Type.—£10,000.

38. The following prizes are offered:—

Small Type.—1st prize, £10,000; 2nd, £4,000; 3rd, £2,000.

Large Type.—1st prize, £20,000; 2nd, £8,000; 3rd, £4,000.

39. Entries to close Dec. 31st.

Rules.

Seaplanes.

1. A competition will be held on March 1st, 1920, with the object of ascertaining the best types of Float Seaplanes or Boat Seaplanes in which it will be safe to travel, and, in particular, to be capable of alighting on and arising from land as well as water.

2. Each machine entered for the competition will be provided with seating accommodation for four persons, exclusive of the crew.

3. Machines and engines must have been designed and constructed within the British Empire. This rule will not apply in the case of such secondary equipment as ignition system carburetters and instruments.

4. Machines to fulfil all conditions required for a certificate of airworthiness, and to carry parachutes and lifebelts for all persons for whom accommodation is provided, including the crew. The boat or floats must be so sub-divided that if perforated in any one part, each float still retains positive buoyancy.

5. Each machine must be capable of flying level at or above a speed of 80 knots with full load at sea level, and must also be capable of flying level at or below a speed of 40 knots with full load at sea level.

Machines must be capable of climbing not less than 350 ft. per minute.

6. Alighting and Getting Off Tests.

(a) Getting off test (sea).

Machines will be required to take off with full load and clear an obstacle 25 ft. above sea level in a distance not exceeding 300 yards from a position of rest.

(b) Alighting test (land).

Machines will be required to land on a smooth aerodrome over an obstacle 25 ft. in height and to come to rest in a distance not exceeding 400 yards, measured in a straight line from the point where the obstacle is crossed. For this, test machines will be required to carry full load, less 50 per cent. total and oil.—[*sic.*—Ed.].

(c) Getting off test (land).

Machines will be required to take off a smooth aerodrome with full load and clear an obstacle 25 ft. in height in a distance not exceeding 400 yards from a position of rest.

(d) The above tests are to be made in still air, which, for the purposes of this competition, will be regarded as any wind velocity not exceeding five statute miles per hour.

(e) During landing the machine is not to side-slip nor to turn after reaching the obstacle until it is on the ground. Once it has touched the ground the machine may turn in any direction.

(f) No braking device operated by the engine may be used during landing.

(g) Any landing or taking off gear used must be integral with the machine.

(h) No landing apparatus may be used that in the opinion of the judges would be liable to cause undue damage to an aerodrome.

(i) In test (a), (b), and (c) above, machines will be allowed four attempts, of which two must be successful.

7. Test of Reliability in Flight.

(a) Each machine must carry out a flight of five hours at a speed through the air of not less than 70 knots, starting with full load.

Pilots may be changed during this flight.

8. Mooring Out Tests.

(a) Fair weather. Each machine will be moored to a buoy by its own crew and using its own mooring tackle (other than the buoy and its moorings) for a period of 24 hours, during the first 23 hours of which time it will be left unattended. The crew will not be allowed on board to pump out the bilges at any time during this test except with the permission of the judges in case of emergency.

At the conclusion of the 24 hours' period the crew will be allowed on board the machine and will be got under way by its own crew and under its own power, and will be required to carry out a short flying test within a period of one hour from the conclusion of the 24 hours' period.

The test will be carried out under fair weather conditions. Marks will be allotted for rapidity in getting under way.

Moderate weather. Each machine will be moored to a buoy for a period of not less than 12 hours, unattended under the following conditions:—

Locality.—Roadstead sheltered from the open sea.

Wind.—From 4 to 6 on the Beaufort Scale.

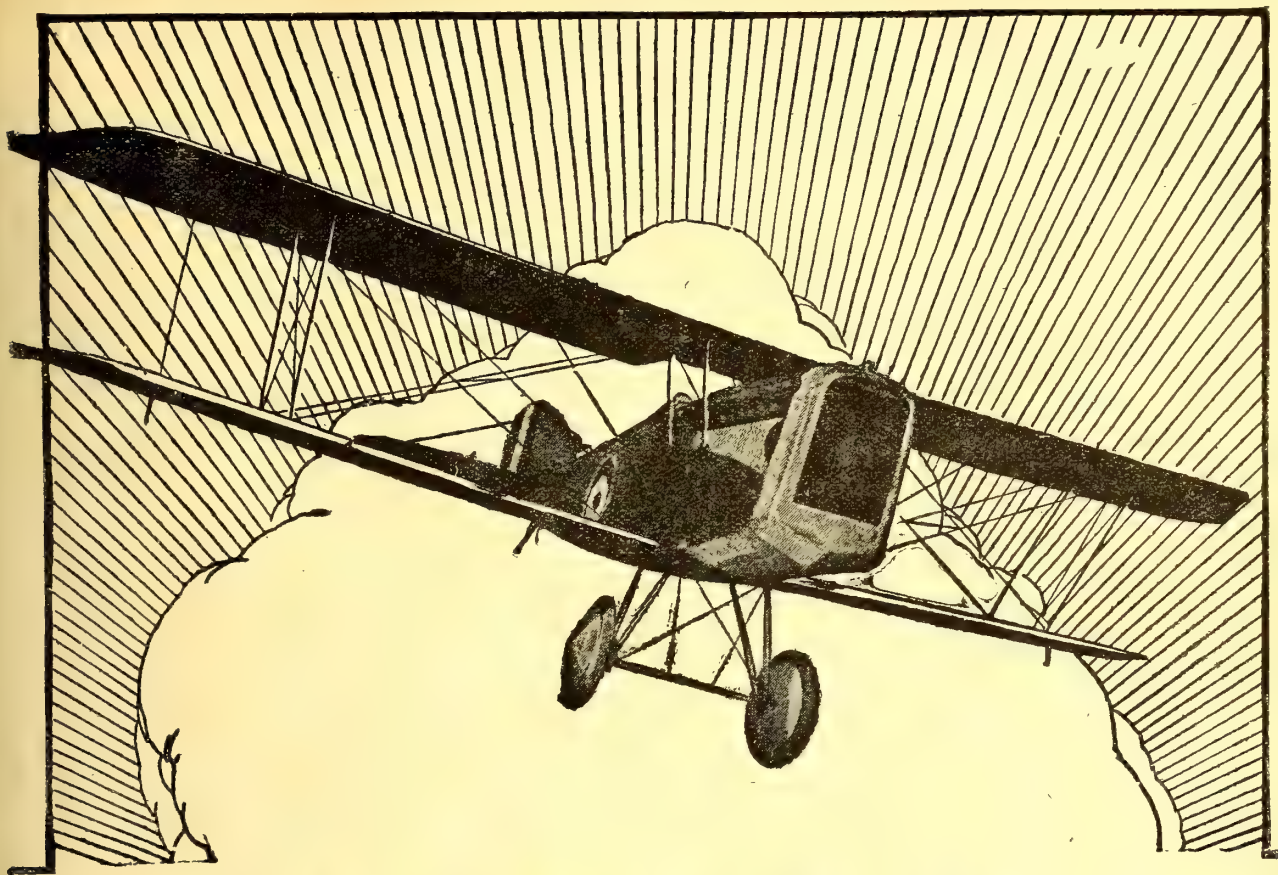
Marks will be allotted for the general condition of the machine at the conclusion of this test, and its behaviour during the test.

In both the above tests the ordinary average tidal currents existing round the coast of the British Isles may be experienced.

9. Rough water getting off and alighting test.

Each machine will be required to carry out a test of getting off and alighting on disturbed water, which, in the opinion of the judges constitutes a moderate sea. The condition, in any case, will not exceed state four in the sea disturbance scale. (Waves under 4 ft. in height).

10. Machines will be required to carry out a test of being



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towed in a moderate sea as defined in paragraph (9) in a circle of approximately ½-mile radius.

11. Each machine must make a figure of eight course round two buoys 100 yards apart and within a rectangle measuring 200 yards by 100 yards, in a wind not exceeding 15 m.p.h. The sea to be smooth and the tide at slack water.

12. Each machine must be capable of moving on the water, under its own power, for a period of at least 30 minutes, and at a speed of not less than 10 knots, and not greater than 20 knots.

13. Each machine will be required to carry an anchor and sea anchor as well as its own mooring tackle, and to anchor on good holding ground with its own gear, and remain fast in a wind of 10 m.p.h. and with tidal current not exceeding 3 knots.

14. In a machine having two or more engines, the stoppage or retardation of one engine must not cause the machine to get out of control.

15. Machines must be capable of flying at cruising speeds for three minutes without the use of any control or stabilising devices. Controls may be locked during the test.

16. Machines, in the round flying position, must take up and maintain a gliding angle, when the engine or engines are cut off without the use of any controls or stabilising devices.

17. After stalling (1) machines must be capable of recovering flying speed and complete control without a loss of more than 500 feet of height.

18. Machines must be capable of being started from the cockpit or cabin, without undue muscular exertion.

19. (1) In order to be eligible for prizes machines must fulfil the conditions and carry out the tests laid down in paragraphs 2 to 18 inclusive. Marks will be awarded for soundness and quality of construction, for general features, for general behaviour afloat, and for exceeding the specified requirements in Rules 5 and 8 (a).

20. (2) Soundness and quality of construction will include :—
- (a) Fire protection, including use of self-sealing tanks, position of tanks (from the point of view of safety from fire in event of a crash), fire-fighting appliances and accessibility of same.
- (b) Reliability of petrol, oil and water systems, and facilities for seeing if all tanks are full.
- (c) Durability of petrol, oil and
- (c) Durability of machine including propeller (any advantages due to metal construction may be taken into account).
- (d) Simplicity of design and accessibility of parts.
- (e) Absence of vibration in the machine.
- (f) Ease of repair, especially in regard to the hull or floats.

21. (iii) General features will include :—
- (a) Efficiency and ease of control.
- (b) Unrestricted field of view to the point [? front] for the pilot.
- (c) Silence as affecting occupants of the machine.
- (d) Comfort generally, including warmth.
- (e) Self-starting devices.
- (f) Convenience of mooring and anchoring arrangements
- (g) Method of wind screening adopted.
- (h) Convenience for use of instruments.
- (i) Freedom of entering and exit for occupants.
- (j) Bilge pumping arrangements.

22. Behaviour afloat will include :—
- (a) Stability at rest.
- (b) Water stability at all speeds.
- (c) Minimum spray at all speeds.

23. Marks will be allotted for exceeding the minimum high speed and flying less than the maximum low speed.

24. The judges will have regard to the method of fitting parachutes and especially to the means of exit by parachute afforded to the occupants and will allot marks for the same.

25. Marks will not be given on account of the number of engines installed.

26. The following will be the allotment of marks :—

Soundness and quality of construction (Rule 20).—Sub-para. (a) 8; (b) 8; (c) 6; (d) 6; (e) 4; (f) 4; maximum total, 36.

General features (Rule 21). Sub-para. (a) 6; (b) 6; (c) 6; (d) 5; (e) 5; (f) 5; (g) 3; (h) 3; (i) 3; (j) 3; maximum total 45.

Behaviour afloat (Rule 22).—Sub-para. (a) 6; (b) 6; (c) 6; maximum total, 18.

High speed (Rule 5).—For each knot in excess of required minimum, ½; no maximum.

Low speed (Rule 5).— For each knot below the required minimum, 1; no maximum.

Mooring-out test (Fair Weather) (Rule 8a).—For each complete 5 minutes less than the hour allowed from the completion of the 24-hour period to the moment when the machine leaves the water; 1 mark.

Mooring test in moderate weather (Rule 8b).—For behaviour of machine during test; maximum marks, 5.

For condition of machine at end of test; maximum marks, 5.

Method of fitting parachute (Rule 24); maximum marks, 5.

27. With reference to Rule 6, when carrying out alighting and getting-off tests machine will start with the load of petrol and oil specified and will be allowed to fly for 20 minutes. If they have not carried out their tests by the end of that period, they must alight and fill up again.

28. The type of propeller used on any machine must be the same for all the tests.

29. Full load will include :—

Instruments as under :—Rev. counter, aneroid, air speed indicator, compass, watch, turn indicator, bearing plate, sextant, oil pressure gauge (when necessary), air pressure gauge (when necessary), radiator thermometer (when necessary).

Petrol and oil sufficient to fly 450 nautical miles at 1,000 ft.

In addition a load of 1,000 lb., to include passengers if carried, and lifebelts and parachutes, but not including crew or any gear specified in Rules 8 (a) and 13.

30. Petrol and oil for the tests, and, as far as possible, accommodation (at owner's risk), for the machines will be supplied free by the Government.

31. The judges shall have the right to disqualify any machine which is very seriously defective in any respect.

32. The judges shall have the right to put up a Service pilot to fly any of the machines, should they consider it desirable to do so at Government risk.

All tests will, however, be carried out by the entrant"s pilot.

33. During or on completion of any flying test if it is necessary to effect any repairs to the machine after alighting it will be considered to have failed in that particular test.

This does not apply to cases where the machine is by the judges' instructions being flown by a pilot, other than the entrant's pilot.

34. An entrant may enter more than one type of machine.

35. If a machine is wrecked during the competition, it may, at the discretion of the judges, be replaced by another, but the replacement machine must carry out the whole programme of tests.

36. The decision of the judges shall be final in all matters affecting the competition.

37. The Government do not accept any liability in respect of accidents during the competition, whether resulting in injury to personnel or damage to the machine (except as specified in Rule 32).

38. The Government reserves the right to adjourn the competition.

39. The Government reserve the right to withhold any or all of the prizes if, in the opinion of the judges, no real advance on existing designs is shown.

40. The Government will, if the entrant agrees, buy the machine winning the first prize, the design to remain the property of the manufacturer. The maximum price payable under this head will be £8,000.

41. The following prizes are offered :—1st prize, £10,000; 2nd prize, £4,000; 3rd prize, £2,000.

42. Entries to close Dec. 31st.

[The eccentricities of style and grammatical construction are those of the Air Ministry officials who drafted the rules. The curious sub-paragraphing of paragraphs 19, 20 and 21 of the Seaplane Section is also to be attributed to the same source.—Ed.]

MORE PRIZES OFFERED.

It is announced that the French Government has allotted some £8,000,000 to commercial aviation. Prizes will be awarded to companies establishing air lines (1) in France, for lines going East to West; (2) for Colonial lines connecting France and the colonies; (3) for Colonial lines opening communication with distant points in the interior.

The Control Board undertakes the preparation and equipment of landing stages to be established every 50 or 60 kilometres. According to their importance, these aerodromes are to be classified as "air ports" (for the reception of every type of flying machine), "air stations" (with hangars, hotels, etc.), or "stops" (for revictualling).

THE TRANS-PACIFIC RACE.

The Aero Club of America announces that aviators who wish to enter for the trans-Pacific Race in September, for which Thomas H. Ince has offered a prize of £10,000, should make application to any club affiliated with the Federation Aeronautique Internationale. The entrance fee is 500 dollars.

If westward, the flight must be made from Venice, California, and the finish be in Australia, Japan, the Philippines, or the Continent of Asia. But it may be made eastward from any of these places.

Contestants must complete the flight within 288 hours from the time of starting. Ninety-five per cent. of the mileage travelled must be in the air. Towing is not prohibited, and stops and landings may be made en route.

In the event of no contestant being able to complete the flight, 10,000 dollars will be awarded to the aviator who, setting out from the Californian starting-place, reaches the Hawaiian Islands in the shortest time. Should no contestant succeed in reaching these islands, 5,000 dollars will be awarded to the aviator flying farthest in the air.

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A DANGEROUS POLICY.

By Captain P. A. BARRON (late R.A.F.).

The aeronautical correspondent of the "Times" has commenced a series of articles, the first of which is entitled "A Policy for Aviation." With most of the views expressed one disagrees with whole-hearted enthusiasm. The articles show that considerable thought has been given to the subject—just as one might say that the answer of a schoolgirl indicated thoughtfulness when she was asked whether a kiss was a common noun or a proper noun, and answered that it might be either common or proper according to the circumstances.

The danger of these articles that look so reasonable is that they are extremely likely to influence the opinion of the public that is not in a position to judge whether the premises upon which the arguments are based are sound. With all due deference to this writer, much of whose work one admires, it seems necessary, therefore, to criticise his views. In last week's issue of The Aeroplane it was pointed out that the proposal to allot a sum of £25,000,000 per annum to the upkeep of the R.A.F. showed lack of forethought, and that the sum would be entirely inadequate to the needs of the Empire. This writer in the "Times," however, calmly suggests that the maximum expenditure need not be more than £15,000,000 a year for all Government aviation for the next three or four years, and he suggests that of this sum only £12,000,000 would be necessary to provide for a force of 25 squadrons on a permanent basis.

He suggests the allocation of £1,000,000 per annum for the next five years, which would be distributed in prizes to civilian manufacturers, and that another £2,000,000 could be usefully employed by the Air Ministry on postal services with those parts of the Empire where Service squadrons are required strategically.

One feels strongly opposed to these views, because one sees clearly that a certain section of the Press to which the "Times" belongs is likely, in carrying out the policy of crying for a reduction in national expenditure, to go too far and to show an utter lack of discrimination in its efforts to point out where money can be saved advantageously, and where it cannot be saved without disastrous effects in the future.

Mental Equilibrium Needed.

At the present time, while the country is groaning under the burden of a ponderous income tax, and when most business men feel that the task of reconstruction is almost as hopeless as that of Sisyphus toiling at his rock, it is perhaps understandable that any proposition that appears likely to reduce expenditure will be received favourably by the public. One expects, however, that papers which at one time were regarded as authoritative should retain a certain amount of sanity in dealing with present-day problems. The scheme put forward does not give one the impression that this desirable state of mental equilibrium exists.

If one has understood the views expressed, it appears to be thought that the R.A.F. can be almost neglected and that the Government should encourage the development of Civil Aviation in order that a Reserve Force may be built up somewhat similar to the reserve formed by the Mercantile Marine. It is argued that "the initial stages . . . of the training of pilots and navigators are identical for both Civil and Service personnel, and that all that the Service personnel need is additional specialised training. All training for both types of pilots should be carried out at the same schools with the same instructors, the permanent Service pilots merely going on to purely Service schools for advanced training."

One can only say that one does not agree. On the same line of argument one might say that every boy in England who wishes to make the sea his career should go to the Royal Naval College, and that after receiving instruction there those who desire to enter the Royal Navy should receive a little extra education, while the remainder would go into the Mercantile Marine. One disagrees with this view because one knows that the training of the boys who enter the Royal Navy is entirely different from that of others who enter the Mercantile Marine. And exactly the same thing would apply in future to those who enter the career of Commercial Aviation and those who wish to serve their King.

A Mistaken Idea.

One is not saying that the personnel to be found in Commercial Aeronautics in the future will not be a great asset to the country. One realises that it will; exactly as the personnel of the Mercantile Marine was an enormous asset to the Royal Navy in war-time. It will form a great reserve, but one feels strongly that the idea that the same schools will serve for both Civil and Service pilots is a mistaken one.

But it is when one turns from the subject of personnel to that of equipment that one finds oneself most strongly in disagreement with the aeronautical correspondent of the "Times." For example, he writes: "Most types of civil aircraft as they develop will be capable of conversion into war craft comparatively easily." Now this is one of those statements which are so apt to mislead the public, who still believe—for their fathers have told them—that the "Times" is a journal that speaks with authority, and they are therefore not likely to question such statements as these.

But let us examine it in the light of our faith in future aeronautics. Is it probable that civil aircraft as they develop will be capable of conversion into war aircraft comparatively easily? One must at least be allowed to doubt. For instance, among the qualities required for war machines are rapid climb, high ceiling, and manœuvreability. As one is writing for a technical audience, one need not explain why.

Are these qualities required to the same extent in commercial aircraft, in which it would appear that the greatest desiderata are speed, cargo-carrying capacity, and economy? A moderately high ceiling may be necessary in order that navigators may find a favourable weather stratum, but, judging by what we know of the very rapid progress that has been made in the development of anti-aircraft guns, one thinks that it will be far more important for Service machines to attain a great height rapidly than it will be for machines designed for purely commercial purposes. Again, what immediate use can one see in Civil Aeronautics for the fast single-seater fighting machines which played so great a part in the closing months of the war? The answer would appear to be none.

Truth May Become Untruth.

In these days of rapid change one feels it necessary to express one's ideas with considerable diffidence. Certainly one does not wish to be dogmatic. For a truth too vigorously expressed may become an untruth. A lie has been prettily defined as "an abomination in the sight of the Lord, but a very present help in time of trouble"—which means, presumably, that it is a useful thing to hurl into an argument when one finds oneself in a tight corner.

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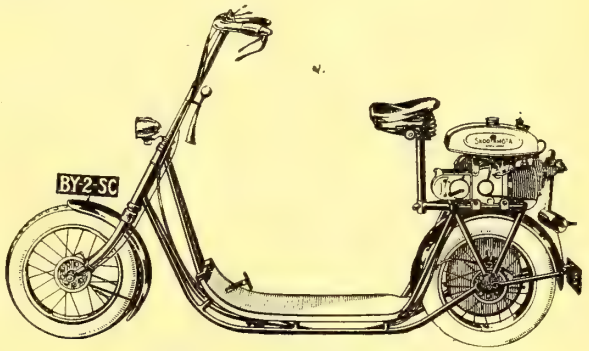

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At this stage one is merely inclined to say that it is a very dangerous proposition to state that commercial aircraft and fighting aircraft are likely to develop upon the same lines. To fall back on analogy one feels that upon a similar argument the less-educated section of the British public might have been induced to believe that because we had the greatest Mercantile Marine in the world a Fleet was unnecessary, and there might be a certain number of people who would be induced to think that it would pay us better to subsidise liberally a Merchant Fleet and let the Navy go. The more enlightened would think differently, knowing that the two are distinct and in war have entirely separate uses.

Commercial aircraft may prove an asset of incalculable value in war, just as did our Mercantile Fleet, although one would not send out Atlantic liners to fight enemy Dreadnoughts. By all means let Commercial Aeronautics be encouraged, but not by starving the R.A.F.

In a second article the aeronautical correspondent of the "Times" calls for an entirely new organisation with many responsible official positions. With this one may perhaps deal on a future occasion. For the present one has said enough.

Fiat justitia, ruat cœlum. One trusts that one has misjudged or misread some of the views expressed in the "Times." One can only say that one has studied them, and that, if the points mean what they seem to mean, one is in entire disagreement with the views expressed.

MISDIRECTED CRITICISM.

A lot of hysterical nonsense has appeared in the daily Press recently with regard to Lord Midleton's accusations of Governmental waste of money at the Dorchester aerodrome.

Upon the principle that any stick is good enough to beat a dog with, the papers belabour the Government (1) for building a great airship shed on farm land that was yielding good crops; (2) for paying unreasonably high wages to workmen; (3) for not paying the owner of the land—an apparent attempt at economy; (4) for leaving the great steel and corrugated iron building unfinished; (5) for not pulling it down, and so on.

The fact is, of course, that the country is at present in a panic over the expenditure on the war, and that anyone who wishes to make a bid for popularity has only to accuse the Government of wicked waste to achieve his object. That money has been squandered recklessly everybody knows, but the critics are not happy at the examples they bring forward.

In this particular case the Admiralty appear to take the view that it would be less costly to finish the great building than to demolish it. If it is demolished the entire cost, exclusive of the comparatively small amount the materials might realise, would be a dead loss to the country. If, on the contrary, the building is completed and the landing ground prepared as originally intended, the country will have as an asset one of the finest aerodromes for airships in the world. If it is pulled down now, it will certainly be necessary to erect a similar building in a few years' time.

As one said before, the examples of waste that are brought forward are badly chosen. One could almost believe that everybody concerned is in a conspiracy to divert public attention from the greater scandals by focussing the electors' thoughts on the minor ones which rhetorical Ministers can prove are not scandals at all but are evidence that we have the best of all possible Governments in the best of all possible worlds.

Let the critics demand to know why hundreds of the best of our pilots were literally sent to certain death by the blundering attempts of the Technical Department to foist inferior machines and engines on the R.F.C. and refuse the infinitely superior products of private enterprise. Let them look to the things that really matter, discover the great criminals and demand that a few of them be shot if necessary, but this mean quibbling over comparatively small matters leads nowhere.—P. A. B.

MAJOR-GENERAL SEELY'S DEFENCE.

The statements made by Major-General the Right Hon. J. E. B. Seely, C.B., C.M.G., D.S.O., M.P., in the House of Commons, in reply to the charges of extravagance, have been criticised severely. A correspondent of the "Times" writes regarding the alleged waste at Blandford:—

"Indignation is expressed at the suggestion that there is no room in the camp to house the girls who are engaged as clerks in the Records Office, and that it is necessary to convey them by train from and to Bournemouth every day. A walk round the camp shows that, in addition to numerous unoccupied huts, there are blocks of brick and concrete buildings of a permanent character standing empty, and suggesting in themselves a solution of a fair-sized housing problem In fact, over a wide expanse of hutments to the east of the camp railway terminus there are only one or two occupied huts to be seen.

"With regard to the cost of transporting some 400 girl clerks daily from and to Bournemouth, Major-General Seely denied that the cost per head per day was 4s. 7½d., and submitted as the true cost the figure of 11½d. The ordinary passenger who wishes to visit Blandford from Bournemouth is required to pay 4s. 7½d. for his return ticket. If the Air Force pays at the rate of only 11½d., who pays the difference? According to Mr. Lloyd George, there is no doubt that the railways at the present moment are run at the expense of the State, so, no doubt, the taxpayer pays the difference, and enables the Air Force to commend itself for its economy."

Some Officers of the U.S. Army Air Service serving in France towards the end of the War.

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The WORLD of AERONAUTICS

NEWS OF THE WEEK FROM ALL QUARTERS

The Schneider Cup Race.

In last week's issue the British entries for the Jacques Schneider International Race were announced. The Royal Aero Club has now received particulars of the French and Italian entries. They are:—

Two Nieuport machines with 300 h.p. Hispano-Suiza engines. The pilots are Malard and Casale.

One Spad (type of engine not stated). Pilot, Sadi LeCointe.

The Italian entry is a Savoia hydroplane type S.13 single-seater, with a 250 h.p. Isotta engine. Pilot, Janello.

The Royal Aero Club is making arrangements for members to have a reserved enclosure at the end of Bournemouth pier from which a full view of the race may be obtained.

Members who require tickets should apply to the Secretary, Royal Aero Club. As already announced, the race will take place on Wednesday, Sept. 10th.

The Sopwith Schneider Cup Seaplane.

The Sopwith machine entered for the Schneider Cup Race is a small single-seater float seaplane, fitted with a 450 h.p. Cosmos "Jupiter" engine. She follows the usual practice in small float seaplanes, and is more or less a modernised version of the original Sopwith seaplane that won the "Cup" at Monaco in 1914. The fuselage is built up in the usual way, and is faired for about half the length, so as to retain the form of the circular cowl that covers in most of the engine, the circular form gradually giving way to the ordinary slab-sided fuselage which tapers to the trailing edge of the rudder, the base of the rudder, which is directly in rear of the fuselage, being brought up to the thickness of the end of the fuselage and streamlined off. The small fin is also streamlined and built into the top of the fuselage, and hinged to it is a small unbalanced rudder. There is no tail float.

The "Cosmos" engine is bolted direct to the engine-plate, and has four extra attachments in the way of stays leading from the front edge of the crankcase to the engine-plate. There are four tanks carried in the fuselage in front of the pilot, one large one in the fuselage and three smaller ones carried in the streamlining in the top and sides of the fuselage.

The main planes are attached to the sides of the fuselage and the centre section respectively, and have one set of struts either side of the fuselage, the top plane being set at a slight negative stagger. The pilot's seat is in rear of the main planes, and has a streamline hump behind the pilot's head. Two large unstepped floats are fitted to the fuselage by four streamlined struts.

The Avro Schneider Cup Machine.

The machine designed and built by A. V. Roe and Co., Ltd., for the Schnieder Cup is the lowest powered of the British entries. Originally designed for a Rolls-Royce "Falcon" engine of 275-h.p. is was found impossible to obtain an engine of this mark in time for the competition, and a Siddeley "Puma" of 230-h.p. was installed in place thereof.

The machine itself is a small tractor twin-float seaplane of 26 ft. span, with a very small chord and gap, an upper wing built as a single unit—i.e., with spars running from tip to tip—and therefore devoid of any dihedral, and a lower wing with rather a large dihedral.

The fuselage is relatively very deep, nearly the full depth of the gap, and rather short, with the pilot's seat behind the trailing edge of the wings. At the rear end tail surfaces of normal design—adjustable tail plane, elevators, fin and rudder—are carried, as is usual.

Two long stepped floats are carried on a very simple chassis, consisting of two struts on each side raking forward and outward and two cross members joining the bases of each pair of struts, the whole cross traced in the usual manner.

No tail float and no water rudder are fitted.

The machine—in an incomplete condition—looks extremely businesslike and promises a very considerable turn of speed.

A detailed description, together with some illustrations, will, it is hoped, be available for publication in the next issue of The Aeroplane.

The Fairey Entry.

The seaplane entered by the Fairey Aviation Co., Ltd., for the Schneider Cup, is a modification of a standard Fairey type 3 machine, fitted with a Napier engine of 450 h.p., and wings of reduced surface. In spite of the reduced area, the load to be carried for the race is so small that the actual loading per square foot will be less than that of the standard type with war load, and, with the larger engine, the speed should be very high. Mr. Fairey, however, does not expect to score particularly on speed pure and simple—though on that alone it will require something very fast to beat him. In the event of the race occurring on a rough day, however, the Fairey chassis and floats should stand the machine in good stead, simply because the machine will be able to get off and land, where a pure racing machine would inevitably crash.

The Supermarine.

At the moment of going to Press no particulars of the machine entered by the Supermarine Co. are available—beyond the fact that it is a single-seat boat seaplane, with a Napier engine of 450 h.p.

From what one has been able to gather of the machines entered, it seems fairly safe to assume that under bad weather conditions the race will not be won at any speed less than 125 m.p.h., and, that given reasonable weather, it will not be surprising if the speed reached is close upon the 150 mark.

Tawdry Recruiting Posters.

A kind of rash has broken out on the hoardings lately, which, when closely examined, is found to be composed of small, vividly coloured posters, calling for recruits for the R.A.F. One had hoped that the blatantly vulgar, coloured recruiting poster of war-time that tried to outshine the advertisements of patent medicines and revues was a hideous memory of the past. Perhaps they served their purpose, but one would think that at the present day a restrained and dignified announcement of the advantages the R.A.F. offers would have been more effective. A straightforward statement of the pay and advantages offered would, one thinks, be more likely to attract possible recruits than a picture of an aeroplane and the poor pun "getting a good rise." Also, one thinks that a sober-hued poster of official appearance would show more prominently among the flaming appeals to buy somebody's soap or pills than the style of thing that has been adopted.

Yet Another Committee.

According to the report of the Departmental Committee on the Protection of Wild Birds issued on Aug. 20th:—

"A new danger to bird life has been introduced by the shooting or bombing of wild birds from aircraft.

"Already considerable destruction has resulted. We recommend that the use of aircraft for killing or taking wild birds should be prohibited."

Many recommendations follow. All the proposed regulations should, it is urged, be committed to the care of an ornithological advisory committee, who should furnish all necessary advice.

This sounds very alarming, but one has not heard that the bombing of grouse has become a pastime in this country?

Landing on a Roof.

It is reported from New York that Edwin Ballough, a pilot of an aeroplane used for delivering goods by Bamberger, proprietor of a Newark department store, has performed the feat of landing on a roof and taking off again.

Ballough has thus eclipsed the feat of the late Jules Védrines, who landed on the roof of the Galeries Lafayette in Paris, but was prevented by the police from starting again.

The building on which Ballough descended is a warehouse belonging to the Army Quartermaster's Department. The roof is 978 ft. long with a slight peak.

No. 32 Squadron Reunions.

In order that old members of 32 Squadron may not lose sight of one another it is proposed that occasional reunions may be held. Lieut.-Col. T. A. E. Cairns, D.S.O., has accepted the presidency of the Club, the headquarters of which are at 30, Bedford Row, London, and Mr. P. P. Nicholl, of that address, is acting as Secretary, and will be glad to hear from ex-members of the Squadron.

An Absurdity,

At the R.A.F. Club the other day a member tried to pull the blue-trousered leg of a Major who has only just returned to England by telling him that an order is shortly to be issued to make it compulsory for all commercial aeroplanes to carry red rear lights. He explained that the Authorities had decided that this is the logical outcome of the recent decision that it is the fastest vehicles that need rear lights as they are rarely overtaken, whereas country carts and pedal bicycles which are passed by every car do not need protection. The Major made quite an interesting little speech on the text of "the d—— silliness of everything" before it dawned upon him that so far as the red lights on aeroplanes were concerned he had been badly stung.

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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

The WORLD of AERONAUTICS (continued)

The London-Madrid Non-Stop Flight.

The Air Ministry has issued the following :—

The pilot's report of the recent non-stop record flight from London to Madrid made by the Alliance biplane shows that the flight was remarkable in many ways. This machine, which was fitted with a 450 h.p. Napier "Lion" engine, was originally designed for the trans-Atlantic flight. The pilot and navigator Lieut. W. R. Curtis, R.A.F., was lent by the Air Ministry to the Alliance Company for the purpose of making this flight. He had with him Mr. J. A. Peters, the designer, as assistant pilot.

The following notes are taken from the pilot's report :—

"We left Acton Aerodrome at 7.30 a.m., steering a course for Havre. A heavy ground mist made visibility poor, and at times completely obscured the ground from view.

"7.55 a.m., passed over Brighton at 10,000 ft., where visibility improved, until halfway across the Channel, when thick clouds again obscured the water from view.

"8.50 a.m., passed over Havre, which we just sighted through a break in the clouds. Course was altered here for San Sebastian, and we gradually decreased our height to 6,000 ft., flying just below clouds which were very broken.

"At 11.10 we passed over Rochelle; just after leaving this place we ran into very bad weather, the clouds being very thick, and ranging from 2,000 to 10,000 ft. in depth. After having a very bad time in thick clouds we eventually found ourselves at 2,000 ft. flying just below them in most terrific bumps which also made the machine uncontrollable. After experiencing this for some time we decided to go out to sea and get clear of the land.

"Here we found much better conditions, the sky being almost clear. We climbed to 13,000 ft. and passed over San Sebastian at 1.10 p.m. Course was altered for Madrid and the land again became obscured from view owing to very heavy clouds.

"Nothing was seen of the Pyrenées, and the first land sighted was at 2.20 p.m., when the clouds began to break up. Madrid being sighted at 3.10 p.m., and we landed at Cuetro Vientos Aerodrome at 3.28 p.m., having completed the journey in 7¾ hours."

Beating the Cable.

When the Napier-engined Alliance machine recently made the magnificent flight from London to Madrid in seven and three-quarter hours a cable message was dispatched from Madrid to Napier, Ltd., to announce the successful finish of the flight. This cablegram was not delivered until 15½ hours after its dispatch, exactly twice the time occupied by flying the distance. When one thinks of the amount of mail that might have been carried, it is obvious that aeroplanes will be serious rivals to the cable companies.

An Official Record.

It has been notified to D. Napier and Sons, Ltd., by the Royal Aero Club that the speed attained by Captain Gathergood when he won the Aerial Derby with a Napier-engined Airco machine on July 21st has been accepted as a British "record" for a closed circuit. The speed on that occasion was 129.3 miles an hour.

Offered to the Nation.

Vickers, Ltd., have stated that they are willing to present to the nation the Vickers-Vimy-Rolls aeroplane in which Capt. Sir John Alcock and Lieut. Sir Arthur Whitten Brown accomplished the Transatlantic flight.

General Seely, Under Secretary for Air, replying to a Parliamentary question the other day, said he was asking the First Commissioner of Works, if, in the event of the aeroplane being offered to the nation, he could exhibit it in South Kensington or another museum.

Alleged Bigamy.

Archibald Gill, a demobilised R.A.F. officer, was committed for trial on bail at Braintree on Aug. 22nd on a charge of bigamy.

Maud Wells stated that she married Gill in June, 1918. He was demobilised in January of this year. In February of this year she found in his pocket an affectionate letter from another woman.

Twelve days later, it was alleged, Gill married an officer's widow named Jackson, and had booked two passages to South Africa when arrested for leaving his previous wife chargeable to Braintree parish—an offence for which he has just completed six weeks' hard labour.

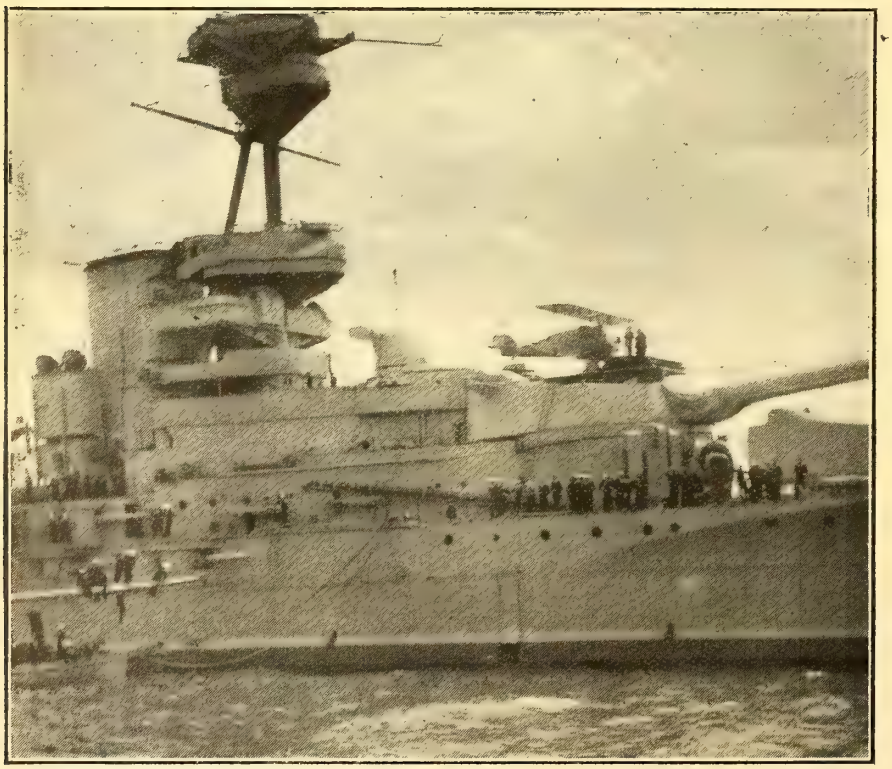
The Flying Dutchmen.

A writer in the "Evening News" says :—

"The enthusiasm of the Dutch for flying has its humours and its limitations. The people are what one flying officer calls 'load-testers'—the average weight per passenger, women included, has been about 13 stone during the exhibition. The limit was reached when seven men of the super-weight variety took their seats in a Blackburn machine. The pilot in an English aerodrome would have had no difficulty in getting off with this burden, but in Holland, where the ground generally is bad for both landing and starting, the machine gave up the ghost after making two attempts to lift."

The W.R.A.F. Clothing Inquiry.

Miss O'Sullivan, ex-Clothing Controller of the W.R.A.F., who made serious allegations regarding certain clothing contracts which have been the subject of an inquiry, has been demobilised. Miss O'Sullivan has stated that after the inquiry had been proceeding for 12 days, and before it was concluded, she was informed by the Commandant that she had been demobilised, although she had signed on for a further term of service.



A Parnell "Panther" Biplane (230 h.p. B.R.2) on a turret of H.M.S. "Revenge" with the launching platform folded up. The framework on the 15-in. guns to take the platform is shown in the print.

A Roof Aerodrome.

A Board of Trade Committee is considering a scheme for the establishment of a central clearing-house for London's goods traffic. It is proposed that the site of the clearing-house should be in Clerkenwell, and that the roof of the great building should be used as a commercial aerodrome.

Foolish Questions.

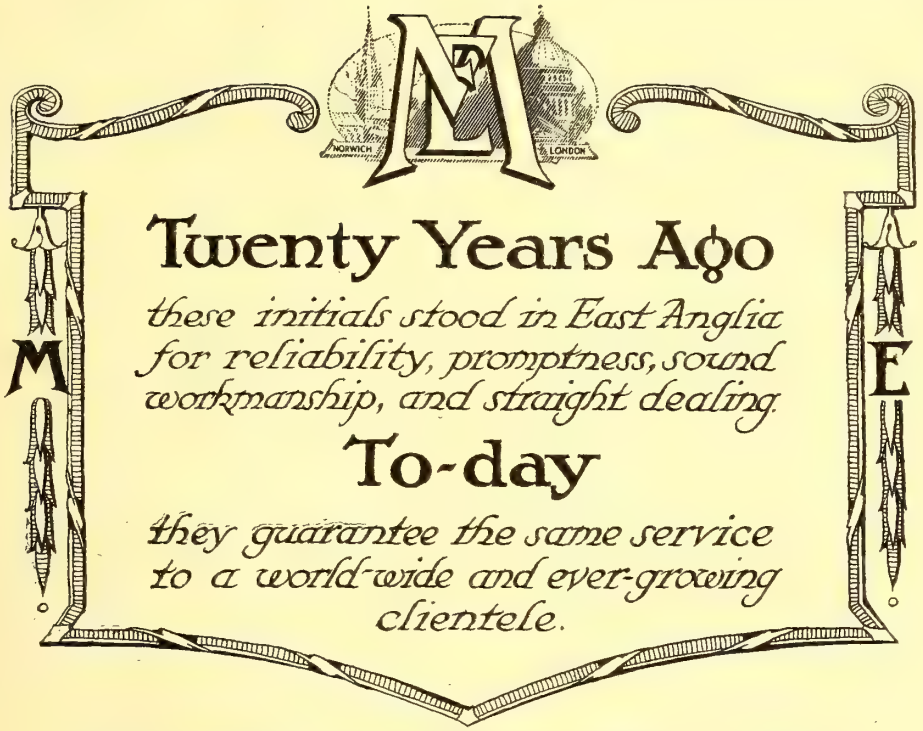
The pilots of the Avro seaplanes who are taking passengers for joy flights over Lake Windermere are sometimes asked curious questions. One woman passenger asked if the floats were intended to carry water ballast.

The London Flying Club.

The London Flying Club was opened at Hendon on Saturday, August 23rd. Among those present at the opening ceremony were H.H. the Princess Hatzfeldt, Cdr. Philip de Crespigny, Mr. Beal Davis, Mr. and Mrs. McCreesy, and Mr. and Mrs. Claude Grahame-White. A Hawaiian Band has been brought over from America for the use of this club.

Some Athletic Sports.

The Social and Athletic Club of Short Bros., Limited, held their annual athletic sports on August 23rd at Rochester. There were four open events under A.A.A. laws, as follows :—100 yards flat handicap, 880 yards flat handicap, one mile flat handicap, and a women's 80 yards handicap.



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The WORLD of AERONAUTICS (continued)

A Corporal's Capture.

At Croydon Police Court on Aug. 23rd, Edward Henry O'Brien, 26, who described himself as a horse-breaker, of Peabody Buildings, Stamford Street, Blackfriars, was charged with being concerned with two other men not in custody in stealing from Kenley Aerodrome a Crossley motor-car valued at £1,200.

Corporal C. H. Greagsby, R.A.F., said that on Friday, about mid-day, when passing the front of a garage, he noticed the prisoner drive the car away. He took a note of the number, not being certain whether it was a car belonging to the Air Force or not. On ascertaining at the office that it belonged to the Air Force, he got another car and went in pursuit. He did not overtake the prisoner till near Purley, and then noticed that he had two other men with him in the car. The witness picked up an Automobile Association scout at Purley, and drove into Croydon, where he obtained the assistance of a policeman. They then continued till the main road became narrow near Friends Road, where a tramcar was about to stop. The witness then thought that by getting his car between the Crossley car and the tramcar that he could block the prisoner in, and did so, pulling up at an angle in front of the other car. The prisoner and his two companions jumped out and disappeared up Friends Road.

It was also stated that on leaving the car two of the men got away over a wall. The prisoner was followed by a crowd of people, and after an exciting chase he was captured.

The prisoner was remanded for a week.

A Sound Argument.

The following letter appeared in the "Times" of August 19th:—

Sir,—I see that the "Times" has discovered another Slough at Dorchester. Had the "Times" confined its criticism to the policy of continuing work after the Armistice, that criticism might have been justified. As it is, one can only be distressed at the hasty conclusions it seems to have jumped at. Perhaps I can enlighten you on some points.

The airship service expanded enormously at the end of 1917, chiefly owing to the adoption of "mooring-out" stations, which system was first thought out by the C.O. of Mullion Airship Station. These mooring-out stations consisted of a landing ground and a wood, in which the airships were housed. These moored-out airships had to return every few weeks to the parent station for overhaul. Now, Mullion was the parent station of Toller (Bridport), Laira (Plymouth), and Bude. Eastbourne was the parent station of Slindon (Chichester) and Upton (Poole). I was C.O. of Toller, and a friend of mine was in command at Upton. We both found it very difficult to keep in touch with our parent station, and an intermediate station was advisable. The approach to Southampton and the suitability of Lyme Bay for submarine-resting made Toller and Upton indispensable at the time, but Dorchester would have absorbed both.

This is one of the many justifications for Dorchester.

Let us turn to your Special Correspondent's criticisms. They may be headed:—(1) Ground; (2) sand; (3) a pit; (4) a well; (5) what he calls "wings," apparently wind screens. These points can be easily dismissed.

(1) Can anyone find 400 acres of land midway between Eastbourne and Mullion, near a railway and near fairly good roads, uncultivated?

(2) Sand could have been obtained by quarrying. Would the contractor have brought sand from the Midlands, if he could have obtained it cheaper on the spot? Surely the labour question must enter into the arrangement. It is probably cheaper to buy sand than quarry it.

(3) Perhaps your correspondent would have liked the gas plant to have been in the pit. As these plants cost a quarter of a million, perhaps it is better "with its sides falling in."

(4) A well is surely necessary.

(5) Wind screens can be easily dismantled and the corrugated iron used for roofing. As for there being little work done by November, 1918, I believe you will find that the station was to have been opened in February, 1919, so that the work must have been well advanced by the end of 1918.

I may add that I hold no brief for the R.A.F. or anyone else, having been demobilised last March.—Yours faithfully,—H. Vivian Terry, late C.O., Toller R.N. Airship Station. Goldhanger, Witham, Essex, Aug. 15th.

[Moreover, as Lord Lytton stated in the House of Lords on Aug. 18th, it was not a fact that the war ended at the Armistice. Even now the Peace Treaty is still unratified by certain belligerent nations, and the Government had at least to be ready for a renewal of hostilities up to the signing of Peace in June.—Ed.]

A Miracle of Ignorance.

"The Freeman's Journal," in an article on the use of helium, says: "Hydrogen is highly inflammable, and few airships have escaped being burnt in consequence." The writer might just as truthfully say that petrol is so inflammable that few motor-cars escape being burnt. Thus do non-technical journals display to us the vast ocean of their ignorance.

The Arrest of Alleged Smugglers.

The London newspapers gave much prominence last week to a report that there had been an alleged attempt to smuggle 20,000,000 marks and securities from Germany to Switzerland. The German "Tageblatt" hints that the owner of the money is a lady who formerly occupied a very prominent position in Germany, and recently thought of going to live in Switzerland with her children. The twenty million marks represent only a part of her very considerable fortune. The securities were entrusted to a Swiss family who have been staying here for a long time, and two members of the family undertook to convey the valuables under the supervision of a gentleman "well known to the public."

The money was taken from persons who travelled by the Berlin-Bale express, and they were chased by three aeroplanes. One of them carrying a high official of the Berlin police, developed engine trouble over Magdeburg, but the official entered another aeroplane, and resumed his journey to Nuremberg, where the arrest took place.

Scandals and Glory.

A correspondent of the Edinburgh "Evening News" who has written about the recent "scandals" thinks it necessary to defend the R.A.F. Thus:—

"Apparently the public are going to hear a great deal more about the seamy side of things aerial than of the countless feats of heroism in the period 1914-18. It will be well for people to believe the best of the Force—which developed latterly into a great army, and included all sorts and conditions of men and women—and to understand what a tremendous weapon was forged under difficult conditions. That such a large Force carried 'passengers' was undoubted; but so did the Navy and the Army. There was waste, of course. Everyone who went from aerodrome to aerodrome must have noticed the profusion which inevitably accompanies war; but there were economies also. The personnel of the Force know all about that. 'Cox' did not present them with a sheaf of blank cheques. But there was no economy in one respect—bravery."

The writer states the obvious rather prettily.

168 Miles per Hour.

It is announced by the Director of Air Service, Washington, that Lieut.-Col. H. B. Clagett, with Serjt. Ralph Kratz as passenger, made a flight in a De Havilland machine (make of engine not stated), from the Capitol at Washington to the Statue of Liberty in New York, 210 miles, in 75 minutes, which is at the rate of 168 miles per hour. It is claimed that this establishes a new record. The previous fast records were made in 84 minutes. Lieut.-Col. Clagett flew at an elevation of 4,000 ft.

Another Altitude Record Claimed.

Lieutenant Weiss, accompanied by his mechanic Beque, on August 13th, attained a height of over 9,000 metres (about 29,500 ft.).

The machine, a Bréguet 300-h.p. Renault, fitted with a Rateau super-charger, ascended from the Villacoublay Aerodrome at 6.30 p.m., and made a good landing at 8.10 p.m., the actual climb only taking 52 min. The pilot, who was forced to descend on account of the darkness, declared that he encountered a temperature of 32 deg. (centrigrade) below zero (equals 25.6 deg. below zero Fahrenheit). The exact official altitude reached will not be known until later. The pilot stated that he could have ascended much higher, but owing to the lateness of the hour he was afraid that he would not be able to land before dark.

A Use for Unserviceable Machines.

The U.S. Air Service has decided to offer a large number of unserviceable engines and aeroplanes to American colleges and schools that undertake to teach aeronautical engineering. This appears to be an excellent method of disposing of machines that would otherwise be reduced to produce.

COMING EVENTS.

August.

Amsterdam Aircraft Exhibition. (Still open.)

September.

Monday, September 1st.—Last day for presentation of British machines for the Schneider Cup Competition.

Wednesday, September 3rd.—Henlow Recruiting and Repair Depot, R.A.F. Second annual Sports at the R.A.F. Cricket Ground, Henlow.

Wednesday, September 10th.—Schneider Cup Competition, Bournemouth.

Dates to be Announced Later.

Hendon-Paris-Hendon Air Race.

The "Daily Express" £10,000 Prize Competitions.

Hendon-Manchester-Hendon Air Race.

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THE WEEKLY COMMENTARY.

The article on "Aerial Propulsion" by Capt. W. H. Sayers is concluded in this issue.

In it Capt. Sayers points out some of the practical difficulties which have so far prevented the development of the internal combustion turbines, and makes the suggestion that the possibility of direct jet propulsion for aeroplanes is worth investigation.

Under the head of "Modern British Aeroplanes" some of the recent work of the firm of Martinsyde, Ltd., is described.

Mr. T. S. Harvey contributes further notes upon the Italian Aero Show at Taliedo.

An extensive abstract of the report issued by the American authorities, describing the special plant laid down at the Bureau of Standards for testing aero-engines under conditions similar to those which occur at high altitudes, is commenced in this issue.

AERIAL PROPULSION—II.

By Capt. W. H. SAYERS (Late R.A.F.).

The internal combustion turbine has attracted the attention of many engineers. A turbine driven directly by the products of combustion of gas or a liquid fuel, burnt under pressure and acting directly upon the blades of the turbine wheel, offers a prospect of great advances in the efficient use of fuel and of a great saving in the bulk and weight of power plant.

Unfortunately the difficulties of producing such a prime mover are very considerable, and have so far proved insuperable.

The elementary idea of providing a burner jet, somewhat after the style of a blow-lamp, and directing the flame upon the turbine blades, is obviously impracticable. There is no known material of which blades could be made which would stand the temperature or the erosive action of the hot gas.

Numerous ingenious attempts have been made to overcome this difficulty. Generally these have consisted in the provision of some form of separate combustion chamber to which gas, or oil, and air are introduced under pressure and there burnt. The products of combustion are then allowed to expand through some form of nozzle, gaining velocity and losing temperature therein before reaching the turbine blade. In many cases the gases have been diluted with cool air by the use of a kind of air injector, with the effect of increasing the total volume of gas and of reducing both its velocity and its temperature before reaching the turbine.

In one case the nozzle wherein the gases expanded was water-jacketed, and water from this jacket was injected into the gas stream. In this manner a working fluid was produced, consisting largely of super-heated steam, at a temperature, however, well below that of the products of combustion.

By thus diluting the products of combustion the difficulties of manufacturing the turbine itself have been fairly satisfactorily overcome, only to reappear in the combustion chamber, however.

The condition of being subject continuously to a very high temperature and pressure has proved too arduous for any known refractory material.

The cylinder walls and piston of a reciprocating engine are in contact with burning gases of equally high temperature and pressure, but only for a small fraction of the total working cycle, and they never themselves assume the temperature of combustion. Even so, elaborate methods of dissipating the heat which is imparted to them are necessary.

Mixed Gas and Steam Types.

Water-cooling of the combustion chamber has been attempted, but this involves a large waste of heat energy, partly recoverable by turning the cooling water into steam and mixing that steam with the burnt gas, but only at the cost of converting the plant into a steam turbine plant.

For aircraft purposes this is objectionable, because either condensers must be installed or a large supply of water must be carried and consumed over and above the fuel required.

Thus the internal combustion turbine, although a promising field for experimental research work, cannot be considered as likely to come into use as an aerial power plant for some years.

The consideration of the whole question of aerial propulsion suggests, however, one field for experiment which has not yet been explored.

In any form of internal combustion engine, reciprocating or turbine, the first step in the cycle of energy transformation is, as has already been pointed out, to impart motion to a volume of gas.

The final step in the cycle of energy transformations which occurs in the propulsive plant of any aircraft is also the setting in motion of a volume of gas.

Cannot the whole cycle be immensely simplified by imparting directly to a column of air the motion which is produced in the products of combustion by the heat of combustion?

The idea of direct jet propulsion is, of course, old.

Steam jet propulsion for ships was suggested certainly in the first half of the nineteenth century, but was not and cannot be satisfactory.

The efficient conversion of the energy of a gas at a high temperature and pressure into the kinetic energy of a jet of the same gas at atmospheric temperature and pressure involves a very high velocity on the part of the jet.

In the case of steam at 100 lb. per sq. in., for reasonable efficiency in such a conversion, the speed at which the steam must emerge from the nozzle is of the order of 1,000 ft. per sec.

The use of such a jet as a propeller is equivalent to the use of an airscrew giving a slipstream velocity of 1,000 ft. per sec., and would need a speed of propulsion of the aeroplane or other craft to which it was attached of 500 ft. per sec.—over 300 miles per hour—to attain a propeller efficiency of 50 per cent.

The extreme speed of ships may be put at 40 m.p.h., or about 60 ft. per sec., and under these conditions the efficiency of ship propulsion by a jet of gas at 1,000 ft. per sec. could not exceed 6 per cent. on the jet alone. As a steam engine and a marine propeller can certainly give 10 per cent. overall efficiency, reckoned from the initial calorific value of the coal, the jet method has little value in this case.

The speed of modern aeroplanes has reached 160 m.p.h. —nearly 250 ft. per sec.—and the efficiency of a steam jet propeller might accordingly reach something round 25 per cent.

This, of course, is simply the jet efficiency—in fact, it is not even that, since there are friction losses in the passage of the steam through the nozzle. Over and above this loss there are losses in the conversion of water to steam in the boiler and in the process of turning the pressure energy of the steam into kinetic energy of the jet, and the overall efficiency would certainly not equal that at present reached by the combination of internal combustion engine and airscrew.

In addition, the use of steam involves carrying large weights of water in this case as in others, and that rules it out of serious consideration.

At the same time it might be well worth while to experiment with a gas jet propeller. This would presumably be something of the nature of a gigantic blow-lamp, in which gas or vaporised oil and air would be mixed and burnt in an expanding nozzle. The velocity of the issuing jet of gas would, as in the case of a steam jet, be too high for efficient direct propulsion, and dilution by air, by using the original products of combustion in an air injector, thus increasing the volume of gas set in motion and reducing its velocity, will certainly be found necessary.

Any such method of dilution, whilst improving the propulsive efficiency of the final jet, will inevitably be accompanied by a loss in thermal efficiency of the system measured as the ratio of the original heat energy in the fuel to the total kinetic energy finally imparted to the moving stream of air.

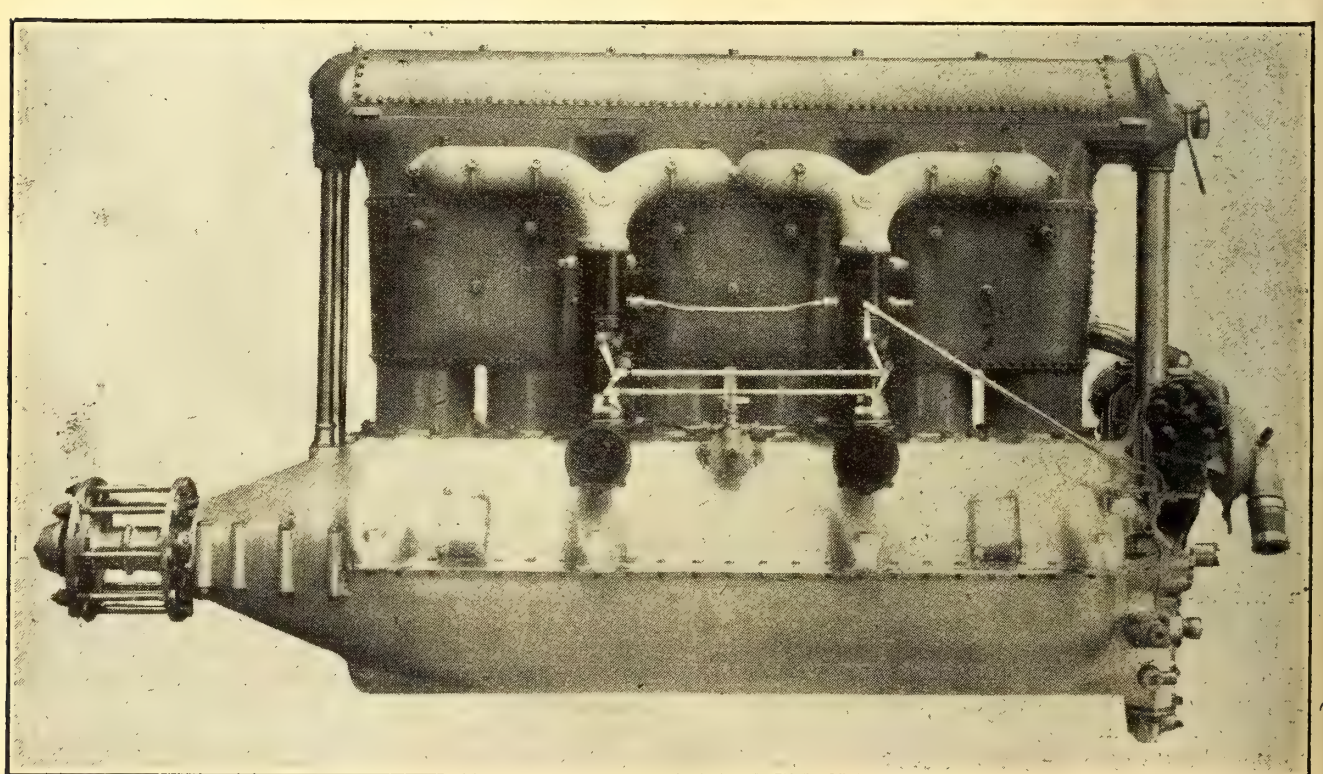
It will not necessarily be accompanied by a loss in the efficiency referred to the final useful energy imparted to the aeroplane.

It may also be pointed out that such a propelling plant offers prospects of being extremely cheap to construct and very light in weight, and that these two factors would compensate for a low overall efficiency and a fuel consumption appreciably greater than could be obtained by the present methods.

If, as seems possible, the speed of aircraft is greatly increased, the problem of direct jet propulsion will be correspondingly simplified, and the idea seems to merit detailed investigation.

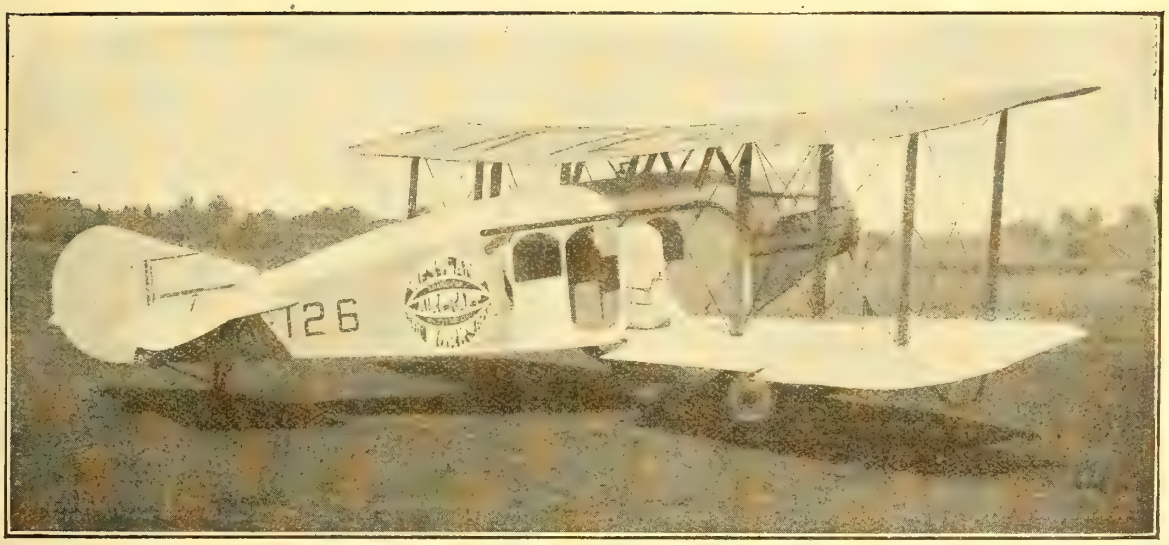
Of course, for war purposes, a blow-lamp-propelled machine which had only to put its enemies into its own backwash to utterly destroy them would have uses which might justify the immediate adoption of the method.

Hostile airships, even helium-filled, would dislike such an aeroplane intensely, and night-flying demonstrations by such machines directed against barbarous races might produce an immense effect.



The 200 h.p. 6-cylinder Isotta-Fraschini Aero Engine. The cleanliness of outline is a notable feature.

WESTLAND



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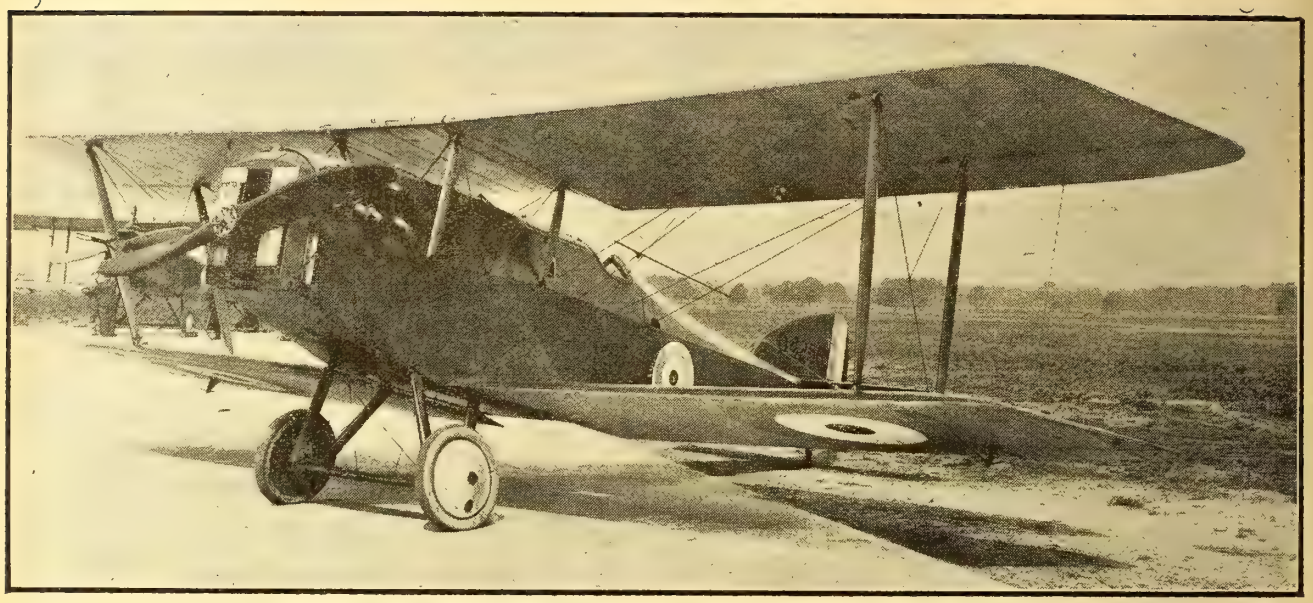
MODERN BRITISH AEROPLANES.

XII.—Martinsyde, Ltd.



The Martinsyde F4 type fighter (300-h.p. Hispano-Suiza engine), one of the finest single-seaters ever produced.

The history of the Martinsyde firm dates back to the earliest days of British aviation, Messrs. Martin and Handasyde conjointly producing a monoplane as far back as 1908. The big "Martinsyde" monoplanes of 1911, 1912 and 1913, built at Brooklands, were noted for their graceful appearance and their wonderful flying.

Early in 1914 the firm built, for the late Gustav Hamel, an enormous monoplane upon which the Atlantic flight was to be attempted. This machine was to be powered by a "Sunbeam" engine of 250 h.p. and had tanks sufficient for a ton of petrol. The death of Hamel prevented the attempt from being made and the machine was never flown.

Towards the end of 1914 the firm produced their first biplane, a single-seat fighter with an 80 "Gnôme" engine, which was very successful and was ordered in quantity by the War Office.

A later "Martinsyde," fitted first with the 120-h.p. Beardmore engine, and later with the 160-h.p. engine of the same make, was equally successful, and the firm had to move from Brooklands to large works near Woking in order to meet the demands of the R.F.C.

Of their more recent products the types F3 and F4 are world famous as fighting aircraft.

THE MARTINSYDE TYPES F3 AND F4.

The F3 single-seat scout was designed and built in 1917. Fitted with a Rolls-Royce "Falcon" engine of 250 h.p. it had easily the best all-round performance of any aeroplane till then produced. It had a top speed of over 140 m.p.h. and was, it is believed, the first machine in the world to climb to 15,000 ft. in less than 15 mins. with full war load on board.

Unfortunately, Rolls-Royce "Falcon" engines were scarce and could not be spared for this type, and after some delay the machine was modified for the 300-h.p. Hispano-Suiza engine and was put into production as the F4, but did not reach any theatre of war before the conclusion of the Armistice.

These machines were of the usual single bay "scout" type, with lower wings staggered well back, and a deep fuselage, wherein the pilot is seated behind the trailing edge of the upper wing, sufficiently high to see both above and below that wing.

He has thus an excellent all-round view. The armament fitted was standard, twin synchronised Vickers guns within the cowling firing through the propeller, and in conjunction with the extreme handiness of the machine and its very fine performance, would have rendered it a formidable antagonist.

The attached specification gives all the main characteristics of these machines, and their general appearance is well shown in the illustrations :—

SPECIFICATION.

Type of machine	Biplane
Name or type No. of machine	F4.
Purpose for which intended	Fighter
Span	Top plane, 32 ft. 9⅜ in. ; bottom, 31 ft. 2⅜ in.
Gap, maximum and minimum	5 ft. 2⅝ in.
Overall length	25 ft. 5⅝ in
Maximum height	10 ft. 4 in.
Chord	Top plane, 6 ft 0½ in. ; bottom plane, 5 ft. 6¼ in.
Total surface of wings	320 sq. ft. (all in).
Span of tail	11 ft. 1½ in. (over elevators).
Total area of tail	36¾ sq. ft. (tailplane and elevators).
Area of elevators	8¼ sq. ft. each (Total 16½ sq. ft.).
Area of rudder	9¾ sq. ft.
Area of fin	6½ sq. ft.
Area of each aileron and total area	Top, 11¾ sq. ft. each ; bottom, 9¼ sq. ft. each (Total 42 sq. ft.).
Engine type and h.p.	Hispano-Suiza, 300 h.p.
Airscrew, diameter and pitch and revs.	Dia., 8 ft. 8⅜ in. ; Pitch, 6 ft. 6 in. ; Revs., 1850 r.p.m.
Weight of machine empty	1710 lb.
Load per sq. ft.	7 lb.
Weight per h.p.	7½ lb.
Tank capacity in hours	3 hours.
Tank capacity in gallons	43 gallons
Performance—	
Speed low down	145 m.p.h.
Speed at 10,000 ft	143 m.p.h.
Speed at 20,000 ft.	126 m.p.h.
Landing speed	45 m.p.h.
Climb—	
To 5,000 ft.	3 mins.
To 10,000 ft.	6.30 mins.
To 20,000 ft.	19.30 mins.
Total weight of machine loaded	2,280 lb.

THE MARTINSYDE TYPE A.

Since the conclusion of hostilities Martinsyde, Ltd., have turned their attention to the production of load-carrying machines for commercial purposes.

The "Raymor" built for Mr. Raynham's attempt at the Transatlantic crossing was a modified edition of the first of these types, the modification consisting of fitting fuel tanks up to the limit of the machine's carrying capacity.

As a commercial machine with 7 hours' fuel capacity, there is a large reserve of disposable load available for cargo or passengers.

A number of illustrations of the actual Transatlantic machine have appeared in past issues of The Aeroplane and no others are at present available.

The general particulars of the Type A, as this machine is to be called, are given below :—

SPECIFICATION.

Type of machine	"A."
Name or type No. of machine	Transatlantic (Modified).
Purpose for which intended	Commercial.
Span	43 ft. 4 in.
Gap, maximum and minimum	5 ft. 6 in.
Overall length	27 ft. 6 in.
Maximum height	11 ft. 0 in. (on prop).
Chord	6 ft. 6 in.
Total surface of wings	500 sq. ft.
Span of tail	12 ft. 4 in (over elevators).
Total area of tail	44 sq. ft.
Area of elevators	9.3 each (Total, 18.6).
Area of rudder	10 sq. ft.

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Area of fin	6.68 sq. ft.
Area of each aileron and total area	17.36 sq. ft. each (Total 69.44 sq. ft.).
Engine type and h.p.	Falcon Mark 3, 285 h.p.
Airscrew diameter and pitch and revs.	10 ft. dia.; 9 ft. pitch, approx. 1,300 revs.
Weight of machine empty	1,800 lb.
Load per sq. ft.	9.2 lb.
Weight per h.p.	16 lb.
Tank capacity in hours	7 hours.
Tank capacity in gallons	110 gallons.

Performance—

Speed low down	125 m.p.h.
Speed at 10,000 ft.	118 m.
Landing speed	45 m.p.h.

Climb—

To 5,000 ft.	8 mins.
To 10,000 ft.	18 mins.
Disposable load apart from fuel	2,000 lb.
Total weight of machine loaded	4,600 lb.

AT THE TALIEDO SHOW AGAIN.

As I had expected, a good many more things had turned up by the time my second visit to the Show took place—i.e., towards the end of the ten weeks the exhibition was open. Among these mercifully was the Official Catalogue, a conveniently shaped pocketable work of 80 pages without adverts.

Then, too, the enemy trophies had got sorted out and their propellers, descriptions, and engines had assumed their correct places. Also another machine had arrived, so that the number slipped—just—into double figures.

The "thing of enormous span labelled Gotha" had turned into a torpedo-carrier seaplane, with Benz 400 motors, weight 3,182 kilos, useful load 1,616 ditto, with oil, petrol, crew, and armament. This latter was apparently at least one gun, as the forward gun ring base was all there. The craft has a boat-body, " does 130 kilometres per hour at low levels, and climbs to 1,000 metres in 16 minutes."

The motors, however, were not visible, and the machine was quite unreconstructible.

A moderate-sized flying-boat with motor very high on massive engine platform, wing floats, and radiator forming centre section of upper wing, evidently a relation of the Löhner family, is the last addition to the war trophy shed and the least interesting feature of it.

On the huge K.338 I now noted a four-bladed tractor driven direct by the Austro-Daimler V 350 motor. Also the wing struts appeared to be adjustable.

A further careful examination of the Caproni up-to-date section —there is also an educational or historical section in a different shed—revealed the fact that the whole of the monomotor triplane chassis is rubber-sprung to the fuselage, not the axle to the under-carriage struts or to its bearers, as is more usual. I read, too, that the wheels were to be set farther apart and more forward to parry any attempt at nose-planting on the machine's part when landing. The cables are enormous, themselves alone telling of the weight and speed for which the machine was designed, and the third and fourth interplane struts are integral with the sides of the fuselage. A four-bladed prop. is fitted, and rumour has it that the machine is not at all likely to stay on the shelf now that motors are easier to obtain.

A model of a proposed 2,000 h.p. five-motored triplane, a mere development of the 1,200 h.p. triplane, also came under my notice. The two extra engines, with their airscrews, are placed in false fuselages under the middle plane. At the end of the two real fuselages beneath the tail and extending downwards from it to the very root of the tail skids—which, it will be remembered, are supported on tall inverted "cabanes" or pyramidal structures consisting of kingposts and steel tubing—are two vertical fins of generous proportions. So evidently these big three-deck machines have been found to require more side surface lower down. Vide my second Show description in No. 4 of this volume of The Aeroplane. Sixteen wheels are fitted, the hind eight being of larger diameter.

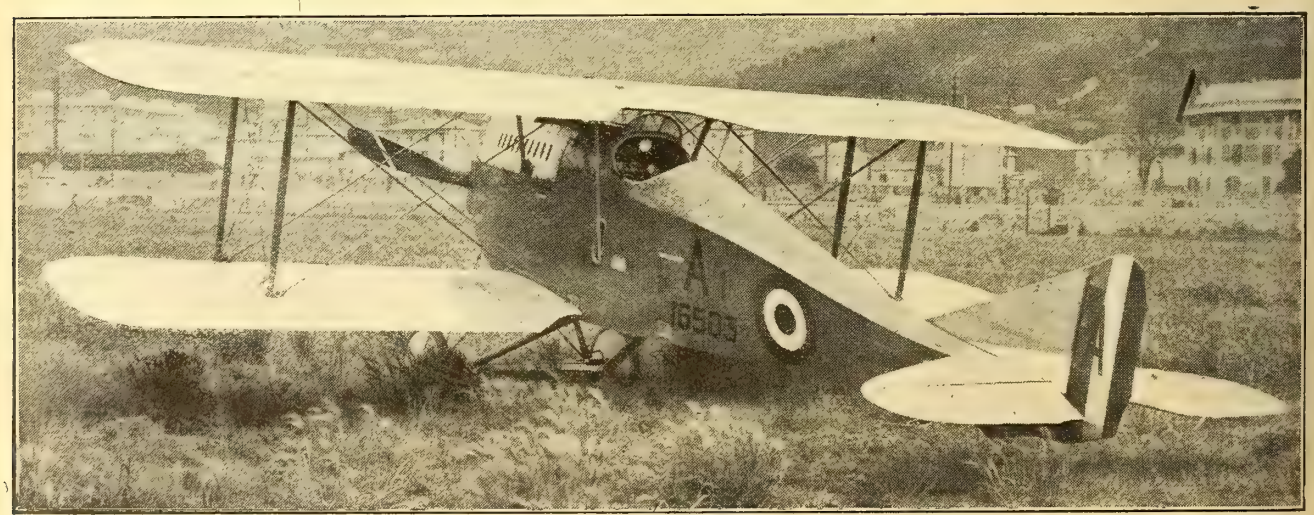
While dealing with models, the exquisitely finished things shown by the Experimental Aeronautical Department (the Italian N.P.L.) should not be passed by. The admirable eel-like body of the Marchetti-Vickers biplane, quite unappreciated by the camera, is unapproached for elegance by anything since the Antoinette deceased. Can the world's speed record which this machine, with a comparatively small engine, SPA 220 h.p., did undoubtedly put up, be attributed to this unusual section? If so, what becomes of the blunt entry and streamline theory?

A full equipment of instruments for measuring everything in sky and land and air, most of them invented by Col. Crocco, are exhibited by the Institute, as also models of the V. dirigible experimented with in '14, which show how the latter-day Zepps. were copied from her internal construction and shape. The full-size power egg of a V. complete can be compared with one from a 1918 German dirigible brought down by the aid of an Italian battery on the French front. The German has two Maybach six-cyl. motors, and of course cannot be compared with the pre-war finish of the V. egg, which is radiant in an aluminium shell. Three of these eggs, with two engines clutched to a single four-bladed propeller, formed the power plant of the V., which type was not proceeded with after the outbreak of war

The other side of the alley is to be seen a model of a revolutionary dirigible-hydro aeroplane, with eight screws and a hollow open-ended cylinder body, which hopes to capture stability by its cutting effect and the imprisonment of air. The designer—one Signor Cittadini—has other plans, all showing want of adherence to the beaten tracks of aeronautical theory

Though somewhat unrecognised because turning out CA parts and necessary machinery, the Officine Meccaniche of Brescia and Milan did, and seem likely to continue to do, a lot of useful work. On their stand, which is guarded by aeroplane struts and chains of coil springs in a sensible, pleasing, and probably cheaper way than by the eternal ropes and posts, they show the CA fuselage complete with I-F motor fitted to the 600's, and a lot of big blocks of metal in their various stages from the rough to the finished crankshafts and axles. Also a two-storied propeller shaper smaller than the diameter of the propeller in process of shaping thereon.

Among the many motors showing, the I-F is that most in evidence because, as well as on the company's own grand stand, so many of the other firms exhibit their improved licensed repro



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ductions of it. For example, I noted a good effort to avoid nuts and bolts on the E. Breda Co.'s edition of the vertical engine.

The I-F, having motored so many of the useful MAS—marine accomplices of Italy's undersea-boat-chasing aircraft—that the inclusion of their seven yards long cum 64-valved motor-boat engine is allowable and even apposite in a post-war Aero Show such as this. It and the new 450 (V.7) aero-engine are the salient features of the stand The latter is a V. 12-cyl. W.C. motor with four magnetos and two plugs per cylinder. It appears as a clean-looking affair with the merit of having the inside of the V very clear of obstructions and accessible, but seems rather large for advertised power, than which probably it gives considerably more.

Untested and somewhat unknown is the promising Romeo 600 12-cyl. W.C. V. of that factory's production. The very wide open V produces a low, sturdy, and unusually powerful-looking engine. Its cylinders are in couples, and the valves lie almost horizontal in the head thereof. Two mags. with two plugs per cyl. and very neat wiring see to the necessary sparks. The two duplex Feroldi carbs. at opposite ends of the engine and the vertical exhaust pipes allow of ideal freedom of access to the 36 plugs, spark and compression.

Among the less-famed power producers there were several interesting efforts which, if they have not been more generally adopted, is due more to the general excellence of Italian motors than to their own shortcomings.

I examined particularly a vertical Diatto-built Bugatti eight-cyl. 120 by 160 stroke " 200 h.p.," weighing 300 kilogrammes, with propeller offset to the left on a secondary shaft all its own, enclosed in the crankcase and running at a speed of 1,125 revs. reduced from the normal 1,500 engine revolutions. It makes a very short engine in spite of the eight cylinders, and power output at the propeller should be much higher than the nominal one.

The following extra data concerning the Dolara-Perfetti 300 rotary, mentioned in my preliminary Show report, are of interest. Bore 130, stroke 176 mm., cyl. capacity 21 litres, normal revs. 1,500 per minute. The engine is provided with a toothed plate (circular) for transmitting power to two or more airscrews by shaft drive. This toothed ring is of bigger diameter necessarily than the outside measurement of the engine taken round the cylinders, and, lying transversely to the longitudinal axis of the aeroplane, could drive any number of propeller shafts within its power limit. Quite an opportunity for multiple airscrew experimenters. Enquiries may be addressed: Dolara, Corso Magenta 78, Milan.

Still another of the less-famed class is the V.N.V., an anonymous company at Stand 25, the designers of whose motors are the engineers Vanni and Trivelloni. They exhibit a large two-stroke weighing 280 kilos. and developing from " 200 to 300 h.p. " with opposed pistons. Also a Y water-cooled 260, weight 270, cylinders three. This looks a clean job and makes a most get-at-able engine apart from its other possibilities. The firm has three millions of lire of capital, and with its evidently original initiative has the wherewithal to go far. Address is: Via Montevideo 21, at Milan.

Carlo Tosi, the great Legnano firm, has amid a lot of admirable but irrelevant machinery an aero motor and a Matteucci epicyclic reduction gear shown for various uses and also fitted to a propeller hub. I shall hope to say more of it when the Military Technical Direction take it up or vice versâ. One is encouraged by these straws to hope that Tosi is not going to keep aloof from aviation as we have been told.

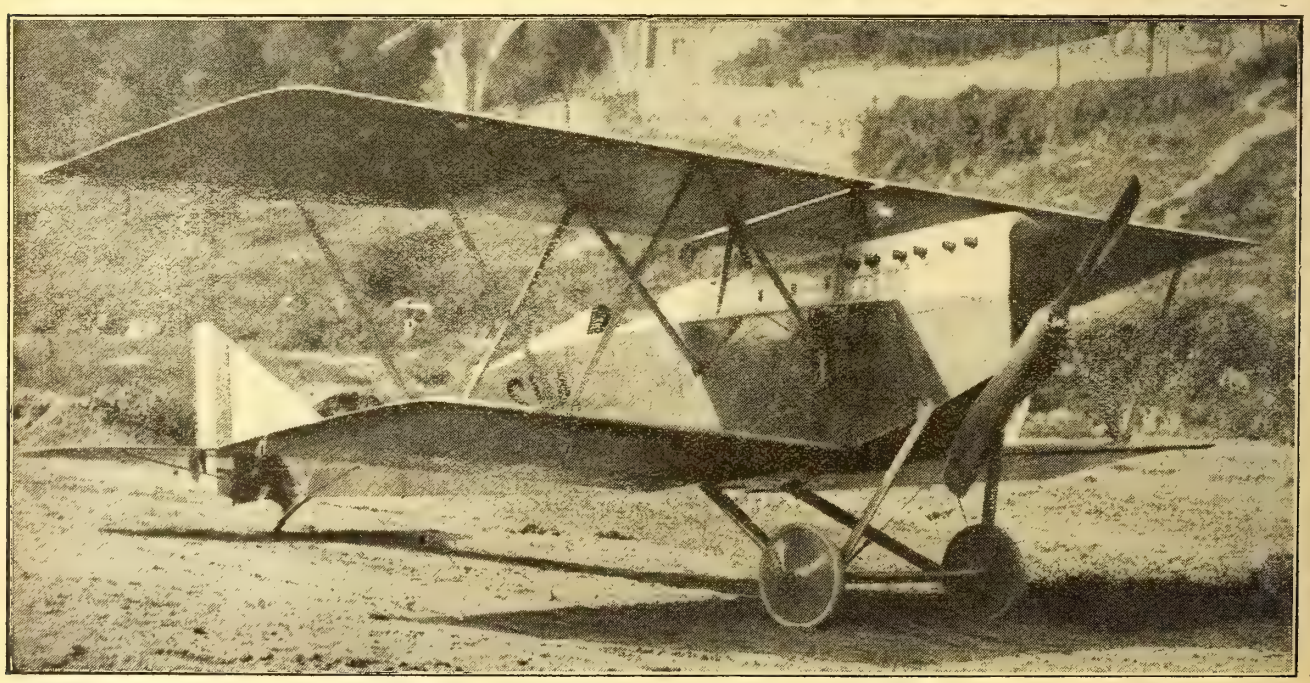
" Itala Motors," who went through the war copying H-Suizas for the Aero Corps and Maybachs for the Dirigible Section—as it used to be called—show one of these which came through the 50-hour bench test with flying colours, though stationary. It is completely dismounted and seems little the worse for the wear-and-tear test. This seems the time and place to deny that that little tale which Dora downed refers to the Itala. The story ran that a firm copying a Hun engine could never be got to waste time over the, to them, unnecessary degree of finish to the connecting rods till the authorities enquired officially why the copies used 1-5th pint more oil per—I don't remember what—than the original.

The SPA, who in their quiet, untrumpeted way were the first firm to engine an Italian aeroplane, and are now doing likewise to the SVA and other good flying machines, show motors of all sorts, from the opposed twin built about 1910 for Ing. Faccioli which flew so well, through a train of wholely original, specially designed aero engines, to its latest vertical power plant for the war. This latter about the least original of the lot owing to the exigencies of hostilities. It is a slight balm to one's regret at not seeing a Faccioli biplane in the historic section to find photos and reminiscences of that designer's machines on the SPA stand. In the words of a contemporary, " Il Cielo " (a pilot's paper): " Faccioli solved the problem of practical longitudinal stability obtained dynamically and inherent in the design when everyone else was wallowing in complete ignorance of the whole question." The first journal to publish photographs of this, the first Italian machine to fly, was edited by the present editor of The Aeroplane.

Now to talk of old friends. It is wonderful to think that for a long time the war was dragged on quite well with '14 Löhners built by Macchi—to order, of course—and by '13 Aviatics turned out by the S.A.M.L. Co., and that these, engined by Fiats, now still carry on and are exhibited in 1919 aero shows. I noted that a looking-glass for the pilot to see if the passengers' looks are worried or gladsome is now fitted on the latest models. These luxuries show real progress.

Among the accessories, if essentials can so be misnamed, there were spring wheels based on an application of the cantilever-cum-helical spring principles as far as one could glean in the absence of literature, stand-attendants and free access to the article. These and spring hubs are the line Messrs. Vimercati and Fiorina are taking up anent aero business, and who can say they may not be on the right track to the dollars.

A carburetter, a Corti invention, cleverly combining throttle with air entry, drew me with strange attraction, these instruments being my weakness. "Opening the throttle" causes two



An SVA. Aeroplane—built by Gio. Ansaldo and Co The machine shown is very similar in general design to the 700 h.p. Rome to London machine, illustrated in a recent issue of The Aeroplane, but is a single-seat fighter of smaller power.

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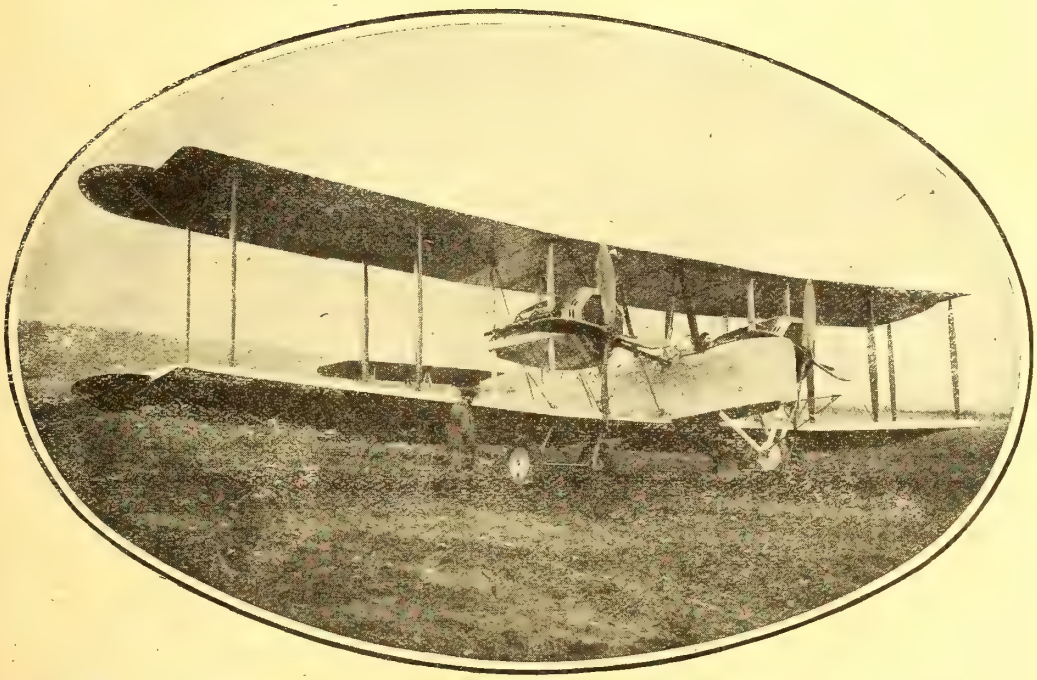

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rollers situated in the induction pipe (which they entirely close up) to revolve. When the throttle is closed these rollers are in contact along the whole of their length. Extending over two-thirds of their surfaces each has a V-shaped depression increasing from its base in depth, and streamline contoured. When the bases of the two Vs touch the jet is closed, itself serving as a stop for the throttle lever. The rollers are bronze very carefully cut away so that the opening round the jet is always circular. The only thing which could be simpler is the throttle leverage system due to the necessity of compensating the travel of the two rollers.

The F.R.A.M. show their radiators, fitted at one time or other to most moving vehicles in this country, and is such an old and tried firm as to need nothing but a very honourable mention.

Near their wares appeared the name of the Association of the Autolocomotion Industrials, promoted to weld together those interested in modern progress by land and sea and sky, which, if it does not remain merely a name, might become the biggest trade federation in the world.

Chiribiri has indeed fallen from grace, though, perhaps, into land which he may succeed in making to flow with milk and honey, things more esteemed than money nowadays. He only shows a horrifying agricultural tank with tender slung on each wheel—I feel like writing *claw*—which mocks the contortionist, and which, with a suitable prehensible tail, should be quite a good vehicle for birds'-nesting. Each wheel is propped up at a different altitude, and the tender appears to be in the throes of a spiral. The whole thing should be a serious pull-up to the first chronic drunkard who strolls in.

Drying-up and missionary-folk, please note.

A pleasing relief among the accessories is a complete nacelle for one of Usuelli's submarine-finding dirigibles on "Blimp" lines. The firm is located in via Boccacio, No. 14, Milan, is going strong, and is an example of the help a keen amateur may become to his nation in need.

In their own "parc" the dirigible the Prassone-Avorio kite-balloon and the ordinary gasbags show, the well-informed tell me, almost incredible progress. The stillness of the P.A. in stiff winds seems uncanny to the non-expert who may be inclined to wonder whether the cable is rigid! The space in the biggest shed round the dirigible was partitioned off into two corridors filled with stands of accessories and instruments for navigation. The swivelling propellers reminded me of certain small airships of the good old days in early England.

Apparatus for the pneumatic control of the blade pitch and centre of thrust are matters round which the Angels might fear to tread lest they trip, and they are expected to be *au fait* with gravity and lift theory. I noted a built-up hollow aluminium blade and a 16-bladed wooden "lifting screw," evidently both well used. Also instruments for testing the tautness of fabric, and so detecting leakages of that elusive dirigible stuffing known as gas—helium and otherwise. The former is in use here.

Though only a specialist would dare to criticise this part of the show, one is led by it to think how far one's appreciation and respect for the research of the Dirigible Section has fallen short of the mark and that the robbing of her "Ally's" brains by Germany before she built the latter Zeppelins is more than probable.

In spite of the practically total absence of the Southern firms and the non-appearance of even some of the better-known Midland ones, this One-Nation Show is about as wonderful as man could make a Show in the times we live in. Regular passenger-carrying work by dirigible and aeroplane has been carried on to time-table during the whole ten weeks without a single accident.—T. S. Harvey.

AN ITALIAN SEAPLANE.

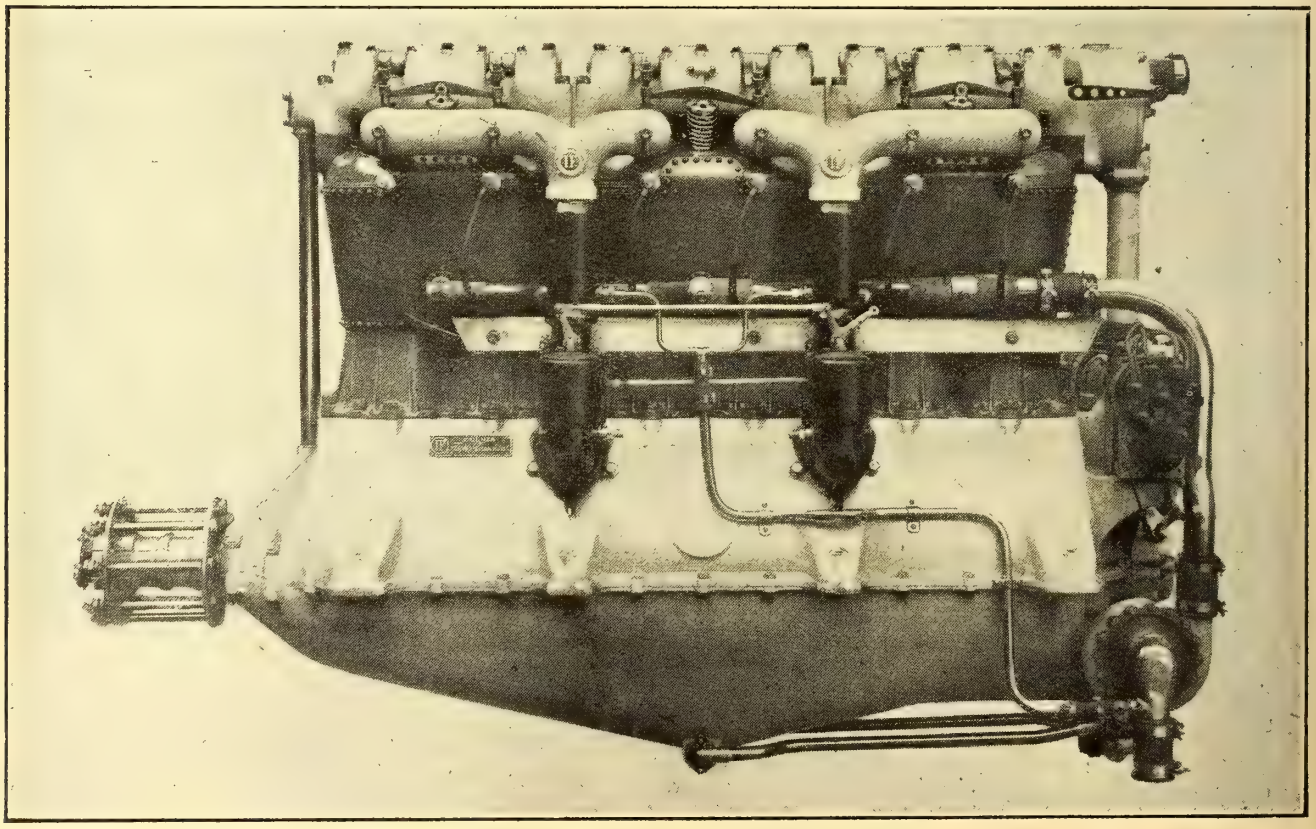
Anent Taddeoli's trip over the Alps on a Savoia-S.I.A.I.—S. 13 type seaplane with a Isotta-Fraschini V.6 250 h.p. engine—from Lake Maggiore to Geneva, it is well to remember that Taddeoli, though in the service of Italy, is Swiss, and one of the first to do waterplane flying. The machine is a biplane of 35 sq. metres surface with a chaser type cellule, carries 475 kilos useful load, climbs to 5,000 metres in 42 minutes, and claims a speed range of from 120 to 200 kilometres per hour. Engine-bearers and struts give the impression of the weight of the power-plant being very well distributed over the whole wing surface. A small sister boat was at the Taliedo Show.—T. S. H.

THE WALKER PROPELLER BORING JIG.

Owing to the time, trouble and expense entailed in preparing a number of different jigs for boring the bosses of numberless experimental propellers produced early in the war, the Faringdon Propeller and Engineering Co., Ltd., introduced the Walker Propeller Boring Jig, which entirely superseded all the old jigs.

The jig consists of two dividing plates, separate ones being provided for various hubs having different numbers of bolt holes, and a moveable boring arm with a fine screw adjustment, which allows the bolt hole circle to vary from 4½ in. to 11½ in., the position for each hole being determined by a hardened steel spring pin dropping into the holes in the dividing plate. Suitable bushes are supplied to suit the diameters of the centre boss-hole and the bolt respectively.

With this instrument it is possible to bore any number of propellers with the minimum amount of wear; as the whole of the drilling is done through the one hardened steel bush, and it also ensures absolute accuracy with the least amount of labour.



A 200 h.p. 6-cylinder Isotta-Fraschini engine. A somewhat earlier edition of that illustrated on page 810.

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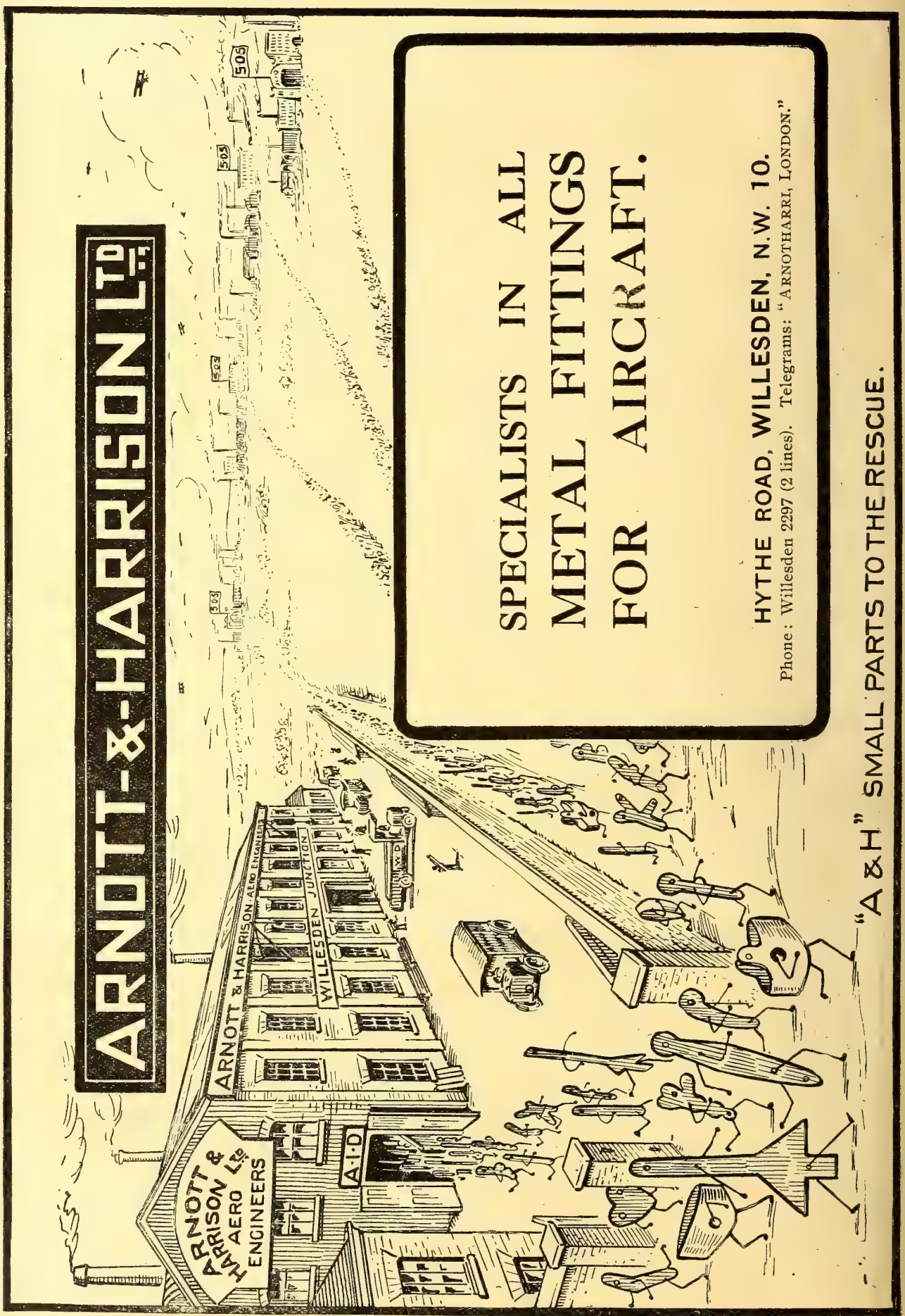
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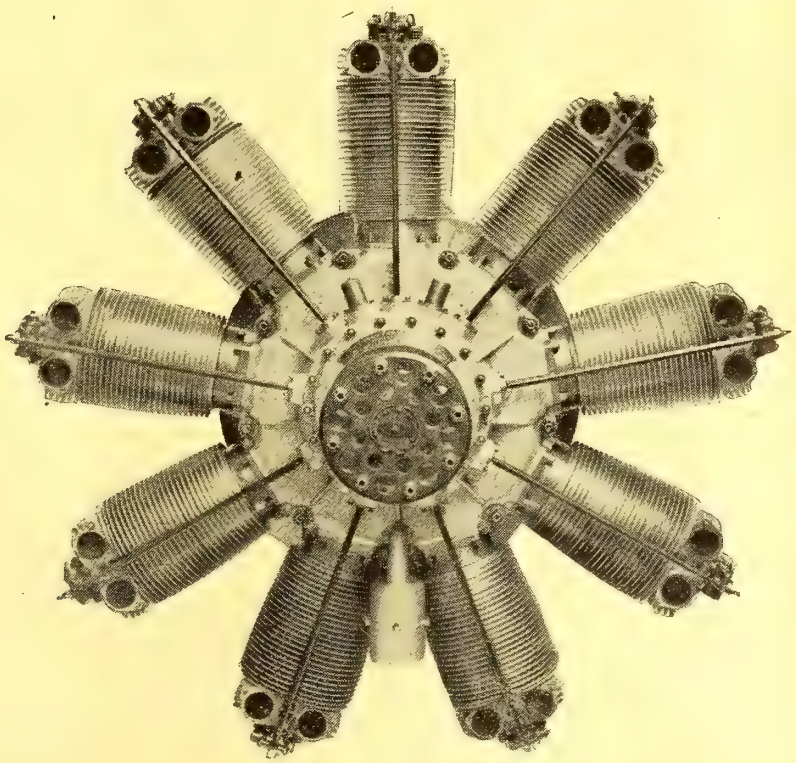

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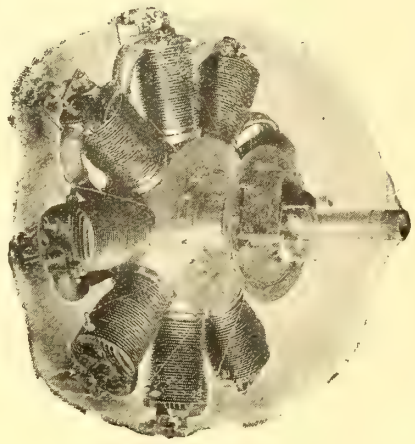

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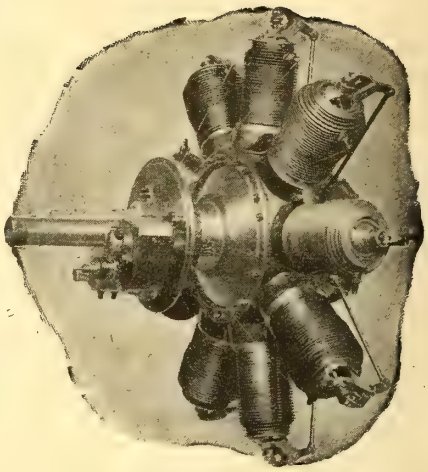

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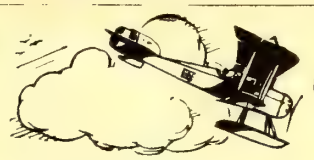

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Cradock, Geo., & Co., Ltd., Wakefield, England. "Cradock, Wakefield." Wakefield 466

Rubber Tubing & Accessories—
Hancock, James Lyne, Ltd., 266, Goswell Road, London, E.C.1 "Masticator, Isling, London." City 3811 & 3812

Safety Belts—
C. H. Holmes & Son, 38, Albert Street, Manchester. "Semloh, Manchester." City 4432.

Screw-driving Machines—
Russell Bros. (Redditch), Ltd., Littleworth, Redditch. "Inventors, Redditch." Redditch 74.

Seaplane Manufacturers—
Blackburn Aeroplane & Motor Co., Ltd., Olympia, Leeds. "Propellors, Leeds." Roundhay 345 (3 lines)
Phœnix Dynamo Manufacturing Co., Ltd., Thornbury, Bradford. "Dynamo, Bradford." Bradford 3700 (7 lines).
Short Bros., Rochester. "Seaplanes, Rochester." Chatham 627.
Supermarine Aviation Works, Ltd., Southampton "Supermarin, Southampton." Woolston 37.

Searchlights & Landing Lights
Brown Bros., Ltd., Great Eastern St., E.C.1.
Imperial Light, Ltd., 123, Victoria Street, London, S.W.1. "Edibrac, Phone, London" 3540 Victoria (3 lines).

Shock Absorbers—
Luke Turner & Co., Deacon Street, Leicester Leicester 967.
Tubbs, Lewis & Co., Ltd., 29 & 30, Noble Street, E.C.2 "Elastics, London." City 22.

Sheet Metal Pressings—
Accles & Pollock, Ltd, Oldbury, Birmingham. "Accles, Oldbury." Oldbury 111 (4 lines)
Blackburn Aeroplane & Motor Co., Ltd., Olympia, Leeds. "Propellors, Leeds." Roundhay 345 (3 lines)
Rubery Owen & Co., Darlaston, South Staffs

Sheet Metal Work—
The Acetylene Corporation of Great Britain, Ltd., 49, Victoria Street, S.W.1. "Flamma, Vic, London." Vic 4830
Rubery Owen & Co., Darlaston, South
The Selsdon Aero & Engineering Co., Ltd., 1, Albemarle Street, Piccadilly, W.1. "Selaero, Phone, London." Regent 1181
Imperial Light, Ltd., 123, Victoria Street, London, S.W.1. "Edibrac, Phone, London." Victoria 3540 (3 lines).

Solder Manufacturers—
Samuel Mercer & Co., 198, Upper Thames Street, E.C.4. "Reconciled, Cannon, London." City 6342.

Sparking Plugs—
Brown Bros., Ltd., Great Eastern St., E.C.1
Lodge Sparking Plug Co., Ltd., Rugby. "Igniter, Rugby." Rugby 235.
The Robinhood Engineering Works, Ltd., Newlands, Putney Vale, S.W.15. Makers of KLG Plugs. "Kadgee, Phone, London" Putney 2132-3.

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Accumulators—

The Chloride Electrical Storage Co., Ltd, Clifton Junction, near Manchester. "Chloride, Pendlebury" Central Manchester, 1638 Pendleton, 11.

Acetylene Welding Plant—

Acetylene Corporation of Great Britain, Ltd., The, 49, Victoria Street, Westminster, S.W.1. "Flamma, Vic, London" Vic 4830.

Imperial Light, Ltd, 123, Victoria Street, London, S.W.1. "Edibrac, 'Phone. London." 3540 Victoria (3 lines).

Aeroplane Manufacturers—

Aircraft Manufacturing Co, Ltd, Hendon. "Airmanship, Hyde, London" Kingsbury 220.

Armstrong, Sir W., Whitworth & Co., Ltd, Newcastle-on-Tyne. "Armstrong Aviation, Newcastle-on-Tyne" Gosforth 500.

Blackburn Aeroplane & Motor Co., Ltd., Olympia, Leeds "Propellors, Leeds" Roundhay 345 (3 lines)

Boulton & Paul, Ltd, Rose Lane, Norwich. "Aviation, Norwich" Norwich 851.

British Aerial Transport Co., Ltd. Head Office: 28, Conduit Street, London, W 1 "Batigram Reg London" Mayfair 637, 638.

Works: Hythe Road, Willesden, London, N W 10 "Aerbrirans, Phone, London." Willesden, 2272, 2273

British & Colonial Aeroplane Co, Ltd (The Bristol Co.), Filton, Bristol "Aviation, Bristol." Bristol 3906

Central Aircraft Co, High Road, Kilburn, N W 6 "Aviduction, Phone, London." Hampstead 2403 and 4424.

Dawson, John, & Co, Ltd, Newcastle-on-Tyne. "Dependable, Newcastle-on-Tyne" Central 2604 (2 lines).

Eastbourne Aviation Co, Ltd, Eastbourne "Aircraft, Eastbourne" Eastbourne 1176

Gosport Aircraft Co, Gosport "Flight Gosport" Gosport 217.

Grahame-White Company, Ltd, London Aerodrome, Hendon. "Volplane, Hyde, London" Kingsbury 120 London Office, 12, Regent Street, S W 1 Regent 2084

Handley Page, Ltd, 110, Cricklewood Lane, N W 2 "Hydrophid, Crickle, London" Hampstead 7420.

Hooper & Co., Ltd., 54, St James St, Piccadilly, London, S W "Sociable, St James, London." Regent 912

Mann, Egerton & Co, Ltd., Norwich. "Motors, Norwich" Norwich 482 (4 lines).

Martinsyde, Ltd, Brooklands, Byfleet, "Martinsyde, Weybridge" Woking 331; Byfleet 171

"Nieuport" & General Aircraft Co, Cricklewood, London, N W 2 "Nieuscout, Crickle, London" Willesden 2455

Phœnix Dynamo Manufacturing Co, Ltd, Thornbury, Bradford "Dynamo, Bradford" Bradford 3700 (4 lines).

Roe, A V, & Co, Ltd, Manchester. "Triplane, Manchester" City 8530-8531, Manchester.

Saunders, S. E, Ltd, East Cowes, I O W. "Consuta, East Cowes" Cowes 193.

Short Bros, Rochester, Eastchurch and Whitehall House, S W "Tested, Phone, London" Regent 378.

The Siddeley Deasy Motor Car Co, Ltd, Coventry. Coventry 954 "Deasy, Coventry"

Sopwith Aviation Co., Ltd., Kingston-on-Thames. "Sopwith, Kingston" Kingston 1988 (8 lines).

The Supermarine Aviation Works, Ltd, Southampton "Supermarin" Woolston 37 (2 lines).

Vickers, Ltd, Imperial Court, Basil Street, Knightsbridge, S W 3 "Vickerfyta, Knights, London" Kensington 6610.

Waring & Gillow, Ltd, Hammersmith. "Warisen, Ox, London" Museum 5000.

Westland Aircraft, Yeovil "Aircraft, Yeovil." Yeovil 129

White, J Samuel, & Co., Ltd, East Cowes. "White, East Cowes." Cowes 3.

Airships—

Airships, Ltd., High Street, Merton Wimbledon 1314

Short Bros, Rochester, Eastchurch, and Whitehall House, S W. "Tested, 'Phone, London" Regent 378

C. G. Spencer and Sons, Ltd (See under "Balloons")

Aluminium Castings (Sand and Die)

Coan, R. W, 219, Goswell Road, London, E C 1 "Krankases, Isling, London City 3846

Balloons—

C G Spencer and Sons, Ltd., 50A, Highbury Grove, N 5. "Aeronaut, London." Dalston 1893

Bent Timber Parts—

Hopton & Sons, George Street, Euston Square, London, N W 1 "Hoptons, Eusquare, London" Museum 406 Also at Market Harborough, Leicestershire "Hoptons, Market Harborough" Market Harborough 13.

Bearings (Etonia Cast Phosphor Bronze)

Brown Bros, Ltd, Gt. Eastern St., E.C.1.
Yorkshire Engineering Supplies, Ltd., Wortley, Leeds. "Yes, Leeds." Central 3927.

Blowpipes (Oxy-Acetylene)—

Acetylene Corporation of Great Britain, Ltd, The, 49, Victoria Street, Westminster, S W.1 "Flamma, Vic, London" Vic 4830

Imperial Light, Ltd, 123, Victoria Street, London, S W.1. "Edibrac, 'Phone, London." Vic. 3540 (3 lines)

Bolts—

Mitchell Wedgewood & Co., Campbell Works, Stoke Newington, London, N.16 Dalston 2500 (2 lines).

Books (Aero Engines)—

Dykes' Auto Encyclopedia, Gillam, 149, Strand, W 2

Buildings—

Boulton & Paul Ltd Rose Lane, Norwich "Aviation, Norwich" Norwich 851

Rubery Owen & Co, Darlaston, South Staffs

Cable Coverings and Cable Controls—

The Bowden Brake Co, Ltd, Tyseley, Birmingham "Bowden, Acock's Green" Acock's Green 103 & 104

Bowden Wire, Ltd, Willesden Junction, "Bowirelim Harles, London" Willesden 2400 (3 lines).

Herbert Terry & Sons, Ltd., Redditch. "Springs, Redditch." Redditch 61

Carburettors—

Hobson, H M, Ltd, 29, Vauxhall Bridge Road S W 1 Victoria 4670*

Casein—

Nieuwhof, Surie & Co., Ltd., 5, Lloyds Avenue, London E.C 3 "Suricodon, Fen., London." Avenue 34 and 35.

Clothing—

Burberry's, Ltd, Haymarket, S.W.1 Regent 2165

Dunhill's Ltd., Euston Road, N.W 1 "Dunsend, London." North 3405-6.

Component Parts—

Accles & Pollock, Ltd Oldbury, Birmingham "Accles, Oldbury." Oldbury 111 (4 lines).

Brown Bros, Ltd, Gt. Eastern St., E C.1.

Central Aircraft Co, High Road, Kilburn, N W 6 "Aviduction, 'Phone, London." Hampstead 4403 & 4404

Thompson Bros. (Bilston), Ltd, Bradley, Bilston, England. "Thompson Bros, Bilston" Bilston 10.

Cords, Tapes, and Threads—

MacLennan, J., & Co, 30, Newgate Street, E.C 1. And at Glasgow City 3115.

Dopes

Titanine, Ltd, 175, Piccadilly, W 1 "Tetrafree, Piccy, London" Gerrard [illegible]

British Cellulose Co, 8, Waterloo Place, S W.1 "Cellutate, London" Regent [illegible]

The British Emaillite Co, Ltd, 30, Regent Street, S W 1. "Ridlesprcn, Piccy, London" Gerrard [illegible]

Cellon, Ltd, 22, Cork Street, London, W 1 "Ajawb, Reg, London" Gerrard [illegible]

Robt Ingham Clark & Co, Ltd, West Ham Abbey, E.15. "Oleotine, Strat, London" East [illegible]

Engines and Parts—

Allen W H, & Co, Ltd, Bedford "Pumps Bedford" Bedford [illegible]

Arrol-Johnston, Ltd, Dumfries "Mocar, Dumfries" Dumfries 281-282

Beardmore Aero Eng, Ltd, 112, Great Portland Street, W 1 "Beardmore, London" Gerrard [illegible]

The Cosmos Engineering Co, Ltd, Fishponds, Bristol

Dudbridge Iron Works, Ltd (Salmson), [illegible] Victoria Street, London, S W 1 "Aeroflight, Vic, London" Vic [illegible]

Gordon Watney & Co, Ltd, Weybridge "Mercédès, Weybridge" Weybridge 250 (7 lines)

Green Engine Co, Ltd, Twickenham Richmond [illegible]

Gwynnes, Ltd, Hammersmith, W "Gwynne, Hammersmith" Hammersmith [illegible]

Napier & Son, D, Ltd, 14, New Burlington Street, London, W, and at Acton, W "Nitrifier, London" Gerrard [illegible]

Rolls-Royce, Ltd, 14 and 15, Conduit Street, W 1 "Rolhead, London" Gerrard [illegible]

The Siddeley-Deasy Motor Car Co, Ltd, Coventry Coventry 954 "Deasy, Coventry"

Sunbeam Motor Car Co, Ltd, Wolverhampton "Moorfield, Wolverhampton" Wolverhampton [illegible]

The Gnôme & Le Rhône Engine Co, Ltd, 27, Buckingham Gate, S W.1 "Elevefold, London" Walthamstow [illegible] lines).

Walton Motors, Ltd, Walton-on-Thames "Motors, Walton-on-Thames" Walton-on-Thames [illegible]

Electrical Accessories—

Belling & Co, Montague Road, Upper Edmonton, N 18 "Belling, Edmonton" Tottenham [illegible]

Brown Bros, Ltd, Gt. Eastern St, E.C.

Gent & Co, Ltd, Faraday Works, Leicester "Lodestone, Leicester" National 151 (two lines)

Johnson & Phillips, Ltd, Charlton, London, S E.7 "Juno, London" Central 2207, London Wall [illegible]

The Rotax Motor Accessories Co, Ltd, Victoria Road, Willesden Junction, N W 10 "Rodynalite, 'Phone, London" Willesden [illegible]

Electric Cables—

E Kalker and Co, Coventry "Kalker, Coventry" Coventry [illegible]

Johnson & Phillips, Ltd, Charlton, London, S E 7 "Juno, London" Central 2207; London Wall [illegible]

Electric Lighting and Power—

Johnson & Phillips, Ltd, Charlton, London, S.E.7 "Juno, London" Central 2207; London Wall [illegible]

Mann, Egerton & Co., Ltd., 117, Cleveland Street, London, W. "Installing, Eusroad" Museum 70 (4 lines)

Electro Platers and Metal Polishers' Engineers—

W. Canning & Co, 133-137, Great Hampton Street, Birmingham. "Materials, Birmingham" Birmingham 5032 Central (3 lines)

Fireproof Petrol Tanks—

The Aircraft Improvements Co, Mornington Works, Arlington Road, Camden Town, N W 1

Flare Lights—

Imperial Light, Ltd, 123, Victoria Street, London, S W 1 "Edibrac, 'Phone, London" Victoria 3540 (3 lines)

Flexible Shafts—

Herbert Terry & Sons, Ltd, Redditch "Springs, Redditch" Redditch 61

Fluxes—

Imperial Light, Ltd, 123, Victoria Street, London, S W 1 "Edibrac, 'Phone, London" Victoria 3540 (3 lines)

The Auto Controller Co (Fluxite), Vienna Road, Bermondsey, Eng

Flying Boat Builders—

Gosport Aircraft Co, Gosport. "Flight, Gosport." Gosport 217.

Galvanising—

Boulton & Paul, Ltd, Rose Lane, Norwich "Aviation, Norwich" Norwich 851

Gauges—

J A Prestwich & Co, Northumberland Park, Tottenham, N.17

Gears—

Moss Gear Co., Ltd., Thomas Street, Aston, Birmingham "Mosgear, Birmingham" East 407

Glue—

Cannon, B, & Co., Ltd, Lincoln. London Office, 110, Cannon Street, E.C.4. "Beccolin, Cannon, London" City 1206

Improved Liquid Glues Co, Ltd, Gt Hermitage Street, E. (Croid.) "Excroiden, 'Phone, London" Avenue 4611-2.

Meudine Co., 8, Arthur Street, E.C. Bank 5873

Goggles—

Triplex Safety Glass Co, Ltd., 1, Albemarle Street, Piccadilly, W 1 "Shatterlys, Piccy, London" Regent 1340

Heating and Ventilating—

Chas P Kinnell and Co, Ltd, 65 & 65A, Southwark Street, London, S E 1. "Kinnell, London" Hop 372 (2 lines).

The Thames Bank (Blackfriars) Iron Co, Ltd, Upper Ground Street, London, S E 1 "Hot Water. Friars, London." Hop 763

Instruments—

British Wright Co, Ltd, 33, Chancery Lane, W C 2. Holborn 1308

Instruments (Scientific, Altimeters, etc.)—

Short & Mason, Ltd, Macdonald Road, Walthamstow, E 17. "Aneroid, Phone, London" Walthamstow 180.

Insurance—

Aviation Insurance Association, 1, Royal Exchange Avenue, E C 3 London Wall 9944.

Bray, Gibb & Co, Ltd, 166, Piccadilly, W 1

Captain A Newman (late R A F), 20, Bucklersbury, E C 4 City 4855

Harold Townend, Ltd, 13-14, Abchurch Lane, King William Street, E.C.4. "Carinsur, London" Central 156 (2 lines).

Percy Wingfield, 22, Newgate Street, E C 1 City 4672

Leather Cloth—

New Pegamoid, Ltd, 134, Queen Victoria Street, London "Pegamoid, Cent, London" City 9704 (2 lines).

Lubricating Oil Refiners and Merchants—

W B Dick & Co, Ltd, 90, Fenchurch Street, E C 3 Telegrams, Dicotto Fen, London Avenue 7854 (2 lines.)

Magneto Driving Pieces—

Herbert Terry & Sons, Ltd, Redditch. "Springs, Redditch" Redditch 61.

Magnetos—

The British Lighting & Ignition Co, Ltd, 204, Tottenham Court Road, W 1. "Vicksmag, Phone, London" Museum 430.

The British Thomson-Houston Co, Ltd., Lower Ford Street, Coventry. "Asteroidal, Coventry" Coventry 278.

Metal Casement Manufacturers—

Henry Hope & Sons, Ltd., 55, Lionel Street, Birmingham "Conservatory, Birmingham" Central 699 (2 lines).

Metal Manufacturers—

Clifford, Chas, & Sons, Ltd, Birmingham. "Clifford, Birmingham." Central 42-43. Avenue 1432.

Metals in General—

Samuel Mercer & Co, 108, Upper Thames Street, E C 4 "Reconciled, Cannon, London City 6342

Metal Parts and Fittings—

Accles & Pollock, Ltd Oldbury, Birmingham "Accles, Oldbury" Oldbury 111 (4 lines)

Arnott & Harrison, Ltd, Hythe Road, Willesden Junction Willesden 2207

Bayliss, Jones, & Bayliss, Ltd, Wolverhampton (Bolts and Nuts) "Bayliss, Wolverhampton" Wolverhampton 1041

Blackburn Aeroplane & Motor Co, Ltd, Olympia, Leeds "Propellors, Leeds" Roundhay 345 (3 lines)

Brown Bros., Ltd., Gt. Eastern St., E C.1.

Mann, Egerton & Co, Ltd., 177, Cleveland Street, London, W.1 "Installing, Eusroad, London" Museum 70

Rubery Owen & Co, Darlaston, South Staffs.

Sankey, Joseph, & Sons, Ltd, Wellington, Shropshire "Sankey, Wellington, Salop" Wellington 66

The Selsdon Aero & Engineering Co, Ltd, 1, Albemarle Street, Piccadilly, W 1 "Selaero, Phone, London" Regent 1181

Thompson Bros, Ltd, Bradley, Bilston "Thompson Bros, Bilston" Bilston 10

Metric Bolts—

Cashmore Bros, Hildreth Street, Balham, S W Battersea 415

Rubery Owen & Co., Darlaston, South Staffs

Miscellaneous—

Anderson, D., & Son, Ltd. (Roofs), Belfast "Anderson, Belfast" Belfast 4033-4034 [illegible]

Brown Bros., Ltd., Great Eastern Street, E C 1 "Imbrowned, Bethroad, London" London Wall 6300

Herbert Frood Co., Ltd., Chapel-en-le-Frith. "Frodobrake, Birmingham" Central 793

MacLennan, J., & Co., 30, Newgate Street, E.C.1., and at Glasgow. Tapes, Cords, and Threads. City 3115.

Motor Cars—

Arrol Johnston, Ltd., Dumfries. "Mocar, Dumfries" Dumfries 281-282

Mann, Egerton & Co., Ltd 379/381, Euston Road, London. N.W 1 "Manegecar, Eusroad, London Museum 70

Standard Motor Car Co., Coventry. "Flywheel, Coventry" Coventry 530 (4 lines)

Nameplates and Labels—

The Clegg Metal Engraving Co, Ltd, Worthing. "Clegg, Worthing."

Observation Panels—

Triplex Safety Glass Co, Ltd., 1, Albemarle Street, Piccadilly, W 1 "Shatterlys, Piccy London" Regent 1340.

Oils—

C. C. Wakefield & Co., Ltd, Wakefield House, Cheapside, E C.2. "Cheery, Cent, London" Central 11305 & 13406.

Parachutes—

E. R. Calthrop's Aerial Patents, Ltd., Eldon Street House, Eldon Street, London, E.C. "Savemalivo, Ave, London" London Wall 3206-3207.

C. G. Spencer & Sons, Ltd. (See under "Balloons")

Piston Rings—

The Standard Piston Ring and Engineering Co., Ltd., Don Road, Sheffield. "Ocean, Sheffield" Sheffield 2149

Presswork—

Rubery Owen & Co., Darlaston, South Staffs.

Terry, Herbert, & Sons, Ltd., Redditch. "Springs, Redditch." Redditch 61.

Propellers—

The Aircraft Improvements Co., Mornington Works, Arlington Road, Camden Town, N W.1

Blackburn Aeroplane & Motor Co., Ltd., Olympia, Leeds "Propellors, Leeds" Roundhay 345 (3 lines).

Propellers (continued).

Boulton & Paul Ltd., Rose Lane, Norwich, "Aviation, Norwich" Norwich 851.

Ebora Propeller Co., 11 & 12, Surbiton Park Terrace. Kingston-on-Thames "Ebora, Kingston." Kingston 672.

Integral Propeller Co., Ltd., "Aviprop, Hyde, London." Hendon 9. Kingsbury 104

Lang Propeller, Ltd, Weybridge. "Acrosticks, Weybridge." Weybridge 520-521.

Oddy, W. D., & Co., Leeds. "Airscrews, Leeds." Leeds 20547-8.

Westland Aircraft, Yeovil. "Aircraft, Yeovil" Yeovil 129.

Pyrometers—

The Foster Instrument Co, Letchworth, Herts. "Foster Instruments, Letchworth" Letchworth 26.

Rawhide Hammers—

Ira Stephens, Whitelands Leather Works, Ashton under Lyne "Stephens, 709, Ashton" Ashton 709.

Rigging for Aircraft—

Cradock, Geo., & Co., Ltd., Wakefield, England. "Cradock, Wakefield." Wakefield 466

Rubber Tubing & Accessories—

Hancock, James Lyne, Ltd, 266, Goswell Road, London, E.C 1 "Masticator, Isling, London" City 3811 & 3812

Safety Belts—

C. H. Holmes & Son, 38, Albert Street, Manchester "Semloh, Manchester" City 4432

Screw-driving Machines—

Russell Bros. (Redditch), Ltd., Littleworth, Redditch "Inventors, Redditch" Redditch 74

Seaplane Manufacturers—

Blackburn Aeroplane & Motor Co., Ltd., Olympia, Leeds "Propellors, Leeds" Roundhay 345 (3 lines)

Phœnix Dynamo Manufacturing Co, Ltd., Thornbury, Bradford "Dynamo, Bradford" Bradford 3700 (7 lines)

Short Bros, Rochester "Seaplanes, Rochester" Chatham 627.

Supermarine Aviation Works, Ltd., Southampton "Supermarin, Southampton" Woolston 37

Searchlights & Landing Lights

Brown Bros, Ltd, Great Eastern St, E C 1

Imperial Light, Ltd., 123, Victoria Street, London, S.W.1. "Edibrac, Phone, London" 3540 Victoria (3 lines).

Shock Absorbers—

Luke Turner & Co, Deacon Street, Leicester Leicester 967.

Tubbs, Lewis & Co, Ltd, 29 & 30, Noble Street, E C 2 "Elastics, London" City 22.

Sheet Metal Pressings—

Accles & Pollock, Ltd, Oldbury, Birmingham "Accles, Oldbury" Oldbury 111 (4 lines)

Blackburn Aeroplane & Motor Co., Ltd, Olympia, Leeds. "Propellors, Leeds." Roundhay 345 (3 lines)

Rubery Owen & Co, Darlaston, South Staffs

Sheet Metal Work—

The Acetylene Corporation of Great Britain, Ltd., 49, Victoria Street, S.W.1. "Flamma, Vic, London" Vic 4830

Rubery Owen & Co., Darlaston, South

The Selsdon Aero & Engineering Co, Ltd, 1, Albemarle Street, Piccadilly, W.1. "Selaero, Phone, London" Regent 1181

Imperial Light, Ltd., 123, Victoria Street, London, S.W.1. "Edibrac, Phone, London" Victoria 3540 (3 lines).

Solder Manufacturers—

Samuel Mercer & Co, 108, Upper Thames Street, E.C 4. "Reconciled, Cannon, London." City 6342.

Sparking Plugs—

Brown Bros, Ltd, Great Eastern St., E C 1

Lodge Sparking Plug Co., Ltd., Rugby. "Igniter, Rugby." Rugby 235.

The Robinhood Engineering Works, Ltd, Newlands, Putney Vale, S.W 15 Makers of KLG Plugs "Kaelgee, Phone, London" Putney 2132-3

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Springs—
Dart Spring Co., West Bromwich. "Dart, West Bromwich." West Bromwich 322.
Terry, Herbert, & Sons, Ltd., Redditch. "Springs, Redditch." Redditch 61 (3 lines).

Steel—
Allen, Edgar, & Co., Ltd., Sheffield. "Allen, Sheffield." Sheffield 4607.
Brown Bros., Ltd., Great Eastern St., E.C.1.
Firth, Thos., & Sons, Sheffield. "Firth, Sheffield." Sheffield 3230 to 3237.
Jonas & Colver, Ltd., Continental Steel Works, Sheffield. "Jonas, Sheffield." Sheffield 4660
Nicklin, Bernard, & Co., Birmingham. "Bernico, Birmingham." Smithwick, 224.
Spear & Jackson, Ltd., Ætna Works, Sheffield. "Spear, Sheffield." Central 4522-3-4.

Steel Tubes for Aeroplanes—
Accles & Pollock, Ltd., Oldbury, Birmingham. "Accles, Oldbury." Oldbury 111 (4 lines)

Tapes and Smallwares—
MacLennan, John, & Co., 30, Newgate Street, E.C.1. And at Glasgow. City 3115.

Timber—
Hopton & Sons, George Street, Euston Square, London, N.W.1. "Hoptons, Eusquare, London" Museum 496.
Also at Market Harborough, Leicestershire. "Hoptons, Market Harborough." Market Harborough 13.

Time Discipline Apparatus—
Gent & Co., Ltd., Faraday Works, Leicester. "Lodestone, Leicester." National 151 (two lines)

Tools—
Richard Mather & Son, Shoreham Street Works, Sheffield Sheffield 4349.

Turnbuckles—
Brown Bros., Ltd., Great Eastern St., E.C.1.
Rubery Owen & Co., Darlaston, South Staffs.

Tyres and Wheels—
The Palmer Tyre, Ltd., Shaftesbury Avenue. "Tyricord, Westcent." Gerrard 1214 (5 lines).

Undercarriages—
Thompson Bros. (Bilston), Ltd., Bradley, Bilston, England. "Thompson Bros., Bilston." Bilston 10.

Varnishes—
The British Emaillite Co., Ltd., 30, Regent Street, S.W.1. "Ridleypren, Piccy, London." Gerrard 280.
Thomas Parsons & Sons, 315 & 317, Oxford Street, London, W.1. "Varjap, Phone, London." Mayfair 6347 (3 lines).
Robt. Ingham, Clark & Co., Ltd., West Ham Abbey, E.15. "Oleotine, Strat, London." East 955.
Harland, W., & Son, Merton, London, S.W.19. "Harland, Wimbledon 45." Wimbledon 45 and 1395.
Naylor Bros., Ltd., Southall, Middlesex. "Naylor, Southall." Southall 30.

Washers—
Terry, Herbert, & Sons, Ltd., Redditch. "Springs, Redditch." Redditch 61.

Welding and Cutting Plant—
Acetylene Corporation of Great Britain, Ltd., The, 49, Victoria Street, Westminster, S.W.1. "Flamma, Vic, London." Vic 4830.
Imperial Light, Ltd, 123, Victoria Street, London, S.W.1. "Edibrac, Phone, London." Victoria 3540 (3 lines).

Welding Repairs—
Imperial Light, Ltd, 123, Victoria Street, London, S.W.1. "Edibrac," Phone, London." Victoria 3540 (3 lines).

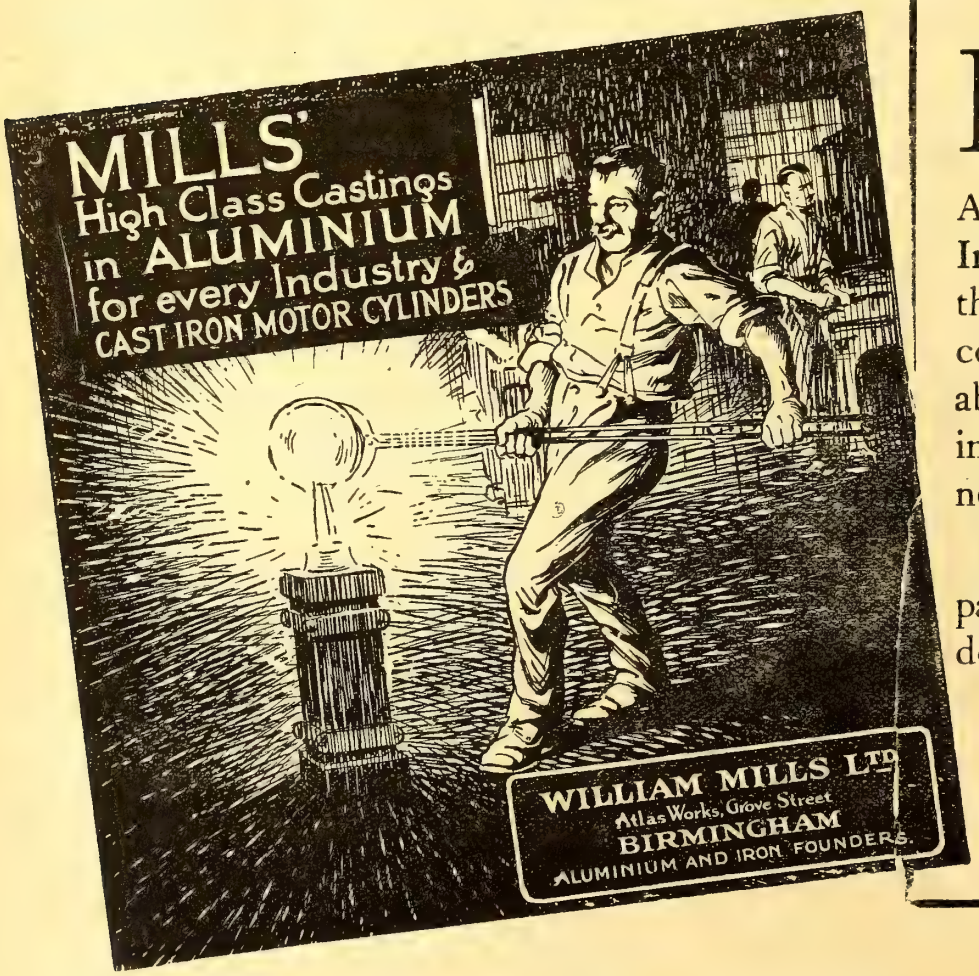
Wind Shields—
Auster, Ltd., 133, Long Acre, W.C. "Winflector, London" Regent 5910
Triplex Safety Glass Co., Ltd., 1, Albemarle Street, Piccadilly, W.1. "Shatterlys, Piccy, London." Regent 1340.

Wire Gauze—
Greening, N., & Sons, Ltd, 16, Finsbury Street, London, E.C.2 "Setscrew, Finsquare, London." London Wall 1082

Wire and Cables—
Bruntons, Musselburgh, Scotland. "Wiremill, Musselburgh." Musselburgh 28.
Cradock, Geo., & Co., Ltd., Wakefield, England. "Cradock, Wakefield." Wakefield 466 (3 lines).

Wirework—
Terry, Herbert, & Sons, Ltd, Redditch. "Springs, Redditch." Redditch 61.

Woodworking Machinery—
Sagar, J., & Co., Ltd, Halifax "Sawtooth," Halifax." Halifax 136.
Wadkin & Co, Leicester "Woodworker, Leicester" Leicester 3614.



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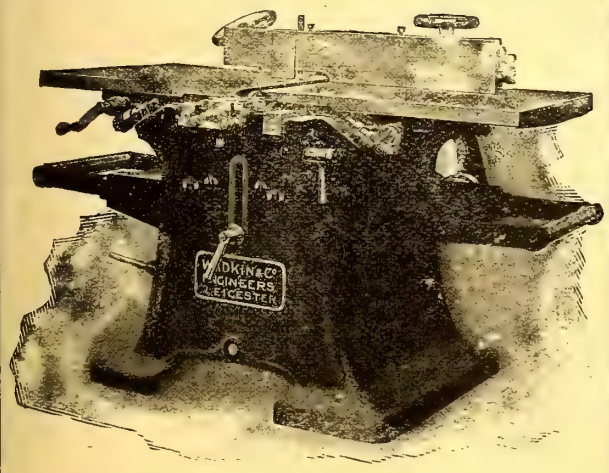

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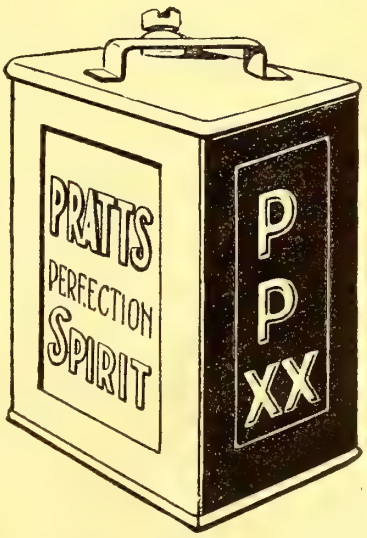

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AMERICAN ENGINE TESTS UNDER HIGH ALTITUDE CONDITIONS

It is fairly well known that the American National Advisory Committee on Aeronautics had carried out a number of experiments on aero engines under conditions which simulate those found at high altitudes in flight.

The majority of these tests were made at the special "Altitude Laboratory," erected for that purpose at the Bureau of Standards —the American equivalent of the British N.P.L.—and an official description of the Laboratory, and of the results of some of the tests made therein, is now available for publication.

The complete reports, as issued, are too lengthy for publication *in extenso*, but the following abstract will serve to give a general idea of the methods employed and of some of the results obtained.

Official Description of the Altitude Laboratory.

Briefly, the laboratory consists of a concrete chamber, within which the engine is mounted, and from which the air may be exhausted to any pressure as low as one-third of an atmosphere, by means of a centrifugal exhauster. At the same time the air is cooled to a temperature corresponding as nearly as possible to that encountered at the altitude of the test, by passing it over refrigerating coils. In the interior of the chamber electrically driven fans are mounted, which circulate the air over the coils and about the engine.

The power of the engine is absorbed and measured by an electric dynamometer and a water-brake mounted outside the chamber, and connected to the engine through a flexible coupling.

It will thus be seen that the conditions encountered in actual flight can be closely duplicated, while, at the same time, all the necessary data can be taken and easily recorded under the most favourable conditions for observation.

The altitude laboratory is housed at present in a temporary building of frame and stucco, having a rectangular floor plan, measuring about 24 ft. by 50 ft. In the near future, the present equipment, together with a duplicate set of apparatus, will be set up in a permanent brick and concrete structure, which is being built especially for this purpose. There are no features of the present building to call for special comment.

The Altitude Chamber.

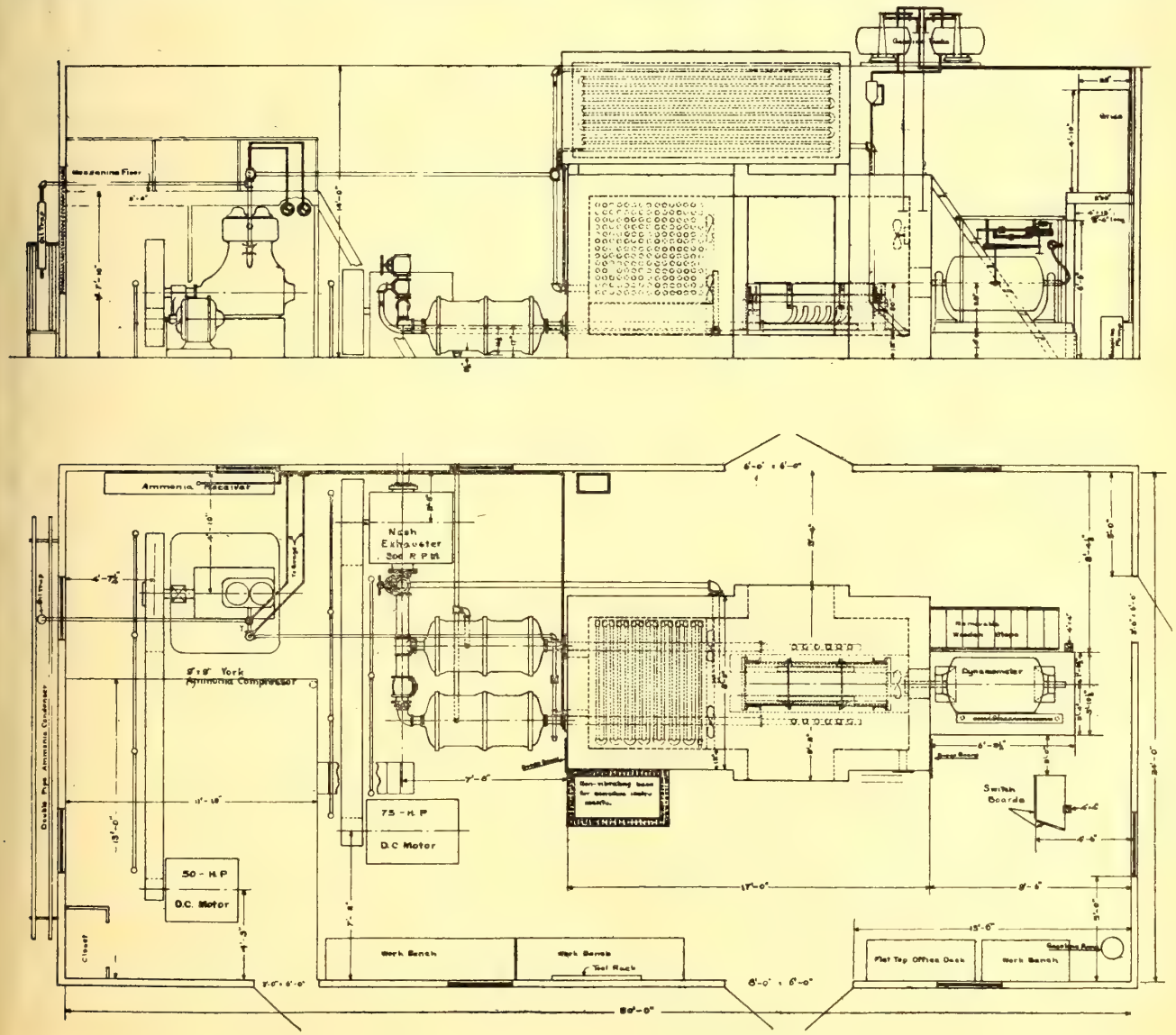
The altitude chamber is of concrete, 6 ft. 2 in. wide by 15 ft. long by 6 ft. 6 in. high, inside measurements. The walls of the chamber are 1 ft. thick, heavily reinforced with $\frac{3}{4}$-in. steel bars to withstand the pressure of the atmosphere outside the chamber.

The chamber may be considered as divided into two parts; the first containing the engine, and the second the cooling coils. The engine is mounted on a special stand at the right end of the chamber. In order to control the engine during a test, cables are led from the spark and throttle levers, etc., through holes in the walls. The walls are also pierced for the necessary pipes and wiring, each hole being closed by a flange and gasket, through which the connections are made.

The Engine Support.

The engine support was designed to reproduce, as nearly as possible, the flexibility and the inertia of the typical fuselage mounting. The design developed makes possible an accurate adjustment of stiffness as regards transverse and vertical vibration and rotation about each of the three principal axes of the engine.

Two oak beams, in this case 2 in. by 6 in., by 6 ft. 3 in. long, are supported at the ends to form the basis of the mounting. The engine is mounted directly on two supplementary beams, of 2 in. by 4 in. section, and of the length required for the particular engine under test. These supplementary beams are free from the main beams, except at two points, where they are bolted together through a thin separating block. Two yokes are provided to pre-



Plan and elevation of the "Altitude" laboratory of the Bureau of Standards.

vent torsion of the individual beams, but have no other effect, as they are free from contact with any other part of the structure.

The Air-Cooling System.

The air-cooling system may be divided into three parts, the refrigerating plant, the cooling system for the carburetter air, and the cooling system for the interior of the altitude chamber.

The refrigerating plant is installed in the left-hand portion of the building. The ammonia compressor is a 9 in. by 9 in., double cylinder, vertical, enclosed machine, with a refrigerating capacity of 25 tons in 24 hours, belt-driven from a 50 horse-power electric motor.

The cooling system for the carburetter air consists of a bank of ammonia coils mounted on top of the altitude chamber, and enclosed in a box and insulated with 4 in. of sawdust. The air is made to pass through this box in a tortuous path, and is then led through an insulated pipe provided with a set of electric-heating grids and a regulating valve to the test chamber, and then through the air meter to the carburetter. In this way warm or cold air may be supplied to the intake as required.

The system for cooling the air within the chamber is made up of a smaller bank of ammonia coils, placed in the left-hand portion of the altitude chamber. Four motor-driven fans are provided to force the air over these coils, while another fan is installed to circulate the air past the engine itself when desired.

By means of the refrigerating plant and cooling system just described, it is possible to reduce the temperature of the air admitted to the carburetter and that within the test chamber to a point approximating the temperature at any altitude up to about 30,000 to 40,000 feet. As the temperature cannot be readily controlled by means of the refrigerating plant, the air, after cooling and before admission to the carburetter, is passed over a series of electric grids, by means of which the temperature may be again raised and kept at any desired point. Some difficulty has been experienced from the condensation of moisture which occasionally causes a "snow storm" in the air passage to the carburetter. It is hoped that this difficulty will be entirely overcome in the new laboratory, through the elimination of leaks into the refrigerating chamber and the use of what may be termed a "settling chamber," through which the air will pass after being cooled, and in which the air-flow will be so sluggish that the snow will be deposited.

The Circulating Water-Cooling System.

The jacket water-cooling system is arranged as follows:—

Above the altitude chamber is placed a cylindrical iron tank connected to the inlet and outlet pipes of the engine's circulating system, and with another pipe from the city mains, while an overflow leads to the sewer. A thermostat is placed within the tank, the brass rod of this device controlling a pilot valve which admits or discharges city water from a bellows, which, in turn, controls the main valve on the city supply pipe. In case the temperature of the water in the tank rises above a certain point, the thermostat causes the pilot valve to open, admitting water to the bellows, and thus allowing cold water from the city supply mains to flow into the tank. When the temperature has again fallen, the thermostat closes the pilot valve and allows the water to escape slowly from the bellows. Two coil springs then close the main valve, cutting off the supply.

The thermostat is mounted in the fitting through which the water enters the tank from the engine jackets, and also from the city mains. It is, therefore, very sensitive to slight changes in temperature; a very important matter, since even a comparatively slight variation in the temperature of the circulating water affects the heat distribution in the entire engine. In practice it has been found possible to hold the temperature of the jacket water to a variation of about 5 deg C.

The Exhaust Cooling System.

The exhaust pipes connected to the engine are water-jacketed, the inner pipe extending down about three feet from the exhaust port, while the outer pipe or jacket is continued from the exhaust port to the main exhaust manifold in the form of a flexible tube. The water from the annular space mixes with the exhaust gases only at a point a considerable distance from the engine.

The mixture of exhaust gases and water passes through two 5-inch pipes to the auxiliary exhaust tanks, placed just outside the chamber. Here the water is drained off while the gases pass to the exhauster.

The Exhausting System.

The auxiliary exhaust tanks are both connected to a 6-inch main which leads to the centrifugal exhauster. Another 3-inch pipe is led from the main directly to the altitude chamber and serves to withdraw the air from the latter, thus maintaining the barometric pressure on the exhaust and within the chamber approximately equal. By means of a valve communicating with the outside air, placed near the exhauster the pressures maintained may be easily regulated, irrespective of the speed of the pump.

The exhauster is of the Nash "Hydroturbine" type, and has a rated capacity of 1,500 cubic feet per minute at a 12-inch vacuum, at 300 r.p.m. It is belt-driven from a 75 horse-power, direct current motor, and discharges to a point outside the building.

The Dynamometer.

The connection from the engine to the dynamometer is made through a flexible coupling.

The electric dynamometer is mounted on a concrete foundation at the right of the altitude chamber. It has a rated capacity of 300 horse-power, though it is capable of caring for considerable overloads. The dynamometer consists essentially of a direct current generator, the field ring of which is free to rotate with the armature, except as this rotation is opposed by a connection to a scale beam, which, therefore, measures the torque delivered to the machine. An auxiliary spring balance is also used, interposed between the torque arm of the dynamometer and the scale beam, which serves as a handy means for measuring the approximate torque. Current from the dynamometer is controlled from a switch-board placed near by, and may either be dissipated in grids placed outside the building, or may be returned to the regular power lines of the Bureau.

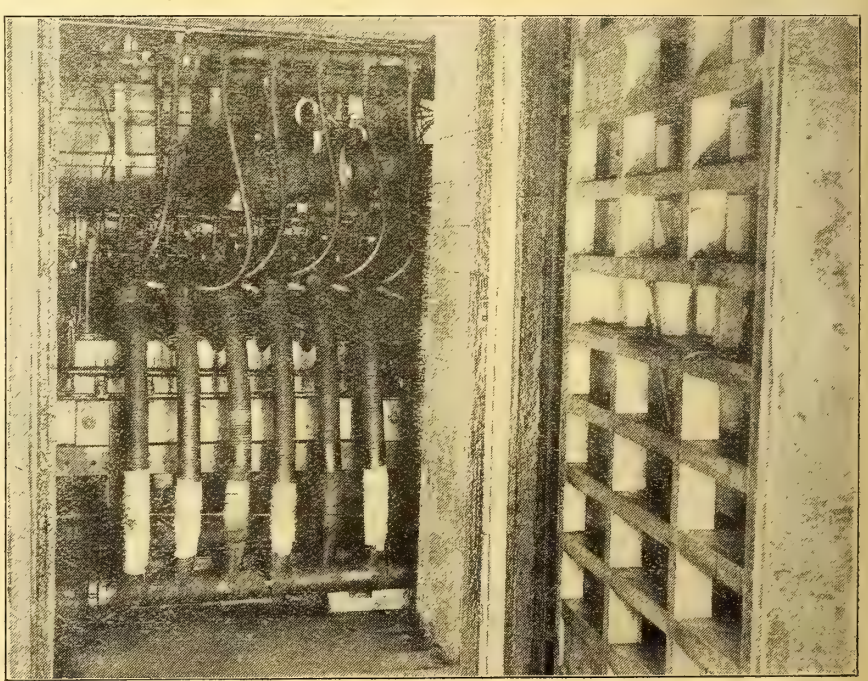
As the plant was originally laid out for the "Liberty 8" engine, before the "Liberty 12" was decided upon, the 300 horse-power dynamometer selected for the purpose is not capable of carrying continuously the full power of the latter engine. Hence, it was necessary to increase the capacity, which was done by the addition of a specially designed water-brake. This brake consists of alternate fixed and rotating perforated steel plates.

The rotor is mounted on the shaft of the electric dynamometer, and the stator is mounted on the dynamometer field, so that the two always operate together; yet the water-brake, when empty, does not interfere with the operation of the electric dynamometer. The water-brake alone can absorb about 400 horse-power at 1,800 r.p.m.

A unique feature of this brake, made possible by the fact that it is integral with the electric dynamometer, which cares for the adjustments of load, is that it can be operated at any one of four fixed water-levels corresponding to four oblong outlets in the casing. When any one of these outlets is opened, and the rate of water-flow is approximately adjusted, a constant water-level is maintained, which is reasonably independent of small variations in supply pressure. Operated in this way the water-brake is quite satisfactory, being free from the tendency to "drift" towards higher or lower roads with small changes in water pressure.

The Gauge Boards and Engine Controls.

The copper tubes for the manometers and the engine control cables are all carried to two boards, so arranged that one man



A 12-cylinder Liberty motor in the "Altitude Chamber." Note the massive construction of the open door.

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The spark and throttle levers work in graduated quadrants, which indicate the exact positions of the levers on the engine.

The instruments mounted on the gauge board are as follows:

1. Venturi gauge for carburetter inlet air.
2. Barometer and thermometer.
3. Manometer for carburetter float chamber pressure.
4. Manometer for exhaust back pressure.
5. Auxiliary barometer.
6. Manometer showing average pressure in exhaust manifold.
7. Manometer showing the pressure difference between the entrance to the carburetter air venturi and chamber.
8. Venturi gauge for jacket-water.
9. Venturi gauge for exhaust cooling water.
10. Venturi gauge for oil cooling water.
11. Indicator showing fluctuations of chamber pressure from that desired.
12. Manometer showing average pressure in inlet manifold above carburetter choke.
13. Manometer showing difference in pressure between entrance to the carburetter air venturi and chamber.
14. Manometer showing carburetter choke pressure.
15. Manometer indicating the pressure difference between the exhaust port and the chamber.
16. Venturi gauge on gasoline supply line.

Besides the above, there are the regular gauges and indicators supplied with the particular type of engine under test.

A revolution counter, provided with a magnetic, as well as a hand-clutch, is attached to the dynanometer shaft.

Measurement of Air Flow to Carburetter.

Two means have been used to measure the amount of air flowing to the carburetter; a Thomas meter, and a venturi tube.

The Thomas meter used was specially built for the altitude laboratory, and consisted of a wooden box 6 in. square on the inside and 16 in. long, which contained a heating grid between two sets of thermocouples The principle of operation was simply that a given energy, put into the heating grid, would cause a rise in temperature (measured by the thermocouples) inversely proportional to the mass flow of air.

This meter was eventually destroyed in a small fire in the altitude chamber, and was then replaced by a large 6-in. venturi with a 3-in. throat. The venturi was calibrated against a second Thomas meter specially supplied by the Cutler Hammer Co.

Temperature Measurements.

The following temperature measurements are made by means of thermocouples:—

1. Temperature rise of oil cooling water.
2. Carburetter air at entrance to venturi meter.
3. Rise in jacket-water temperature.
4. Jacket-water outlet.
5. Exhaust cooling water inlet.
6. Rise in exhaust water temperature.
7. Chamber temperature.
8. Oil temperature at engine inlet.
9. Oil temperature at engine outlet.
10. Carburetter air.
11. Inlet manifold temperature.
12. Gasoline temperature.

Fuel Weighing Device.

The fuel used by the engine may be measured in either of two ways; by means of an accurately calibrated tank, or by two tanks mounted on platform scales. The first method gives the volume, and the second the weight of fuel used. When using the weighing tanks a test may be run continuously, one tank being filled while the other is emptying, or two fuels may be compared as follows:—

One tank is filled with the fuel to be tested, and the second with a standard comparison fuel. The engine is run first on the standard fuel, and is then changed over the test fuel, after which a third run is made on the standard fuel. In this way the least possible variation in engine condition is involved

Miscellaneous Equipment.

Suitable pipe connections are provided for obtaining samples of the exhaust gases from the engine, these samples being then analysed in an Orsat apparatus.

A compressed air system for feeding oil to the engine sump and a means for cooling the oil during a test have been installed

The laboratory is well supplied with tools and the necessary work benches, so that all ordinary small repairs to both the engines and plant may be made without outside assistance.

General Log of Operation.

Work on the Altitude Laboratory was begun in August, 1917, and the plant was ready for the preliminary installation of an engine for test purposes in November of that year. The first engine to be mounted in the chamber was a "Liberty 8," one of the first series of five engines built for experimental purposes. Although this engine was set up in the test chamber in November, there remained many minor items of experimental equipment to be completed and "tuned up" before tests could be begun.

The securing of air-tightness of the doors and other connections to the chamber, and a multitude of other minor matters, too numerous to mention, all took considerable time.

On Dec. 26th, 1917, the first test run was made with the "Liberty 8" engine for the comparison of two grades of fuel, and for data on the contamination and deterioration of lubricating oil.

On Jan. 4th, 1918, the first test at reduced pressure was made, the lowest pressure obtained being 44 cm. below atmosphere, corresponding to an altitude of about 25,000 feet.

In all, seven tests were run with this first experimental engine, representing about 15 hours actual running time. The records of these first tests show many stops for various causes, most of which were chargeable to difficulties with the engine. This was to be expected, as the 8 cylinder model had not at that time reached a stage of perfection to warrant its use for research purposes. In fact, at that time, this model had been temporarily abandoned in favour of the 12-cylinder engine, which was then being perfected.

On Jan. 19th, a connecting-rod gave way during test No. 8, and it was decided to abandon the "Liberty 8," then obsolete, and continue work with a Hispano-Suiza engine until the "Liberty 12" was in shape for research on altitude effects.

On Jan. 25th, the first experimental run was made with the Hispano-Suiza engine. This test included the first complete set of observations under conditions corresponding to a series of altitudes up to 30,000 feet.

In the year which had elapsed between Jan. 25th, 1918, and Jan. 31st, 1919, about 150 complete altitude "flights" have been made, comprising only a little less than 1,000 hours of actual engine operation.

Observations have been made with the following models of aircraft engines:—"Liberty 8"; Hispano-Suiza, 150 h.p.; Hispano-Suiza, 180 h.p.; Hispano-Suiza 300 h.p.; "Liberty 12," 400 h.p.

Of these models, several different engines of the 150 h.p. Hispano-Suiza, 180 h.p. Hispano-Suiza, and "Liberty 12" types have been included.

EMAILLITE DOPING SCHEMES FOR AIRSHIPS.

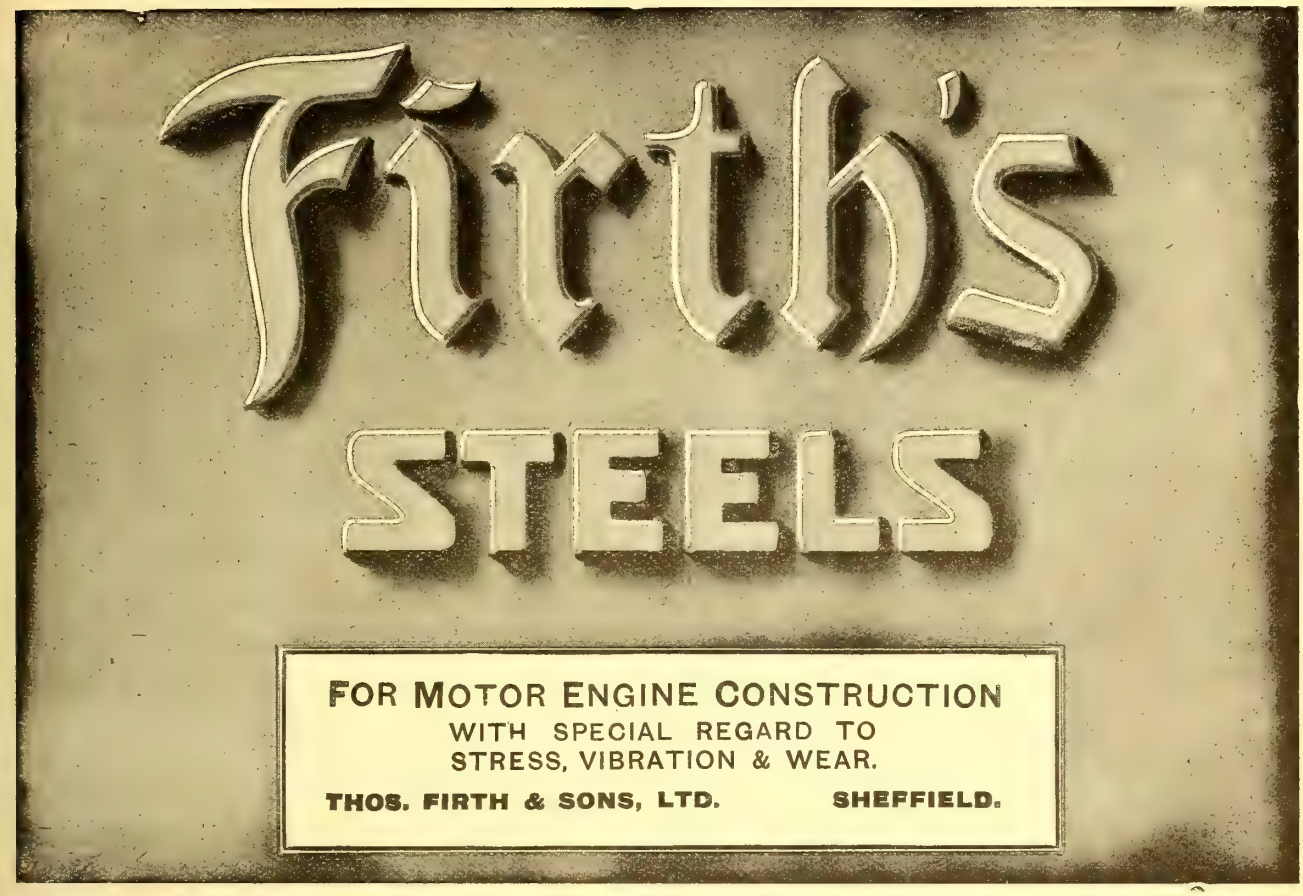
The British Emaillite Co. have long been connected with the Aeroplane "Dope" Industry, but it is little known to what a high standard of perfection they have worked in the more exacting problem of successfully doping rigid airships. The technical staff, under the control of Dr. J. N. Goldsmith, Ph.D., M.Sc., F.I.C., carried out lengthy experiments and tests with the result that they evolved a series of doping schemes for all kinds of aircraft coverings that were finally adopted as standard by the A.I.D. in 1916. When the Admiralty decided on the construction of rigid airships on a large scale it was only natural that the British Emaillite Co. should be approached, to tackle the problem of supplying a suitable doping scheme.

It must be understood that the doping of rigid airships is altogether different from the doping of aeroplanes where the dope is applied, more or less without restriction as to weight, to the fabric after it is stretched on the plane framework, and, therefore, free from further rough handling. In dealing with such a large surface as the covering of a rigid airship it is necessary that weight be kept down; consequently, the maximum weight allowed is 2 grams per sq. metre. Again, the fabric must be automatically doped before it is applied to the framework of the airship, and as the lacing has to be prepared after the proofing is applied, and, incidentally, it is rather roughly handled in the process, it can be seen that the necessarily thin protective covering must have sufficient pliability to retain it in as uniform tension as possible.

By the co-operation of the technical staff under Dr. Goldsmith and Mr. H. Bailey, the general manager of the firm, all difficulties were overcome with the result that in November, 1916, the Admiralty accepted the first Emaillite Doping Scheme for airships.

But this did not mean that the British Emaillite Co. were content to work on that one scheme. The technical department have continued, and intend to continue, their experiments, with the result that from time to time further improvements have been introduced. That the R34 should have completed the round journey —East Fortune, New York, Pulham—against almost every kind of weather condition is sufficient proof that the eminently useful work of the British Emaillite Co. has produced a highly successful scheme of weather-proofing.

The Airship Doping Scheme "P," as used on the R33 and R34, has since been improved, so that on the new ships under construction schemes known as "R" and "RA" are being used.



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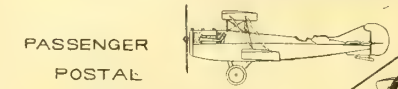

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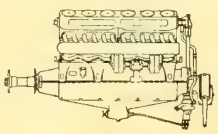
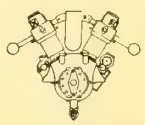

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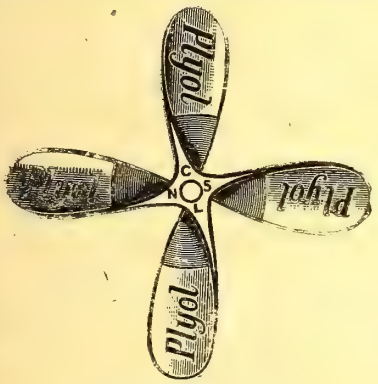

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COMMERCIAL AERONAUTICS & CIVIL AERIAL TRANSPORT

THE OWNERSHIP OF AERIAL SERVICES.

By "MEDWAY."

In recent articles I have advocated the temporary ownership of experimental services in various parts of the world, either by individual manufacturers or by the aircraft manufacturing industry as a whole. There is all the difference between carrying out the proposition that I have outlined and adopting the principle of the establishment of services by manufacturers with a view to permanent ownership.

Personally, I am very strongly of the opinion that the manufacturer's business is to sell his products rather than to operate them. At the present juncture temporary operation is justifiable, because we want data for the encouragement of future sales. Once the business is properly established, it is not the job of the manufacturer to run his own machines. By all means let him give the fullest possible service to the owners of those machines, but if he is wise he will not himself remain their owner for a minute longer than is necessary.

An Analogy.

This is one of those points with regard to which we can take a line from the development of the commercial motor vehicle. Experience shows that directly the vehicle manufacturer begins to take big financial interest in operating concerns competitive operating concerns will certainly withdraw their orders from him and will probably settle down to manufacture for themselves in preference to purchasing from the established industry. They are in fact more or less compelled to do so if their requirements are anything approaching sufficient to absorb a decent output.

In the early days of the motor omnibus some vehicle manufacturers took a considerable interest in operating concerns. The policy may have been justifiable, inasmuch as by watching their vehicles in service the manufacturers gained useful experience in design and data as to running costs. The fact remains, however, that it is now very much the exception for any motor manufacturer to do more in the way of operation than is represented by, perhaps, the hire department. On the other hand, the big London omnibus companies have set out to manufacture for themselves. The moral is a sound one. If you do not want other people to cut into your business, do not cut into theirs. When a big organisation of motor traders began to father an insurance business a prominent insurance company promptly retaliated by going into the retail motor trade on an extensive scale. This sort of thing is inevitable.

The Legitimate Job.

It is primarily for the purpose of eliminating any idea that the manufacturer is out to compete with his own clients that I suggest that even experimental services should be worked by the industry as a whole rather than by individual concerns. I have deliberately harped on this string because I am certain very much depends upon our getting a clear idea as to where the manufacturer's legitimate job begins and ends.

From what has gone before, my readers will see that I am not among those who would criticise the manufacturer for not exhibiting his confidence in his own wares by going into the transport business. Such business is, of course, speculative for the present, and it is speculative from two points of view. We do not know what our total operating costs are likely to be, neither have we any reliable data to indicate tht probable growth of traffic receipts.

Every new transport concern, land, sea, or air, is to a certain degree speculative. Receipts may fall short of the estimates. Traffic may not develop as quickly as was anticipated. In any established system, however, the other side of the case—namely, the cost of operation—is, or should be, accurately assessable in advance. The experimental services that I have suggested would put commercial aeronautics fairly onto a level with other transport systems in this respect. So soon as this point is reached we have a reasonable proposition to put to any business man with a leaning towards speculation. We can, in effect, say: "If you choose to start a concern under such and such conditions, your costs will be so much per mile flown, or so much per ton-mile carried. It is for you or your expert advisers to judge whether you can within a reasonable period work up receipts so as to show a profit in face of these operating costs."

An Element of Guesswork.

Of course, if people are so faint-hearted that they will take no risk at all, until the extent of the obtainable traffic can be exactly gauged, we shall never make much progress. There is necessarily an element of guesswork at the present stage. A single serious accident might have a very damaging effect upon receipts for a long period. Such risks have, however, been taken in the past by the promoters of transport concerns of all kinds.

Let the manufacturing industry accumulate sufficient information to enable it to take the responsibility for the publication of data of complete operating costs on the clear understanding that if such costs are exceeded under the conditions specified, either the wrong machines have been chosen or else the methods of the operating company are hopelessly bad. The manufacturers ought to be able to indicate in general terms what those methods should be. I do not think they are yet able to do so, and I cannot see how they are going to accumulate the necessary experience except by working more or less along the lines that have been roughly indicated in these pages during the past few weeks.

R.A.F. PEOPLE IN THE AIRCRAFT INDUSTRY.

Among the aircraft firms employing late Air Force personnel is the British Aerial Transport Co., Ltd., at Hendon.

Major J. C. Savage, late R.N.A.S. and R.A.F., is the commercial manager, and he is assisted by Lieut. H. W. Hern, late R.N.A.S. and R.A.F. Major R. E. Nicoll, late R.N.A.S. and R.A.F., is in charge of flying operations.

The pilots are:—Major C. Draper, D.S.C., chief test pilot, late R.N.A.S. and R.A.F.; Capt. C. R. Vaughan, late R.N.A.S. and R.A.F.; Lieut. C. C. Turner, late R.F.C. and R.A.F.; Lieut. R. E. Duke, late R.F.C. and R.A.F.; Lieut. H. M. Russell, officer in charge of W/T, late R.N.A.S. and R.F.C.

The chief of the photographic department is Mr. G. Green, late serjeant R.N.A.S. and R.A.F.

Late R.N.A.S. and R.F.C. mechanics are also employed at the Flying Ground at Hendon.

The clerks are:—Mr. T. J. Dingley, late chief writer, R.N.A.S. and R.A.F.; Mr. E. W. Westfield, late serjeant-major Scots Guards and R.A.S.C., attached London Air Defence Area Staff.

Miss M. Rye, late personal clerk to Major-Gen. Sir Godfrey Paine, K.C.B., is acting as shorthand typist.

HANDLEY PAGE, LTD.

Everyone in England knows the name of the machines which night after night flew over Germany carrying tons of heavy bombs, and succeeded in putting the wind well up the inhabitants of nearly all the towns on the Rhine. In the daylight these big, slow machines would have been an easy prey to the fast enemy scouts, on account of their size, low speed, and "unstuntability," but at night, painted black, and almost invisible, with their big load of petrol, they could go right over Germany, and their chief troubles were the searchlights and the unpleasant "woofs" of Archie.

The war has been over for so long now that we have actually had the official Peace celebrations, but Handley Page, Ltd., are still constructing machines for the R.A.F. which are *not* being built in order to be reduced to produce. On August 1st, the R.A.F. took over a number of the V type 4-engined machines. One of their pilots, who should have known better, succeeded in getting into such a position on the aerodrome at Cricklewood that prevented the heavily loaded Bournemouth week-end trip machine from getting the run it should have had, but it managed to clear the trees by a few feet.

All the long-distance trains were crowded on the August Bank Holiday week-end. Waterloo was no exception. People waited hours scrumming in the crowded station for trains to the South. The weather was hot, and it could not have been at all enjoyable standing most of the journey or well squashed in a seat. One wonders, of those people who could afford it, how many knew that they could have travelled in coolness and comfort in a Handley Page machine that left Cricklewood on the afternoon of Friday, August 1st.

The machine had a load of five passengers, the pilot and four mechanics. Two passengers were seated side by side in the nose of the machine, they got the best view, and could hear each other talking. The pilot and a mechanic sat behind them. In the rear of the gigantic petrol tank there were six more seats on the top deck. The top of the fuselage, including the rear, machine-gun position, had been removed, and the passengers' heads came just above the fuselage. To get into these rear seats it was necessary to dodge the cross-bracing wires, but, having arrived, the possessors found the seats were most comfortable. Underneath these seats the luggage was stowed. Passengers are allowed to take as much as they can carry.

The machine, with its big load, left the aerodrome at 4.20 p.m. The Rolls-Royce engines had had their compression reduced to give them longer life. As the machine did not climb very well at first, the pilot made a wide circuit over Cricklewood. The climb improved, and so the journey was started. A machine, which looked like a B.A.T. Commercial, overtook and passed the H.P. very easily just after leaving the outskirts of London. The reservoirs at Staines were soon sighted and passed over, and then no town was sighted until Winchester was reached, from which it was possible to see the sea at Southampton.

It was very easy to see one large and three small fires that were burning in the New Forest. One realised the great use of the aerial forest patrol for spotting fires, which is in operation over the large American forests.

After passing over Brockenhurst the pilot crossed the coast at Highcliffe, and went about a mile out to sea before reaching Bournemouth, which was approached between the two piers. A successful landing was made at the rather small aerodrome of the Bournemouth Aviation Co. at 6.30 p.m. The flight was carried out at a height of 2,000 to 3,000 feet.

All the passengers were delighted with the trip. A man who had not flown before inquired if there would be any stunting, as he wanted notice before he was looped. He should have been told that the only pilot who tried to loop an H.P. is now very busy pushing up daisies.

A passenger, who must have weighed 16 stone, immediately on arrival at Bournemouth rushed to the station to catch the first train back to town.

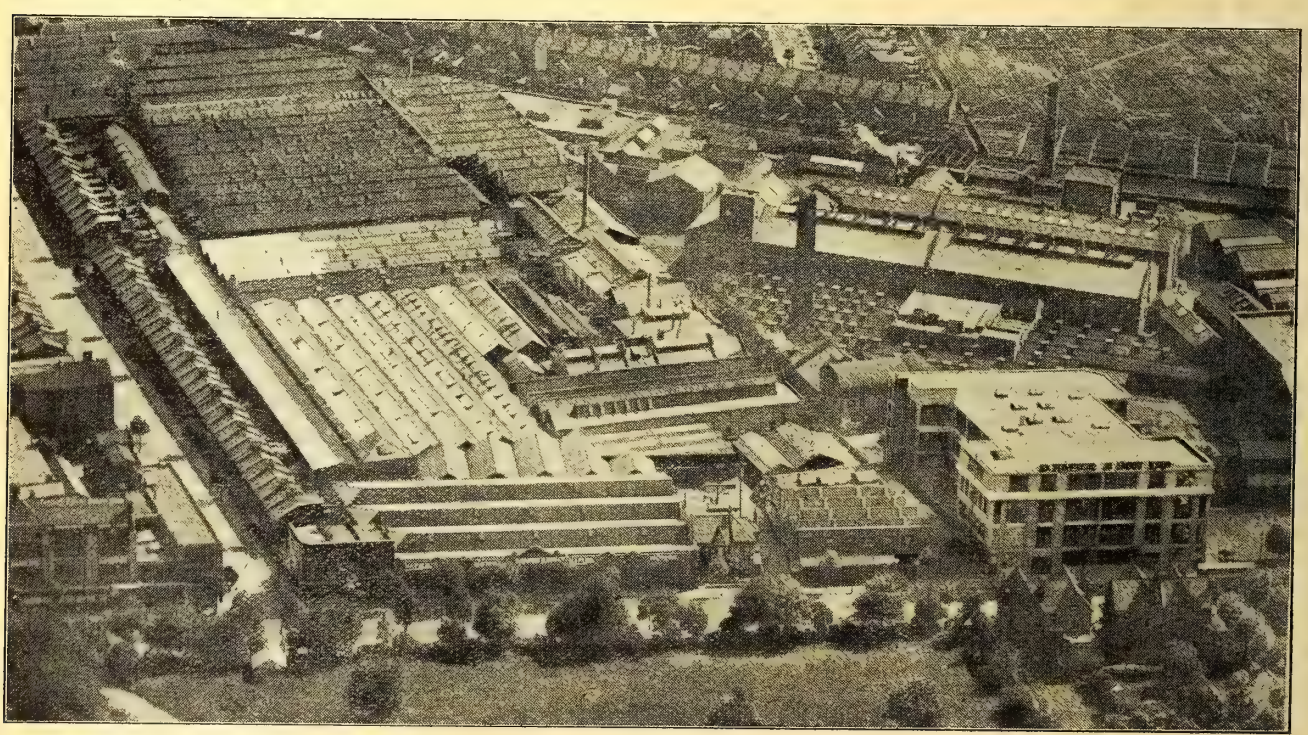
One who had been a pilot in the R.A.F. was very glad he had not gone by train, although it would have been the quickest way of reaching his destination, which was some distance from Bournemouth. He was offered a parachute at Cricklewood with which to alight at his home, but graciously but firmly declined the offer.

The machine returns to Cricklewood most week-ends on Monday, bringing the passengers home in time for lunch in town. The fare for the single journey is five guineas, and for the double journey ten guineas. Tickets may be booked at the Lepaerial Travel Bureau in Piccadilly Circus.

Handley Page, Ltd., in one record week during the war, turned out 13 machines. At the present time, they are producing an average of six machines per week. They are making a number to the order of the Chinese Government

Two machines were sent to Amsterdam for the Exhibition. One, a four-engined V type, was exhibited in the hall. The other, a two-engined machine, with a saloon body, beautifully fitted up, will carry 20 people, including the pilot. It is fitted with two aerials. One encircles the fuselage, and the other is fitted inside the length of the wings. These are used for wireless telegraphy, directional wireless and for wireless telephony.

When civil flying becomes general, and trips can be made freely to other countries, the Handley Page will come into its own. In flights from London to Paris and beyond it will be able to carry more passengers with luggage than other machines. Although flights are made with success every week-end to Bournemouth, England is so well connected up with railways that such a comparatively slow machine as the Handley Page cannot compete successfully commercially.—G. I. D.



THE NAPIER WORKS AT ACTON.—An aerial photograph taken by Captain Gathergood (late R.A.F.). Although a French firm is in existence which takes photographs from the air for commercial purposes, little use of this form of advertisement has been made in this country. As most large manufacturing firms publish "bird's eye" views of their works, there should be a good field for a firm that would specialise in aerial photo graphs.

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RENÉ TAMPIER

CONSTRUCTING ENGINEER,
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CONTRACTOR TO H.M. AND ALLIED GOVERNMENTS.

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BLOCTUBE CARBURETTORS COMPLETE.

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Large Variety of Models.

INTERMEDIATE BRACKETS.
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BLOCTUBE CARBURETTOR WORKS,
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Telephone—PUTNEY 242. Telegrams—"TUBLOCARB, PUT, LONDON."

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THE
SUPERMARINE CHANNEL TYPE FOUR SEATER FLYING BOAT

illustrated above has been designed and constructed by THE S.A.W., Ltd., Southampton, and passed for sea and air worthiness by the British Air Ministry. We have standardised this machine, which is fitted with folding wings, 160 H.P. Beardmore engine, and the latest and most up-to-date improvements in marine aircraft. We are using this model for our FLYING BOAT Passenger Service on the South Coast. Demonstration flights will be given by arrangement. Enquiries are invited for these machines, which we have ready complete for shipment to any part of the world. We are prepared to act as consultants to give advice as the result of our experience on the establishing of a Flying Boat Passenger Service. A FLYING BOAT Passenger Service is the best paying proposition to-day in Civil Aviation.

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THE SUPERMARINE AVIATION WORKS, LTD.
ESTABLISHED 1912
SOUTHAMPTON, ENGLAND.

COMMERCIAL AVIATION IN FRANCE.

The following letter has been received :—

Sir,—While "Engineer Officer" and other armchair experts are showing at great length that there is no profit in Commercial Aviation, in France the following companies are operating at a profit without sitting on the fence waiting for subsidies :—

Societé des Avions H. and M. Farman.
Cie des Messageries Aériennes.
Cie Aériennes Française.
Cie de Navigation Aérienne.
Cie des Grandes Expresses Aériennes.
Societé des Transports Aeronautiques du Sud-Ouest.

Fares and freight rates are reasonable, being from one to two francs per kilometre, according to the size of the machine. The fares in the large 'busses average 1f. 25c., or 1s. a kilometre. The fares are :—

From Paris to Lille, 250f.
From Paris to Brussels, 365f.
From Paris to London, 400f.
From Biarritz-Bordeaux, 200f.

Freight, 10f. per ton per kilometre. The amounts paid for passengers and third party insurances amount to 20 per cent. of the fares.

Now that the subsidies are established, the amounts paid for carrying the post pay all running expenses, so that freights and passengers represent profits.

Commercial Aviation does show a profit even now, and next year the activity in France will nearly equal that during the war. There are seven other companies getting ready to operate next Spring in addition to those who propose working for British companies.

JOHN STRONG.

COMMERCIAL AVIATION IN SCOTLAND.

The Superintendent of the Admiralty Meteorological Service (Mr. Hugh Duncan Grant, F.R.A.S., F.R.G.S, F.R.Met.Soc.) has recently put forward proposals for civil coastal seaplane services in Scotland. Much interest has been aroused up there in that and other commercial aerial schemes owing to the difficulties in inter-communication now experienced in many parts of Scotland.

The following is an extract from an article which appeared in the "Glasgow Herald" of July 25th, written by Major A. A. Walser :—

Aerial Transport in Scotland.

"In the southern portion of the British Isles, which is well equipped with railways, there is not so much scope for the transport of passengers and mails by air. Scotland, on the other hand, where conditions are somewhat different, seems to afford a profitable field for commercial aviation.

"There is no doubt that in certain parts of Scotland existing railway facilities are far from satisfactory, and this must necessarily have a deterrent effect on the development of the country. The northern districts and many portions of the west coast are so badly served with railways and cables that visitors are cut off from the outside world for all practical purposes.

"The difficulties and expense involved in rendering this part of the United Kingdom more accessible by building railways are very great. The Highlands do not lend themselves readily to the construction of fresh railways. Moreover, the population in many parts of Scotland is a very fluctuating one. In summer and autumn a considerable number of visitors from the South invade even the most remote districts. These visitors are largely drawn from the wealthier classes, eager to escape for a time from the turmoil of city life.

"The man engaged in affairs of State, the financier, the business man, and others, though anxious for a holiday, are not always in a position to cut themselves entirely adrift from their affairs. They must be within reach of news, and if necessary must be able to return to their respective spheres of activity in a reasonably short time.

"There is no doubt that many people are deterred from visiting the most beautiful districts of the North because they know the difficulties of travel and communication in those parts.

"It is here that aircraft would be used to great advantage. In many localities it would no doubt be difficult to construct aerodromes, but inland lochs, rivers, and sheltered waters along the coasts would afford suitable landing grounds for the seaplane. There are many ways in which aviation could materially assist in the development of Scotland. Chief amongst these is the delivery of mails and newspapers.

Seaplane and Aeroplane Routes.

"The scheme most likely to be successful would probably be one which combined seaplane and aeroplane lines working in conjunction. Two main seaplane stations established, as proposed by the Superintendent of the Admiralty Meteorological Service, one on the Firth of Forth, the other on the Clyde, could be the starting bases of their respective lines.

"The first of these would establish a regular service along the East Coast, and eventually extend to Inverness; the second would work on the Clyde and to the more important districts of the West Coast, and possibly extend along the Caledonian Canal.

"Intermediate stations would be established at regular intervals along the route, where landings could be effected when necessary. All along these routes a series of dropping stations could be established, at which mails and newspapers could be dropped by means of parachute. It would be comparatively easy for stations to signal to passing aircraft, stating whether they required machines to pick up passengers or mails, and it would be possible to arrange a code of signals whereby machines flying on the regular circuit would return to the head office with information gathered from ports all along the line.

"In conjunction with these two main coastal services, all the larger cities would in time have their aerodrome and be connected by aeroplane lines. A regular service between Edinburgh, Perth, and Inverness would very quickly pay its way, and would be of great assistance in the commercial development of the country.

Local Support.

"In conclusion, it might be stated that such a scheme as the one very roughly sketched out in the foregoing remarks would undoubtedly obtain the whole-hearted support and assistance of the Scottish landowners and corporations, who are eagerly inquiring as to the possibilities of a commercial air service to improve their communications.

"Hand in hand, but supplementary to the regular service of passenger and mail carrying machines, small groups of 'pleasure' machines established at the various holiday resorts, as well as near the larger towns, would not only reap profits for their parent company, but, if properly controlled, would go far towards popularising aircraft as a practical means of travel."

A NEW COMPANY.

The American Handley Page Company, with headquarters in Ogdensburg, N.Y., was incorporated on June 17th "to establish aeroplane routes within the United States to carry passengers and merchandise." The capital stock is $5,000,000.

PROTECTION TO THE EYES.

An officer of 29th Squadron, R.A.F., flying an Avro at Croydon, side-slipped, fell 100 ft., and crashed badly, hitting his head on the instrument board. The impact sheared off the nut of the petrol pressure release valve, which can be seen in the illustration embedded in one of the lenses of his Triplex goggles.

The Triplex lens of a pair of goggles in which a nut was embedded in a crash.

TRANSITIONS IN TRANSIT

No. 3. The Ship of the Desert.

Blistering sand and a scorching sun.

The tinkling of Camel bells. The soft "sug—sug" of padded feet. The drowsy murmur of voices. These are the only sounds which break the simmering silence of the desert.

Plodding along the desert trails, the lumbering camel takes on an air of majesty which five thousand years' unrivalled supremacy has given him.

And now at last comes a monarch greater than he. The monarch of the sky—the Aeroplane!

The time is not far distant when the ship of the desert must give place to the ship of the air.

The machine illustrated above is the Nieuport single seater biplane.

Offices and Works:

CRICKLEWOOD, LONDON, N.W.2.

Telephone: Willesden 2455,
Telegrams: Nieuscout, Crickle, London.

CIVIL AERIAL TRANSPORT NOTES.

GREAT BRITAIN.

London-Paris Air Services.

The Air Ministry makes the following announcement:—

"Pending the final signature of the International Convention a provisional agreement to allow of flying between France and Great Britain from Monday, Aug. 25th, has been arrived at between the respective Governments."

Great Britain is so well served by fast railway routes that competition by aircraft is hardly possible. If passengers or goods were carried from London to any big town in the Midlands by aircraft the cost would be very high. It could not be less than one shilling per mile.

The passengers would first have to make a journey out of London to the aerodrome. At the other end of the journey they would have to be taken from the aerodrome to the town. The time taken in getting to and from the aerodromes added to the time in the air could not be much less than the time taken by an express train. A train takes one from the heart of one town to the heart of another. A railway journey costs ½d per mile

An aerial service to the continent is a much better commercial proposition. The journey by land and sea to Paris is very long and quite costly. By air the journey can be made in 2½ hours by the Aircraft Transport and Travel, Ltd. Handley Page, Ltd., are charging 15 guineas for the trip.

The somewhat dry announcement of the Air Ministry has given the companies owning long-distance and large capacity aeroplanes an opportunity to show their worth. Two of the companies, at least, have not been long in taking the chance.

It was announced in The Aeroplane last week that the Aircraft Transport and Travel, Ltd., were starting a daily service to Paris on Aug. 25th. On Aug. 25th the service was started. A D.H.4a machine left Hounslow at 9.10 a.m. with a pilot, a Press representative, a number of newspapers, a consignment of leather, several brace of grouse, and a number of jars of Devonshire cream.

The machine arrived at Le Bourget (Paris) at 11.40 a.m. Left Le Bourget at 12.40 p.m. and reached Hounslow at 2.45 p.m.

A D.H.16 left Cricklewood at 12.30 p.m., piloted by Mr. Cyril Patterson, and carrying four passengers and goods. It arrived at Le Bourget at 2.45 p.m. This machine was announced to return to London on Aug. 26th.

Bookings of passengers have been received, covering the whole of the first week of the service.

Mr. Holt Thomas anticipates 80 per cent. efficiency on the service. The machines will leave for Paris every day that it is humanly possible to go. Whether there are passengers or not, they will go to scheduled time.

The Postmaster-General has not yet given permission for letters to be carried. In America they have found it actually cheaper and obviously quicker to send letters over long distance by air. The Post Office should realise the advantages of the speed of air transport. The aerial services would be put on a secure basis if they carried the mails.

Handley Page, Ltd., are starting a regular service to Paris and Brussels on Sept. 1st. Machines will leave at 12 noon for Paris on Tuesdays, Wednesdays and Fridays, and will return on alternate days. For Brussels they will leave on Mondays, Wednesdays and Fridays, also returning on alternate days.

The fare for the single journey, as before stated, is 15 guineas. Goods will be carried at 2s. 6d. per lb., with a minimum charge of 5s. The O.400 twin-engined type of machine will be used, with covered-in limousine fuselage, having seating accommodation for 14 passengers inside and two outside. In order to have a big margin of safety, only 10 passengers and 500 to 600 lb. of freight will be carried. The journey will take three hours.

For Paris the machines will land at the Le Bourget aerodrome. For Brussels at Evere aerodrome. Motors will be provided to take passengers from these aerodromes to the respective capitals. At present a stop has to be made at Hounslow to pass the Customs. It is hoped that sanction will be received to start the journey from Cricklewood.

As an experimental trip, a Handley Page left Cricklewood complete with 11 journalists on Aug. 25th at 8.30 a.m. to fly to Hounslow. This machine arrived in Paris soon after 10 p.m. It was due to return to London on Aug. 26th.

Accordng to the "Daily Express" of Aug. 22nd, some housewives are contemplating sending their laundry to Paris by air in view of the high prices and ruinous methods of washing in this country.

Arrangements have been made for copies of the "Times" newspaper to be sent daily by the service. These copies will be available for delivery to subscribers at special rates.

Free Flights.

The "Daily News" is offering free flights at the following places on Saturday, Aug. 30th:—Cricklewood, 100; Southend and Hastings, 20 each; and Great Yarmouth, 15. These flights will be the last given by the "Daily News" this summer.

Avro Flying in the North.

During the week ending Aug. 24th 766 flights were made in 17 Avro machines and 1,621 passengers were taken up at the following Avro stations:—Birkdale (Southport), Blackpool, Douglas, Fleetwood, Manchester, Rhyl, Waterloo Sands, and Windermere.

Manchester and Blackpool Air Service.

The Avro service between these towns has been run daily since the middle of May. The service is the first regular flying service to be run on civilian lines in the country. The time table, which is even published in the Manchester railway guides, is as follows:

Leave Blackpool 12 noon, leave Southport 12.15; arrive Manchester 12.45.

Leave Manchester 2 p.m.; arrive Southport 2.30, arrive Blackpool, 2.45.

Blackpool.

Many passengers were taken up in Avros during the week ending Aug. 24th, for the "wakes" were in full swing. The climax takes place this week, when the Oldham holidays are on. The five-seater Avros as usual did most of the passenger-carrying.

An engine was urgently wanted at Birkdale. One was put in a five-seaeter Avro and flown across the Ribble in 10 minutes. It would have taken the best part of a day to send it by road. The cost of transport was about £2 as against £5 for the hire of a lorry to take it round by road.

"Lucky," a famous music-hall performing dog was looped at Blackpool. He lost his flying cap and goggles during the trip. He climbed up the ladder to the aeroplane on two legs, drank the pilot's health and generally showed how thoroughly he enjoyed his flight.

Brighton.

During the week ending Aug. 24th thirty-eight flights were made in Avro machines at the Ladies' Mile Aerodrome.

Eighty-eight passengers were carried. The weather was indifferent, and no flying was possible on the 19th and 20th insts. On Sunday, Aug. 17th, a passenger and his niece were flown to Swanage and back.

Cambridge.

The Cambridge School of Flying charges only 30s. for a flight of 15 minutes over Cambridge on Avro machines. For 10s. passengers are taken up and may bomb a "circle" with sawdust bags. The youngest passenger carried so far was aged four. Most of the passengers are women, and nearly all request to be stunted. Motor 'buses are run out to the aerodrome from Cambridge (5 miles) on most Thursday afternoons.

Flying is taught on D.H.6 machines for £100, and on Avros for £180. They also have several Caudrons, but as they are not being licensed they will be written off.

An expert photographer will take photographs of passengers in the machines. Long-distance flights can be arranged, and the company claim that they charge down to 20 per cent. less than any other company for similar journeys.

Conway.

The site at the Morfa is being levelled and will be used as a landing-ground by the Avro Co. It is a fine centre for North Wales, the aerial views being magnificent. The air is very bumpy for flying, owing to the proximity of the mountains and the sea.

Fleetwood.

Passengers are taken up two days a week in an Avro machine by Lt. Macrae, M.C.

Harrogate.

A D.H.9 biplane is shortly expected to assist in making up passengers with the D.H.6 and the D.H.4a machines. The last machine will be used for daily flights to Redcar costing 10s. return.

Hunstanton.

Capt. Birkbeck, D.F.C. (late R.A.F.), of the Cambridge School of Flying has flown an Avro to Hunstanton, where he is taking up passengers.

Isle of Man.

Lieut. Moxon, flying on probably the most difficult aerodrome in the North, is carrying many passengers on Avro machines. He has started another licensed aerodrome at Ramsey, where the flying conditions are very much better.

Kendal.

A. V. Roe and Co., Ltd., are still negotiating with the landowners and Post Office authorities who have refused to lay their telegraph wires underground for a short distance. This would make the only good piece of ground in the neighbourhood suitable for landing on.

London.

Cricklewood.—A Handley Page, piloted by Capt. Shakespear, left Cricklewood Aerodrome on Aug. 21st with passengers for Brussels. Whilst the machine was circling over the aerodrome to gain height a messenger arrived on the ground with an important letter for one of the passengers.

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Unsuccessful efforts were made to attract the attention of the pilot, and so the letter was taken by Major Meintjes in a fast two-seater machine, which overtook the Handley Page at Hounslow, where it had descended to pass the Customs.

HOUNSLOW.—A Vickers-Vimy limousine with 350-h.p engines and carrying fourteen passengers left Hounslow Aerodrome at 10 a.m. on August 20th. They flew to Amsterdam, where they were entertained to lunch by the Committee of the E.L.T.A. Exhibition.

During the week, ending Aug. 24th, 140 passengers were carried in Avro machines. Cross-country flights were made to Margate, Southsea, and the Isle of Wight.

MARGATE.

Although there was only four days' flying during the week, ending Aug. 24th, owing to the weather conditions, over 100 passengers were taken up in Avro machines.

MORECAMBE.

For five days a week Lt. Macrae, M.C., takes passengers up in an Avro machine at Morecambe, and is kept very busy.

NOTTINGHAM.

The Air Ministry has refused to sanction the flying in the "Forest" in the centre of the city for the flying week in the middle of September. A. V. Roe and Co. intend running a Nottingham-Derby air service at that time.

A commercial aeroplane service is about to be established at Nottingham. The promoters have acquired under Government sanction a site of about 30 acres near the river Trent, and the land is being adapted for an aerodrome. A start will be made with five aeroplanes for carrying passengers and goods. Special attention will be given to the transportation of lace, Nottingham's main product, which, being light in bulk, is specially suitable for the purpose.

PAIGNTON.

Four flights for lunch and two for tea were made to Teignmouth in Avro seaplanes during the week ending August 24th.

A race between the two seaplanes was arranged in conjunction with the Regatta for the afternoon of Saturday, Aug. 23rd, but as one of the machines was sent to Amsterdam it had to be scratched. It is hoped to arrange a race on August 27th.

PRESTON.

The Avro aerodrome has been licensed and requires a little levelling before passenger flying can take place.

RAMSGATE.

An Avro seaplane on its way from Southampton to Holland with a passenger was compelled to alight at Ramsgate on Aug. 25th owing to shortage of petrol. The machine was towed in Ramsgate Harbour undamaged.

RHYL.

Flying is very popular at Rhyl, and many passengers are taken up in the Avro machines. Capt. E. Maitland Heriot, D.S.C., has started upside-down flying as an attraction. The first time he did this, forgetting the laws of gravity, he inadvertently dropped a number of things out of his machine, which descended on the sands. The people there were very surprised at the sudden appearance of souvenir cards, tickets, and cushions from the sky!

Many people have come from St. Asaph, Chester, Birmingham, Denbigh, and Ruthin to fly, and inquiries for cross-country flights are numerous. When it is possible to reduce the fare there will be no dearth of bookings.

SCOTLAND.

During last week Capt. Simpson moved his two Avros from St. Andrews to Montrose, where 30 passengers have been taken up. This week he proposes to visit Dundee.

Aerial Photos, Ltd., of 81, George Street, Edinburgh, propose forming a Scottish Flying Club with centres in Edinburgh and Glasgow for the purpose of encouraging civil flying and commercial aviation in Scotland. Those interested are invited to write to the Secretary.

SOUTHAMPTON.

The Supermarine Aviation Co., Ltd., are carrying passengers in their flying-boats from Southampton to Bournemouth and the Isle of Wight. Passengers are also taken up at Southsea. The service will soon be extended to Havre and the Channel Islands.

SOUTHPORT.

The Sopwith Aviation and Engineering Co., Ltd., have the sole concession rights for making passenger flights at Southport. The Avro Company are taking up passengers at Birkdale near by. The Sopwith Company have three "Gnu" three-seaters and one "Dove" two-seater machines at Southport.

During the last six weeks Mr. King and Mr. Clapham have taken up about 1,000 passengers in two "Gnu" and one "Dove" machines. The aerodrome is in a central position adjoining the Pier and the Marine Drive.

SWANSEA.

Great interest was aroused on Aug. 15th by the arrival of the Swansea Town Crier, complete with his bell, on the Avro aerodrome.

From his pocket he produced a coil of rope which he seriously handed to the pilot with a request that he might be firmly tied into the Avro.

Then, for the first time, surely, a town crier was to be seen and heard flying above the main streets of the town plying his trade to the accompaniment of his bell and a 110 h.p. Le Rhône engine.

On Tuesday, Aug. 19th, a wonderful exhibition of aerobatics was given to the many visitors to Llandrindod by Capt. T. B. Bruce on one of the Swansea Avros.

During the week ending Aug. 24th, 24 flights were made and 47 passengers carried in Avro machines.

WATERLOO SANDS (LIVERPOOL).

Flying on this aerodrome takes place on Wednesdays and Saturdays, otherwise it is only used by the Avro machines as a landing ground.

WINDERMERE.

Capt. Pixton took the "Daily News" over to the Isle of Man several times during the week ending Aug. 24th. His trips are scheduled to take place when the midnight boats do not run from Liverpool, which is two or three times a week.

Passenger-flying is quiet, but improving, on Lake Windermere, where the air over the mountains is none too steady for flying. The Avro seaplanes are as reliable as the aeroplanes.

THE ARGENTINE.

A party, consisting of 16 French officer pilots and 44 picked mechanics, have embarked for Buenos Aires in connection with the French Aviation Mission to the Argentine Republic.

It is proposed to introduce a measure into the Argentine Chamber of Deputies providing for admission of aeroplanes into the country free of duty.

DENMARK.

The Handley Page machine piloted by Major T. Gran, which left Cricklewood on Aug. 17th for an aerial tour, as noted in the last issue of THE AEROPLANE, made several exhibition flights at Copenhagen. It left Copenhagen for Norway on Aug. 23rd, stopping at Aarhus, Jutland, at noon.

The Danish correspondent of THE AEROPLANE writes:—

Naval Captain Ullidtz flew last week as passenger with the German Capt.-Lieut. Reppert on his Brandenburg two-seater seaplane to Warnemünde, where he negotiated with various people regarding the possibilities of starting air lines to Copenhagen. They continued by air to Berlin on the same business and returned expeditely. Capt. Ullidtz has connection with the Danish Air Traffic Co. under formation.

Late in the evening of Aug. 13th the Farman twin Renault-engined Goliath No. 2 arrived in Copenhagen, carrying a pilot, two passengers and a mechanic. The rest of the 12-passenger seats were stored with spare parts. This machine is the first of such size to visit Copenhagen, and no shed at the aerodrome could house it, nor could the tent, which was erected for the special purpose.

A passenger said that great difficulties had been experienced in getting permission to leave France, and he himself had to call personally on the War Office. The giant aeroplane will stay for some days in the Danish capital, giving passenger flights.

After the inexperienced civil pilot, Dir. Nehm, had met with a fatal accident on an overland flight in an old, retouched Rumpler, he and his passenger being burned to death, civil flying has been forbidden, till the Air Bill before Parliament has been passed.

The provisory regulations requiring a safeguard of 10,000 crowns against third party damage and 60,000 crowns against third person hurting. This should speed up the efforts of Scandinavian insurance companies to tackle the new field of enterprise in union. Before being allowed to fly the pilot has to pass tests before the Commander of the Army Flying, Lieut.-Col. Koch, equalling those for obtaining a military certificate. Otherwise he must show papers of his flying career abroad.

The first to obtain a passenger-carrying brevet was the German, Hubricht, engaged as private pilot of one Mr. Tholstrup, who has repeatedly flown as passenger in a Brandenburg seaplane of his own, with the object of saving time in travelling to his dairies on the off-lying Danish island Bornholm. Mr. Tholstrup also owns half a dozen aeroplanes, including a Fokker VII. The others are L.V.G. two-seaters, the interests of which company he pushes. One of these biplanes has been flown on exhibition and joy-riding trips in Jylland, piloted by several Army aviators when on leave.

Now he has disposed of four L.V.Gs. and the Fokker to a new company which he has formed, with three Flight Lieuts., who have hired the Army aerodrome at Lundtofe, near Copenhagen, from where joy-riding, tuition and advertising flights will be carried out. This scheme was to have been carried out originally with Rumpler machines, and some were flown there: but, as the pilots had neither permit to export them from Germany, nor permit to import them into Denmark, they were arrested. They spoke of an invasion of 200 Rumpler aircraft.

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FRANCE.

An experimental postal service is being tried between Gabes and Tunis. On August 10th a 300-h.p. Breguet biplane did the journey in 2 hrs. 10 mins., as against 15 hours which is the time taken by the train.

The Farman "Goliath," piloted by Lt. Bossoutrot, which left Toussus-le-Noble Aerodrome on Sunday, Aug. 10th, to fly to Dakar, reached Casablanca in 17 hours 20 mins. without a stop. On the following Friday the flight to Dakar was resumed, and the last that was heard of the "Goliath" and its crew of eight was a wireless message asking for the direction of the wind on the Saturday morning. It was then near Cape Blanco, more than half the distance of the final stage having been accomplished.

A very systematic search was organised from Dakar, both by warships to search the coast, and by relief columns to search inland. For a week nothing was heard, and all hope had been abandoned as to their safety.

On the 24th inst. a message was received by the French Minister of Marine from the commander of the Naval Division in Morocco, stating that the "Goliath" had been discovered near the coast at a point 90 miles north of St. Louis with a broken propeller and that all the crew were safe. The delay in receiving the information was due to the fact that at this time of the year the native villages are deserted.

Commandant Wuillemin and Lieut. Dagnaux arrived at Cairo on Saturday, August 16th, having flown from Paris, with stops at Marseilles, Naples, Salonica and Constantinople. The last stage—Constantinople-Cairo—occupied nine hours' flying time.

On the 21st inst. two Portuguese aviators, Capt. Souza-Maia and Lt. Portila, on Bréguet biplanes, flew from Paris to Brussels, en route for Amsterdam in 1 hr. 38 mins.

The French reliability and endurance competition promoted by "L'Avenir" has, it is stated, been abandoned owing to the difficulties in the way of getting the competing machines ready in time.

The annual International Exhibition of Aeronautics, organised by the Chambre Syndicale des Industries de l'Aéronautique, will be held at the Grand Palais in the Champs Elysées from December 19th next to January 4th, 1920.

The exhibits will be classified in eleven groups as follows: (1) Aerostatics; (2) heavier than air apparatus; (3) motors and propellers; (4) sciences; (5) art; (6) structural materials; (7) transport and shelters; (8) cartography and bibliography; (9) commerce; (10) motor navigation; (11) various industries.

M. Malicoir, flying a Caudron biplane, flew twice under the Bridge of Var near Nice. The span of the bridge is 65 feet and the height 20 feet, as compared with the 45 feet span of the Caudron.

Capt. Leune, accompanied by a wireless operator and a mechanic flew from Paris to Rome. Between Corsica and Gênes the machine ran into a violent storm and for two hours and a half the pilot was completely lost over the sea. On landing at Rome it was found that the airscrew and the leading edges of the planes had suffered severely.

M. Fronval on a 110 h.p. Le Rhône "Parasol" monoplane flew from Paris to Amsterdam, a distance of 450 kilometres, in 2 hrs. 28 mins.

M. Poulet, the well-known Caudron exponent, is practising on a Caudron-Le Rhône biplane for a flight from Paris to Melbourne.

GERMANY.

The German police system has been reorganised, and provision has been made for a corps of flying policemen. Their duties will be to prevent capital leaving the country and to hunt and catch criminals. A landing-ground for police aeroplanes is being made now on the Swiss frontier, and similar stations are planned for Hamburg, Hanover, Breslau, and other towns.

The "Nieuwe Rotterdamsche Courant" states that, owing to the lack of material, the aerial mail service in Germany cannot be resumed for some time. Flights will be made only when authorised by the Government and other authorities. At Swinemunde and similar north coast holiday resorts joy-flights are still being made, but at very high prices.

Professor Junkers demonstrated his first limousine in passenger flights at the Johannisthal aerodrome on Aug. 6th. The machine was his 160 h.p. Mercédès-engined, wireless, all-metal (aluminium) monoplane for six persons, with an enclosed cabin for four passengers. The speed attained was 105 miles per hour.

The daily Zeppelin service between Berlin and Friedrichshafen, on Lake Constance, has been advertised by the D.L.R. Company to start on Aug. 24th.

A small type of Zeppelin has been constructed for this service. It is about 400 ft. in length, has a capacity of 20,000 cubic metres, and is said to be able to carry 10 to 12 tons. It has four engines giving about 1,100 h.p. and a speed of 77 m.p.h.

The passenger cabin contains 20 easy chairs and can accommodate 25 persons. It contains also a wireless telegraphy apparatus, a lavatory with running water, and a canteen, where hot and cold food and drinks can be obtained.

At first the flight will be made one way only each day, without making a landing en route. The 373 miles will be covered in seven hours. From Sept. 5th landings will be made at Munich on every journey. The fare for the whole distance is 400 marks, and Berlin-Munich 350 marks. Each passenger will be allowed 30 lb. of luggage.

The Government have made arrangements to use their passenger Zeppelins for the conveyance of letters and parcel post. For letters a small extra charge will be made. The "urgent" rate for parcels will be charged plus five marks for every kilogramme.

The service started on Aug. 24th with the Stan-dirigible "Bodensee," belonging to the Delag (Deutsche Luftschiffahrts A.G.), after repairs by the Luftschiffbau Zeppelin.

The airship left Friedrichshafen at 10 a.m. on its first trip to Berlin.

It carried 10 newspaper representatives and 13 other passengers, including three women.

The airship arrived over Berlin at 4 p.m. and landed at 5 p.m. at Staaken, near Spandau.

The Danish correspondent of The Aeroplane writes:—

The German coal strikes have influenced commercial aviation so much that the Sablatnig Traffic Co. and the German Aerial Shipping Co. had to stop their service on July 31st, owing to the lack of fuel, as only home-produced benzole was available, and there was not enough of that.

The latter enterprise states that the prospects for the near future are not good, and regrets it, as August and September would probably have turned out the best flying months. Special flights to order may soon be carried out with foreign petrol, but at much increased cost, as the price of this petrol will be five to six shillings against 1s. 3d. of benzole.

The company recently suffered the loss of one of its passenger aeroplanes near Johannisthal in an accident that cost half a dozen lives.

The twin-engined aircraft are equipped with parachutes. Lieut. Treibner jumped from 1,500 ft. during a passenger flight at the Johannisthal aerodrome on July 19th with a Heinike parachute. On July 21st the control of the latter was proved, as the wind drove him over unsuitable ground and he increased his falling speed by serving the central cable.

Piloted by Engineer Schwandt, a new A.E.G. twin-engined biplane has put up a new world's record for altitude flight with eight passengers.

HOLLAND.

E.L.T.A. News.

On Aug. 12th a Caudron machine, piloted by Boulard, collided with an Avro machine. The damage was slight

The Avro "Baby" flew from Hamble to Amsterdam via Hounslow on Aug. 14th. The non-stop flight from Hounslow to Brussels took 2 hours 50 min. No trouble of any kind was experienced en route. A number of spares was carried. The machine has made a good impression at the E.L.T.A. Exhibition.

Two Avro seaplanes have also left Hamble for the Exhibition, where they will take up passengers. Nine Avros have now been dispatched to the E.L.T.A.

The only drawback to flying there is the sand which has been pumped out of the canals on to the aerodrome. It gets into the engines and causes the mechanics a good deal of trouble.

On Aug. 15th one of the Spyker machines fell from a height of about 30 ft. The propellers and the undercarriage were smashed and one wing was destroyed. The pilot, Serjt. V. D. Grient, escaped with injury.

A "Vickers-Vimy-Commercial" aeroplane, piloted by Captain S. Cockerell, carrying numerous copies of the London daily papers, left London for Amsterdam at noon on Thursday, Aug. 21st, and arrived at its destination at 3 p.m. The papers were then sold for a local charity.

Local flights were made by Verstugh on a Spyker, Mr. Duke on a B.A.T. "Bantam," Signor Guglio Motti on an Ansoldi, Capt. Stanley Cockerill on a Vickers "Vimy," and a Handley Page flew to England.

The Blackburn Aeroplane and Motor Co., Ltd., are exhibiting one of their big "Kangaroo" bombing machines converted for passenger-carrying at the E.L.T.A. Exhibition.

The machine was flown from Hull *via* Hounslow by the Blackburn test pilot, Mr. R. W. Kenworthy, and averaged a speed of 90-100 m.p.h. on the journey.

The trip from Hull to Hounslow was made in two hours. The next stop was made at Marquise for petrol. At Evere, near Brussels, a good landing was made, although part of the aerodrome was under water and it was getting dark and foggy. H.M. King of the Belgians viewed the machine at Evere.

Amsterdam was reached from Brussels in two hours. After circling round the E.L.T.A. Aerodrome for an hour till he understood from the authorities the best place to land, the pilot made a good landing.

The Handley Page and the Vickers Vimy cannot fly there on account of the bogginess of the aerodrome, but the Kangaroo has been taking up passengers, seven at a time, all day since its

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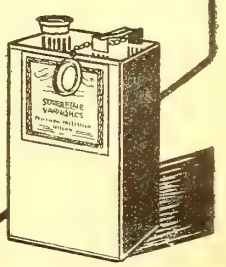

arrival there. Numbers of people wish to fly in the Kangaroo, and many offers have been made for seats for the return journey to Leeds or Hull.

The Blackburn Co. may send another Kangaroo to the Exhibition. Their other exhibits are models of the Cuckoo torpedo-carrying aeroplane and the Nib, a small flying-boat.

INDIA.

The Indian Government had decided to carry aerial mails in its own aircraft. It has now reversed its decision and has decided that everything shall be done by contract. A large number of aviation experts is expected from England at the end of the year, when it is expected that the preliminary arrangements will be completed.

The British mails will be landed probably at Karachi, and will be distributed over the country by subsidiary aerial services.

Sites for the aerodromes have been selected at all the principal cities except Bombay, where land is very expensive.

ITALY.

Reuter states that the Italian dirigible "M.1" left Rome on Aug. 25th with 20 passengers on board, including a party of journalists. It arrived at Naples after a three hours' flight, and circled over the town. The dirigible was due to leave for Rome again in the afternoon.

Signor Gabriele D'Annunzio is giving his whole time to the organisation of the Rome-Tokio flight. Five SVAs. of the two-seater Vienna type, with big radiators and tanks, will compose the escadrille.

The journey is expected to take 15 days and will show the value of organisation and regular performance rather than of speed or brave expedients. It will not be attempted till October. They are arranging to stop at Salonika, Adalia, Bagdad, Bassorah, Raratti, Delhi, Agra, Benares, Calcutta, Rangoon, Bangkok, Handi, Canton, Shanghai, Kiao-Ciao, Pekin, somewhere in Corea and Osaka, and then Tokio.

A three Liberty-engined Caproni triplane piloted by Capt. Laureati flew from the Taliedo aerodrome, Milan, to Orly, having flown over the Alps. The journey was resumed next morning for Amsterdam, via London and Brussels.

With regard to Taddeoli's flight over the Alps on a Savoia—S.I.A.1—S.13 type seaplane with an I.-F. 250 h.p. engine from Lage Maggiore to Geneva, it is well to remember that Taddeoli, though in the service of Italy, is Swiss, and one of the first to do waterplane flying. A small sister machine was at the Taliedo Show.

The linking up of the Italian to the Swiss lakes was a scheme dear to Oscar Bider, lately deceased, who was hoping to promote a company with this object. One hopes his death will not cause the scheme he initiated to be dropped.

Messrs. Thos. Cook and Son have advised that the dirigible and aeroplane excursions over the Roman countryside are suspended. This is the natural result of the heat and the slack period of the year.

Messrs. Isotta-Fraschini, of Milan, have stated to the Press that neither of the three engines on the Caproni which crashed at Verona were products of their firm. Presumedly they were Fiats, or, possibly, Liberty engines.—T. S. H.

SOUTH AMERICA.

The American Consul at Buenos Aires reports that an aeroplane service will be established within a few months to connect Buenos Aires with Bahia, Brazil, and intermediate cities.

SPAIN.

Captain Truelove is on his way to Spain with a standard Avro machine painted with the Spanish national colours. This machine will give demonstrations before H.M. the King of Spain and in various parts of the country.

SWEDEN.

The Scandinavian correspondent of The Aeroplane writes:—

The first two flying-boats for the new Swedish Air Traffic Co. have arrived in Stockholm. They hope to start services soon to Helsingfors (Finland), Berlin, Malmoe and Gothenburg, the flying time to be respectively: Five, seven and a half, four and three hours.

SWITZERLAND.

Lieut. Ackermann with a passenger left Thun in an aeroplane at 5.30 a.m. on August 17th to fly to the Jungfrau. They flew round the Aletschhorn and the Eggishorn. The pilot was about to land near the Jungfraujoch, where a landing-ground had been prepared, when the machine nose-dived and fell into the snow on the side of a crevasse. The machine was scarcely damaged and can be repaired on the spot.

Another aviator attempted the same exploit on August 19th but also crashed, hitting the ground twenty yards from the landing-place.

A Commission, consisting of sundry Swiss Army officers and the aeroplane constructor, Largier, have visited Jungfraujoch, with a view to finding a suitable landing-ground thereon in order to open up a passenger service over the Jungfrau.

An aerodrome has been built at St. George's, near Geneva, with accommodation, so far, for four machines. It is rumoured that an English firm is about to run a regular service, London-Interlaken, with a landing at Geneva, with machines capable of carrying twenty passengers.

UNITED STATES OF AMERICA.

There were 62 entries for the New York-Toronto Air Race on Aug. 25th. Buffalo, Syracuse, and Albany are the intermediate landing places.

Out of the 45 machines due to start from New York, 40 started. Three of these were S.E.5. machines, and one carried a letter officially inviting the Prince of Wales to visit New York.

The American competitors started from Roosevelt Field, Long Island, at 1.55 p.m. The first machine to leave was a La Pere. The second machine, piloted by Capt. Foote, carried a message from President Wilson to the Prince of Wales, inviting him to visit America. The other competitors left at five-minute intervals. Capt. Foote was the first arrival at Albany, and reached there at 3.16 p.m. Colonel Barker, V.C, D.S.O., M.C., flew a Fokker machine.

Only 12 out of the 17 machines entered for the race, started from Toronto.

The Prince of Wales was to start the machines from Toronto.

The first arrival at Buffalo from Toronto reached there at 1.25 p.m. Another machine landed there one minute later.

The prizes, which were worth $10,000, were given by Mr. John McE. Bowman, the President of the Hotel Commodore Co. A committee, composed of members of the American Flying Club and the Aero Club of Canada, had charge of the arrangements.

The "Aerial Age Weekly" of August 4th states that the longest flight undertaken by civilian fliers in a flying boat since 1914 will start from New York early next month, when Majors S. E. Parker and G. Talbot Willcox, late R.A.F., will set out for New Orleans by the inland water route. They may continue their flight around the Gulf of Mexico to Panama and South America. The machine used will be a Curtiss "Seagull" equipped with wireless telephone and telegraph.

The U.S.A. Government proposes to establish three aerial mail routes radiating from Bogota, Columbia. Bids will be received from Nov. 20th from companies willing to provide aircraft to make trips on days designated by the Government. The bidders have to deposit 10,000 dols. with the bids and to give a guarantee of 40,000 dols. that they will carry out the contract. They must agree also to forfeit 5,000 dols. for each failure.

Secretary Daniels has authorised the sale of 265 surplus navy seaplanes of various types by public auction. They are in good condition. Seaplanes are in commercial service already between New York and Atlantic City, San Pedro and Santa Catalina, Key West and Habana, and Chicago and Milwaukee.

George White and Co., of Los Angeles, California, the manufacturers of the White seaplane, a monoplane, are going to attempt a flight over the following route:—Los Angeles—Francisco, Victoria (British Columbia), Sitka (Alaska), Petropavlovsk (Kamschatka), Yokohama, Shanghai. This is a total of some 5,780 miles.

Mr. George D. White is also planning to build a 660-h.p. three engined monoplane with which to cross the Pacific Ocean.

He will take the northern route from San Francisco to Shanghai. The journey is estimated to take three days, it now requires three weeks on the fastest boat.

The National Air Service Corporation of America has announced plans for an aerial passenger and freight service on the route New York-Bridgeport-New London-Boston. Two biplanes will be used.

Six large Missouri property-holders have purchased a Curtiss aeroplane for the rapid inspection of their ranches. The properties range in size between three and four thousand acres each.

Two aviation companies are in active business, and a third in the process of organisation in the vicinity of Spokane, Washington.

Over 1,000 radio stations, covering districts in all parts of the United States, have been established by the American Flying Club. Any aviator flying cross-country can always be in touch with any city or town in the United States. The district radio operator can procure assistance to any machine which has an accident or a forced landing in an inaccessible place.

The National Air Service of New York has announced an aeroplane passenger and commercial service between New York and Boston, with intermediate stations at Bridgeport and New London

A SALE OF AERO-ENGINES.

The Aircraft Disposal Department, the Ministry of Munitions, have a job-lot of aero-engines for sale. The engines include Hispano-Suizas, Sunbeams, and Gnomes, and are suitable for spare parts, ball-races, etc.

They can be viewed at the Waddon depot, near Croydon, and tenders are requested. Permits to view and all particulars may be obtained from the Controller, Aircraft Disposal Department, York House, Kingsway, W.C.2.

CONGRATULATIONS.

HIRST.—On Aug. 19th, the wife of Stuart A. Hirst, Esq., of the Blackburn Aeroplane and Motor Co., Ltd., of a son.

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AIRCRAFT FINANCE

CURRENT TOPICS.

A Step towards Normality.

It stands to reason that the removal of the embargo on international financial movements must straighten out the Industrial position generally. Therefore, the decision is to be welcomed for what it promises to accomplish, and the grumbling at the temporary disturbance, inseparable from the change over, is uncalled for. The Financial World will be all the better for this freedom: it is a question of time.

Whiteheads.

The reminder at the creditors' meeting that Whitehead Aircraft preference and ordinary shares obtain "something" out of the sale of the undertaking has failed to arouse any interest in the shares. The last transaction in the 10 per cent. cumulative and participating £1 ordinary shares was on the basis of 5s. 6d., and in the deferred 1s. shares at 1s. to 1s. 3d. There are possible buyers of large quantities of the former under 5s., which suggests that that will prove to be their real worth under terms to be offered. One cannot wonder at the reluctance of holders to sell; the shares were originally issued at 21s. 6d. each, and the average investor would rather hold on against the chance of getting more of the capital back than cut the loss now.

The Warings Investments in Aircraft.

There has been a slight rally in Waring and Gillow shares, the ordinary to 8s. 6d. and the preference to 13s. 6d., on what was said at the meeting. Some references were made to the subject of aircraft auxiliary. Thus, investments in subsidiary undertaking had increased, it was explained, from £140,112 on Jan. 31st, 1916, to £322,319, owing chiefly to the establishment of the Alliance Aeroplane Co. This was formed to carry out "very important Government contracts and to perpetuate the excellent reputation earned as builders of aeroplanes." At Acton new up-to-date works to carry on ultimately the aeroplane business are being erected, and, meantime, to engage in the manufacture of motor bodies, etc. Every step that human foresight could suggest had been taken to ensure a profitable career for the Alliance Aeroplane Co. For the present year, at any rate, there was sufficient business to make it a profitable undertaking.

Thornycroft's Capital.

John I. Thornycroft and Co., who are concerned principally with shipbuilding but also have interests in Aircraft, propose to increase the capital to £750,000 by the creation of 250,000 7½ per cent. participating preferred ordinary shares of £1 each. An Indian Auxiliary has been established with a capital of £160,000.

NEW COMPANIES.

The Norman Thompson Flight Co., Ltd., aeroplane manufacturers, Bognor, Sussex.

A largely attended meeting of the creditors of the above was held on July 28th at the Institute of Chartered Accountants, Moorgate Street, E.C., when the chair was occupied by Mr. H. J. Morland, of Messrs. Price, Waterhouse and Co., C.A., of 3, Frederick's Place, E.C. The chairman stated that the shareholders of the company had passed a resolution in favour of voluntary liquidation, and he and Mr. W. R. Clemens, of Aldermans House, Bishopsgate, E.C., were appointed to act as the liquidators. A statement of affairs was submitted showing the position as at July 10th last, and this disclosed assets estimated to realise £82,618.

The assets were as follows: cash in hand and at bank £726; bills receivable £350; book debts £51,690; sundries £5,520; expected to produce £2,719; stocks on hand £32,397, estimated to realise £11,623; land at Middleton, £2,914, valued at £500; workshops, etc., £15,273, valued at £7,500; plant and machinery, £12,968; expected to produce £2,500; and equity in new buildings valued at £5,000. No value was placed on the goodwill, which appeared in the books at £1,500. The new buildings were erected at a cost of £21,372, but the Ministry of Munitions were responsible for a third of the cost. The company was liable for £14,248 in connection with the new buildings, and the equity was valued at £5,000.

The assets were subject to preferential claims of £5,021, £34,498 was due on a prior lien and £14,248 was owing in respect of the new buildings. Those three items totalled £54,781, and after allowing for them the assets were reduced to £27,837. The prior lien was due to Messrs. Cox and Co., and that firm also held first Mortgage Debentures on which £32,291 was due. Under a scheme of arrangement previously come to Messrs. Cox and Co. had agreed to take in discharge of those debentures a sum equivalent to three-fourths of the balance of £27,838.

A sum of £20,878 would therefore go to them, which would represent a dividend of 12s. 11d. in the £ on their debentures, leaving £6,959 for distribution to the holders of the second Mortgage Debentures. The amount due to the latter was £50,846, and they would receive a dividend of 2s. 9d. in the £. It was pointed out that the second debenture holders were the old creditors of the company. The claims of the old creditors amounted to £47,962, and a debenture was issued to Mr. E. H. Hawkins, as trustee, on April 18th, 1918. There was interest due to the debenture holders of £2,883. The amount due to the sundry trade creditors was £279, and they would not receive any dividend.

The chairman said that to a considerable extent the figures in the statement of affairs were subject to variation. The liquidators would have to complete some of the work which was in hand.

Mr. Clemens explained the statement in detail and pointed out that the surplus of £27,837 available for distribution amongst the debenture holders was subject to the expenses of the liquidation and the cost of carrying on the business. The situation of the works at Middleton militated against the successful working of the company. The works were some six or seven miles from Bognor and there were practically no transport facilities. With regard to the new buildings they were practically erected at the command of the Government. They had never been used, having only just been completed at the date of the armistice. Owing to the cessation of hostilities there had been a great drop in the value of aeroplane stocks. The company had a large stock on hand which it was feared would not realise well at break-up prices. There was, however, a quantity of timber which should realise well.

Mr. Terry, solicitor, who appeared for one of the largest creditors, said that some time ago Mr. Handley Page offered 3s. in the £ to the creditors, and he understood that that offer was again being put forward. The creditors desired to be represented in the liquidation of the company, and he therefore proposed that an application should be made to the Court for the appointment of Mr. E. H. Hawkins, of Messrs. Poppleton, Appleby and Hawkins, 4, Charterhouse Square, E.C., as joint liquidator of the company. He also proposed that a committee should be appointed consisting of the representatives of Messrs. Joseph Owen and Sons, Ltd., Sellon Ltd., and the Palmer Tyre Co.

Mr. W. H. Cork, who seconded the motion, said he was surprised at the way in which the liquidators had written down the assets. They could not expect possible buyers to make good offers for any of the assets when they had been written down so drastically.

Mr. Houstoun, who supported the motion, said that the principal creditors were called together twelve months ago, and as a result of their efforts the general body of creditors were in a better position. It was as a result of the efforts of the principal creditors that they got a quarter of the amount which went to Messrs. Cox under the debentures held by that firm.

After some discussion the resolution was carried by a very large majority on a show of hands, only two creditors dissenting, and the chairman then announced that it was necessary for the motion to be carried by a majority of the creditors in number and value. A poll would therefore have to be taken.

The representative of Messrs. Cox and Co. said that they were by far the largest creditors and would vote against the resolution, and under the circumstances it could not be carried by a majority of the creditors in value.

It was, however, pointed out that Messrs. Cox and Co. were partly secured creditors and could only vote for the amount for which they were unsecured.

It was stated that the result of the voting would be reported to the Court when the application was made.

West of Scotland Aviation Co., Ltd.—Private company. Registered August 5th. Capital £2,000 in £1 shares. To carry on the business indicated by the title. The subscribers (each with one share) are:—F. W. French, J.P., Stayer House, Eye, Suffolk; Lt. J. Fryer, R.D.C., Kingsthorn, Ashford, Kent. The first directors are T. H. French, F. W. French, R. W. Reeve and J. Fryer. Qualification £100. Secretary, F. W. French. Registered office: Station Road, Eye, Suffolk.

Aerial Photos, Ltd.—Private company. Registered in Edinburgh, July 18th. Capital £18,000 in £1 shares. Objects: to carry on the business of (a) aerial photography, including cinematograph films, (b) aerial passenger transit and (c) commercial aerial advertising, etc. Agreement with Capt. R. S. J. B. Andrews, Major C. H. C. Smith, and Capt O. Hardie. The subscribers (each with one share) are:—H. E. Haig, Clayton, Dairsie, Fife, papermaker; A. R. Wilson Wood, 7, Abbotsford Crescent, St. Andrews, Fife, gentleman; L. W. Allen, 77, Station Street, Coventry. The first directors are Capt. R. S. J. B. Andrews, C. H. C. Smith, and O. Hardie. Registered office: 81a, George Street, Edinburgh.

AIRCRAFT IN PARLIAMENT

The following written answer was given on August 18th :—

FEMALE CIVILIAN SUBORDINATE.

Major-Gen. SEELY replying to Lieut.-Commdr. Kenworthy said : The number of female civilian subordinates employed by the Royal Air Force (exclusive of the female staff at the Air Ministry) was as follows : January 1st, 1919, 1,823; July 1st, 1919, 2,547; August 1st, 1919, 2,500. This increase has been rendered necessary in order to facilitate the very rapid demobilisation of the Royal Air Force

* * *

The following oral answer was given on August 19th :—

ANTI-AIRCRAFT GUN DEFENCES.

Mr. FORSTER replying to Sir John Butcher said :—The numbers employed in this country in connection with anti aircraft defences on August 11th were : Officers, 273; other ranks, 2,319 The corresponding numbers on November 11th, 1918, were : Officers, 717; other ranks, 11,948. The work of removing the equipment from stations that are no longer required is in progress, and when this is completed the personnel will be further reduced.

* * *

The following written answers were given on August 19th :—

MISS DOUGLAS-PENNANT (INQUIRY).

Sir ROBERT THOMAS asked the Lord Privy Seal whether the Government are prepared, on certain conditions, to take part in the House of Lords Inquiry concerning the dismissal of Miss Douglas-Pennant; if so, whether he will inform this House what those conditions are; and will he state the reasons which have led the Government to take this course after refusing in this House the demand for a judicial inquiry.

Mr. BONAR LAW : The Committee has power to summon witnesses and to ask for papers. I am informed that the Air Ministry will assist the Committee in making any necessary arrangements for the attendance of witnesses, and will produce papers which the Committee wish to have. The Secretary of State has approved the appointment of counsel to represent the Air Ministry before the Committee.

CIVIL AVIATION.

Lieut.-Col. MALONE asked the Under Secretary of State to the Air Ministry whether he can give an assurance that, in taking every step to cut down expenditure and ensure economy in his Department, he will support and strengthen the Department of Civil Aviation in order to assist the development of British aircraft production, the success of which industry will add materially to the general prosperity of the country; and whether he will be prepared to give an account of the progress and work of that Department when Parliament reassembles.

Major-Gen. SEELY : With regard to the first part of the question. I am not at present in a position to add anything to the statement I made when introducing the Estimates, but my hon. and gallant friend may rest assured that the Government are fully alive to the importance of civil aviation to this country. The answer to the second part of the question is in the affirmative.

AERODROMES (TADCASTER AND SHERBURN-IN-ELMET).

Major-Gen. SEELY replying to Major Lane-Fox said :—The staff of officers and other ranks at July 31st, 1919, at the aerodromes referred to in my hon. and gallant friend's question was as follows :—

	Tadcaster	Sherburn-in-Elmet.
R.A.F.—Officers	48	2
Other ranks	159	58
W.R.A.F.—Officers	2	0
Other ranks	66	0
Civilian Subordinates—Male	2	22
Female	2	9
	279	91

Neither of these stations is included in the Royal Air Force post-war programme, but the use of one of them will have to be retained for civil aviation until a more suitable aerodrome, closer to the City of Leeds, has been provided. These aerodromes will shortly be handed over to the Disposal Board for disposal. The cost of construction has been : Tadcaster, £108,000; Sherburn-in-Elmet, £195,000.

ATLANTIC FLIGHT (EXHIBITION OF AEROPLANE).

Major-Gen. SEELY replying to Lieut.-Col Malone said that the Vickers-Vimy aeroplane which flew the Atlantic is the property of a private firm (Vickers Ltd.), and that he had not been informed officially whether the firm wished to part with it, so that it could be placed in the South Kensington Museum with other pioneer examples of locomotion. He was asking his right hon. friend whether he could arrange for the placing of it in the South Kensington or other suitable public museum, if the firm desired to present it to the nation

CIVIL AERODROMES.

The Air Ministry makes the following announcement.

The following lists are issued in order to provide the Aircraft Industry, pilots, and the public with information regarding aerodromes and landing-grounds open to civil aviation, and the location of Service stations which are not available to Civil Aircraft except in case of emergency.

It should be clearly understood that these lists are purely provisional, and are subject to alteration or addition from time to time. Such amendments will be duly published.

In those cases in which it is stated that "accommodation" does not exist, no facilities other than the actual landing-grounds are available. No guarantee can be given at the present time that personnel to handle aircraft is available either at the Service stations or at the privately licensed aerodromes.

The list of aerodromes published on April 25th as being available for Civil Aviation is now cancelled.

The schedule of prohibited areas published in Air Navigation Regulations, 1919, Schedule 6, remains in force for the present, but a revised list, considerably reducing the number of prohibited areas, will be issued shortly.

A map showing the Service stations and aerodromes and prohibited areas will be available shortly, and will be placed on sale to the public so soon as it is ready.

LIST A.

Service Stations Available Only for Civilian Machines in Emergency.

Aerodrome or Seaplane Station.	Nearest Railway Station and Distance in Miles.	Postal Town and Distance in Miles.
ANDOVER	Andover Junction (1½) (L. & S.W.)	Andover (2)
BALDONNEL	Lucan (2) (M.G.W. & G.S. & W. Rlys.)	Lucan (2)
BICESTER	Bicester (2) (G.W.R.)	Bicester (1)
BIRCHAM NEWTON	Docking (4) (G.E.R.)	King's Lynn (14)
BIGGIN HILL	North or South Bromley (5) (S.E. & C.R.)	Bromley (5)
BRACEBRIDGE	Boultham (1) (G.N.R.); Lincoln (3) (G.N.R. & G.E.R.)	Lincoln (2)
BROCKWORTH	Gloucester (4) (G.W.R.)	Gloucester (3½)
(S) CALSHOT	Brockenhurst (12) (L.S.W.R.); Southampton (15)	Southampton (15)
CRANWELL	Caythorpe (4) (G.N.R.)	Grantham (10)
CROYDON (Beddington)	East Croydon (2) (S.E.C.R. & L.B.S.C.R.)	East Croydon (2)
DETLING	Bearstead (2) (S.E.C.R.)	Maidstone (5)
DONIBRISTLE	Inverkeithing Bay (2) (N.B.R.)	Inverkeithing (2)
(S) DOVER (Marine Parade)	Dover Harbour (¾) (S.E.C.R.)	Dover
DOVER (Swingate Downs)	Dover Town (2) (S.E.C.R.)	Dover (2)
DUXFORD	Whittlesford (2) (G.E.R.)	Cambridge (12)
EASTCHURCH	Queenborough (5) (S.E.C.R.)	Queenborough (5)
FARNBOROUGH	Farnborough (2) (L.S.W.R.)	Farnborough (2)
FLOWER DOWN	Winchester (3) (L.S.W.R. & G.W.)	Winchester (3)
FORD JUNCTION	Ford Junction (1) (L.B.S.C.)	Arundel (5)
FOWLMERE	Royston (5) (G.E.R.)	Royston (4)
FRIESTON	Boston (5) (G.N.R.)	Boston (5)
GOSPORT	Fort Blockhouse (L.S.W.R.) (close at hand)	Gosport (½)
(A & S) GRAIN	Port Victoria (¼) (S.E.C.R.)	Sheerness (1¼)
HALTON	Wendover (1) (G.W.R.)	Aylesbury (5)
HARLAXTON	Grantham (4) (G.N.R.)	Grantham (4)
HAWKINGE	Folkestone (2½) (S.E.C.R.)	Folkestone (2½)
HENLOW	Henlow adjoining (M.R.)	Bedford (11)
KINGSNORTH	Beluncle Halt (S.E.C.R.)	Chatham (4)
LARKHILL	Amesbury (6)	Salisbury (12)
(S) LEE-ON-SOLENT	Lee-on-Solent (¼) (L.S.W.R.)	Southampton (11)
LEUCHARS	Leuchars Junction (½) (N.B.R.)	St. Andrews (5)
(x) MANSTON	Minster (1) (S.E.C.R.)	Ramsgate (3)
MARSKE	Marske (1) (N.E.R.)	Whitby (18)
MARTLESHAM HEATH	Bealings (1) (G.E.R.) Woodbridge (4) (G.E.R.)	Ipswich (6)
NETHERAVON	Bulford (5) (L.S.W.R.)	Salisbury (13)
NORTH WEALD BASSETT	North Weald Bassett (½) (G.E.R.)	Epping (2)
OLD SARUM	Salisbury (4) (L.S.W.R.)	Salisbury (4)
ORFORDNESS	Woodbridge (12) (G.E.R.)	Felixstowe (15)
(S) PORTLAND	Portland (300 yds.) (L.S.W.R.)	Weymouth (4)
SCAMPTON	Lincoln (5) (G.E.R., G.N.R., G.C.R.)	Lincoln (6)

List A (continued).

Scopwick	Scopwick (4) (G.N.R., G.E.R.)	Sleaford (9)
Shrewsbury	Shrewsbury (1½) (G.W.R.)	Shrewsbury (1½)
Smoogroo	Thurso (thence by boat) (G.N. of S.R.)	Kirkwall (8)
South Carlton	Lincoln (4) (G.E.R., M.R., G.C.R., G.N.R.)	Lincoln (3)
Spittlegate	Grantham (2) (G.N.R.)	Grantham (2)
Stonehenge	Amesbury (4); Salisbury (9) (L.S.W.R.)	Salisbury (8)
Sutton's Farm	Hornchurch (¾) (L.T. & S.)	Romford (5)
Tangmere	Drayton (1) (L.B.S.C.R.)	Chichester (4)
(S) Tresco	Penzance (thence by boat) (G.W.R.)	St. Mary's (2)
Upavon	Pewsey (5) (G.W.R.)	Salisbury (15)
Weston-on-the-Green	Bicester (6) (G.W.R.)	Bicester (4)
Worthy Down	Winchester (3) (L.S.W.R., G.W.R.)	Winchester (4)
Yate	Yate (1) (M.R.)	Bristol (9)

Notes.—(S) Seaplanes only. (A & S) Aeroplanes and Seaplanes. (x) Not available for civil use after 1919.

LIST B.

Service Stations also Available for Civil Use.

Aerodrome or Seaplane Station.	Nearest Railway Station and Distance in Miles.	Postal Town and Distance in Miles.
Castle Bromwich	Castle Bromwich (5) (M.R.)	Castle Bromwich (5)
Coal Aston	Beauchief (2½) (M.R.)	Sheffield (3)
(S) Dundee	Stannergate (½) (N.B.R.)	Dundee (2)
Eastleigh	Eastleigh (1½) (L.S.W.R.)	Eastleigh (1½)
(S) Felixstowe	Felixstowe (G.E.R.)	Felixstowe (2)
Kenley	Upper Warlingham (1) (L.B.S.C.)	Kenley
(x) Manston	Minster (1) (S.E.C.R.)	Ramsgate (3)
Luce Bay	Stranraer (5) (G.S.W.R.)	Stranraer (5)
Pembroke	Pembroke (5) (G.W.R.)	Pembroke (4)
Renfrew	Fultar Street (1) (N.B.R.)	Glasgow (5)
Sherburn-in-Elmet	Sherburn-in-Elmet (1) (G.N.R.)	Selby (6)
Shotwick	Queensferry (1) (L.N.W.R.)	Chester (6)

Note.—(S) Seaplanes only. (x) Included in B List during 1919 only.

LIST C.

Stations Temporarily Retained for Service Purposes, but also Available for Civil Use.

Aerodrome or Seaplane Station.	Nearest Railway Station and Distance in Miles.	Postal Town and Distance in Miles
Aldergrove	Aldergrove (1) (G.N.R.)	Antrim (4)
(A & S) Brough	Brough (¼) (N.E.R.)	Hull (12)
Didsbury	Didsbury (1) (M.R.)	Manchester (3)
Filton	Filton (1) (G.W.R.)	Bristol (5)
Hendon	Hendon (1) (M.R.)	Hendon (1)
Hucknall	Hucknall (1) (G.C.R.)	Nottingham (6)
Lympne	Westonhanger (1) (S.E.C.R.)	Hythe (4)
Montrose	Montrose (1) (N.B.R.)	Montrose (2)
Newcastle (Town Moor)	West Jesmond (½) (N.E.R.)	Newcastle-on-Tyne (2)
Tallaght	Dublin (7) (G.S. & W.R.)	Dublin (7)
Turnhouse	Turnhouse (1) (N.B.R.)	Edinburgh (6)

Note.—(A & S) Aeroplanes and Seaplanes.

LIST D.

Civil Aerodromes Already Licensed.

(*a*) Aerodromes at which accommodation exists.

Aerodrome.	Nearest Railway Station and Distance in Miles.	Postal Town and Distance in Miles
(x) Hounslow	Hounslow Junction (1) (L.S.W.R.)	Hounslow (2)
Bournemouth	Bournemouth (3) (Central) (L.S.W.R.)	Bournemouth (3)
Cricklewood	Cricklewood (½) (M.R.)	Cricklewood (½)
Cheltenham	Churchdown (2) (M.R.)	Cheltenham (4)
Feltham	Feltham (½) (L.S.W.R.)	Feltham (½)
Kingsbury	Hendon (½) (M.R.)	Hendon (1)
Stag Lane	Edgware (½) (M.R.)	Edgware (½)
Southport (Sands)	Hesketh Park (¾) L. & Y.)	Southport (1)

Note.—(x) Government-owned, London terminus.

(*b*) Aerodromes licensed as suitable only "for Avro 504K and other similar types of aircraft." Except in a very few instances, accommodation does not exist. The licences have also been issued for limited periods only.

Aerodrome.	Nearest Railway Station and Distance in Miles.	Postal Town and Distance in Miles.
Blackpool (Squire's Gate)	Waterloo Road, Blackpool (2½) (L.N.W.R.)	Blackpool (2½)
Brean Down (Weston-super-Mare)	Bleadon and Uphill (1¼) (G.W.R.)	Weston-super-Mare (2)
(x) Burgh Castle	Belton (1) (G.E.R.)	Belton (1)
Cardiff (Ely Racecourse)	Ely Station (½) (G.W.R.)	Cardiff (1)
Chichester	Chichester (1½) (L.B.S.C.R.)	Chichester (1¼)
Hardwick (near Cambridge)	Lords Bridge (3) (G.E.R.)	Cambridge (6)
Ladies' Mile (Brighton)	Preston Park (3) (L.B.S.C.R.)	Brighton (3)
Llanwrytd Wells	Llanwrytd Wells (½)) (L.N.W.R.)	Llanwrytd Wells, Breconshire (½)
Manstone (near R.A.F. Aerodrome)	Minster (1) (S.E.C.R.)	Ramsgate (3)
Porthcawl	Porthcawl (1) (G.W.R.)	Bridgend (5)
Preston	Preston (1½) (L.N.W.R.)	Preston (1)
Scarborough	Scarborough (1½) (N.E.R.)	Scarborough (1)
Southsea	East Southsea (½) (L.S.W.R.)	Southsea (¼)
(x) Stray (Harrogate)	Harrogate (½) (N.E.R.)	Harrogate (½)
Sunderland	Monkwearmouth (1) (N.E.R.)	Sunderland (1½)
	Situated on Sands—i.e., Not Available at High Tide.	
Blackpool	Waterloo Road (½) (L.N.W.R.)	Blackpool (1½)
Douglas (Isle of Man)	Douglas (¼) (Isle of Man)	Douglas (½)
Fleetwood	Fleetwood (½) (L.N.W.R.)	Fleetwood (½)
Morecambe Bay	Morecambe (½) (L.N.W.R.)	Morecambe (1)
Rhyl	Rhyl (½) (L.N.W.R.)	Rhyl (½)
St. Andrews	St. Andrews (½) (N.B.R.)	St. Andrews (½)
Waterloo-with-Seaforth	Bootle (1) (L. & Y.)	Bootle (1)

Note.—(x) Licensed for all but larger types of aircraft.

NAVAL & MILITARY AERONAUTICS

NAVAL.

Admiralty Appointments and Promotions.

The following promotion has been made :—
Aug. 21st.—Engr. Lieut. (Temp. Capt., R.A.F.).—R. G. Parry, D.S.O., to rank of Engr. Lieut.-Commdr., seny. Aug. 1st.
The following appointments have been made :—
Aug. 19th.—Sub-Lieut.—C. F. B. Arthur, to "Furious," Aug. 18th.
Aug. 23rd.—Artfr Engrs.—F. H. Causfield, to "Argus," Aug. 22nd.

It is now stated that in the recent Naval action off Kronstadt, when some British C.M.Bs. sank two Bolshevik battleships and a destroyer, the C.M.Bs. were accompanied by three aeroplanes. No mention of aircraft was made in the official communiqué on the subject.

On Aug. 18th British aeroplanes, supported by some C.M.Bs., attacked the fortress of Kronstadt. One of the aeroplanes was forced to descend at the Styrsudd Lighthouse. The pilot was unhurt.

* * *

Mr. John Pollock, the "Daily Mail" correspondent, writes of the Kronstadt affair of Aug. 18th :—

"The attack was opened on Monday afternoon by aeroplanes, which dropped incendiary bombs on the harbour and photographed the positions. The entire attention of Kronstadt was concentrated on the attack from the air. All the batteries and searchlights were directed against the flying peril; but the aeroplanes' assault was merely a blind. The airmen wirelessed to the Fleet, giving the exact positions of the ships in the harbour.

"At 2 a.m. on Tuesday four British high-speed motor-boats approached the harbour. The attack with aeroplane help met with extreme success, and was carried out to the minute, the object being to deliver a blow at all points simultaneously."

* * *

To commemorate the work done during the war by the Metropolitan Observation Service, under Comdr. Paget, it is the intention of the members of this corps to endow a cot in the new Children's Ward at the Charing Cross Hospital. Donations may be sent to the hospital. £276 3s. 6d. has already been subscribed. This corps was formed to give information of the presence and position of hostile aircraft.

MILITARY.

From the "London Gazette."

War Office, August 18th.

Regular Forces.—Infantry.—4th Bn. Gord Highrs.—Sec. Lt. J. W. Mennie (Lt., R.A.F.) to be Lt., and to remain secd., Sept. 28th, 1918.
Oversea Forces.—Canada.—Can. Forestry Corps.—Temp. Lt. H. E. Rosborough ceases to be secd. for duty with the R.A.F., June 4th (substituted for "Gazette" notification, March 14th, page 3465).

War Office, August 19th.

Regular Forces.—Royal Army Chaplains Department.—The Rev. R. N. O'Shaughnessy, temp. Chapln. to the Forces, relinquishes his comm. on transfer to the R.A.F., Aug. 1st.
Oversea Forces.—Canada.—Commands and Staff.—Memorandum.—Temp. Capt. D. R. MacLaren, D.S.O., M.C., D.F.C. (Br. Columbia R.), to be actg. Maj., and to remain secd. whilst empld. as Liaison Officer, vice temp. Capt. (actg. Maj.) P. A. Landry, May 16th.

War Office, August 20th.

Regular Forces.—R.A.F.—Mil. Wing.—The following appointment is made :—Flying Officer.—Temp. Sec. Lt. (on prob.) N. A. Meintjes, Gen. List, and to be confirmed in his rank, Oct. 14th, 1917.
Infantry.—Yorks L. I.—R. D. H. Draper (temp. Lt., R.A.F.) to be temp. Lt., Dec. 20th, 1918, seny. May 22nd, 1918.

War Office, August 21st.

Regular Forces.—Rif. Brig.—To be Lt.-Col.—Maj. and Bt. Lt.-Col. W. W. Seymour, vice Lt.-Col. (temp. Brig.-Gen., R.A.F.) B. H. H. Cooke, C.M.G., C.B.E., D.S.O., who is removed from Regtl. List, Aug. 22nd.

War Office, August 22nd.

Regular Forces.—Oversea Forces.—Canada.—Can. Engrs.—The following retire in the British Isles :—Temp. Lt. (actg. Capt.) J. F. D. Tanqueray, D.F.C., Aug. 12th; Temp. Lt. (actg. Capt.) J. F. D. Tanqueray, D.F.C., ceases to be secd. for duty with the R.A.F., Aug. 6th.
Westn. Ontario R.—Temp. Lt. F. L. Baker ceases to be secd. for duty with the R.A.F., June 12th (substituted for "Gazette" notification June 28th, page 8197, incorrectly specifying date as April 25th).
Manitoba R.—Temp. Lt. C. R. Gross ceases to be secd. for duty with the R.A.F., Aug. 8th.
Saskatchewan R.—Temp. Lt. L. A. Smith ceases to be secd. for duty with the C.A.F. as Lt., Flying, March 31st.
Alberta R.—Temp. Lt. A. Rose, M.M., ceases to be secd. for duty with the R.A.F., July 29th.
Infantry.—10th Bn. Hamp. R.—Sec. Lt. A. F. Harris (Sec. Lt., R.A.F.) to be Lt., and to remain secd., March 1st.

War Office, August 23rd.

Staff for R.E. Services.—Temp. I.O.W. and Capt. T. Ridge relinquishes his comm. on transfer to the R.A.F., Sept. 26th, 1918.
Territorial Forces.—General List.—Qrmr. and Capt. A. E. Brooks resigns his comm. on transfer to the R.A.F., May 27th, 1918.

Official Communiqués.

The following communiqué was issued at Simla on August 18th :—
An aeroplane bombed the gang of Suleiman Khel Wazirs which raided a post on August 9th, inflicting 30 to 40 casualties.
The following communique was issued at Simla on Aug. 19th :—
An aerial reconnaissance from Fort Sandeman on the 17th inst. saw no hostile gatherings

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It has been brought to light during the compilation of the official aerial history of the war, that several R.F.C. Squadron Record Books, which are of great value for historical purposes, are missing.

The Air Ministry requests that any such books as may be in the possession of demobilised officers or others should be returned, at once, to the Officer in Charge, Air History Branch, Offices of the War Cabinet, 2, Whitehall Gardens, S.W.

AIR FORCE.

From the "London Gazette."

Air Ministry, August 19th.

R.A.F.—Permanent Officers.—Promotions.—Air Vice-Marshal Sir Hugh Montagu Trenchard, Bart., K.C.B., D.S.O., to be Air Marshal, Aug. 11th.
The following temp. appointments are made at the Air Ministry :—Staff Officer, 1st Class (Air).—Lt.-Col. J. A. Chamier, C.M.G., D.S.O., O.B.E., Aug. 1st.
Staff Officer, 2nd Class (Air).—Maj. B. E. Sutton, D.S.O., O.B.E., M.C., July 31st, vice Capt. W. A. A. Chauncy.
Staff Officer, 3rd Class (Air).—Capt. W. A. A. Chauncy, from (S.O.2), July 31st.
The following temp. appointments are made :—Staff Officers, 1st Class (P.)—Lt.-Col. C. T. MacLean, D.S.O., M.C., Aug. 15th. (T.)—Maj. A. Levick, from (S.O.2), Aug. 2nd.
Staff Officers, 2nd Class (Q.).—Lt. C. E. Hodgson, M.B.E., May 5th. (T.).—Maj. A. Levick, June 14th.
Staff Officers, 3rd Class (P.).—Capt. G. M. Broadburn, April 30th; Sec. Lt. J. M. McEntegart, and to be actg. Capt. till April 30th (substituted for the notification in "Gazette," Jan. 21st), Dec. 20th, 1918. (T.).—Lt. J. A. H. Savage, Feb. 14th.
Staff Officers, 4th Class (2nd Grade).—Capt. A. W. Hammans, June 2nd.
The notification in "Gazette," July 18th, concerning Sec. Lt. (actg. Lt.) J. M. McEntegart is cancelled.
The notification in "Gazette," Aug. 5th, concerning Maj. R. C. Lane is cancelled.
Flying Branch.—Capt. F. D. Lord Doune, M.C., to be Capt. (A.), from Aide-de-Camp, July 22nd.
Capt. E. J. D. Routh to be Capt. (A.), from (S.O.), July 1st.
Lts. to be actg. Capts. whilst empld. as Capts. (A.) :—L. H. Browning, M.C., N. C. Buckton, F. H. Davies, M.C., C. J. S. Dearlove, W. F. J. Harvey, D.F.C., G. L. Hobbs, M.C., C. L. King, M.C., D.F.C., H. F. Nicholls, D.F.C., A. D. K. Perkins, May 1st.
Lts. to be graded for purposes of pay and allowances as Capts. whilst empld. as Capts. (A.) :—C. T. Black, F. W. Clark, J. Cottle, D.F.C., H. G. W. Debenham, G. Eastwood, I. G. Elias, M. M. Freehill, D.F.C., R. J. Gammon, D.F.C., R. A. George, M.C., J. G. Gillanders, D.F.C., R. Grice, C. W. Hamilton, T. Hayes, A.F.C., F. R. Hockney, L. N. Hollinghurst, D.F.C., J. W. Jones, S. Jones, D.F.C., H. P. M. Kesterton, M.C., H. P. Lale, D.F.C., A. O. Lewis-Roberts, D.F.C., J. McBain, D.F.C., B. McEntegart, A. McGregor, D.F.C., W. F. Mayoss, H. Murden, D.F.C., G. S. Peffers, D.F.C., H. B. Pett, M.C., F. J. Phillips, W. O. Phillips, S. L. Pope, A. W. E. Reeves, D.F.C., G. T. Richardson, E. L. Roberts, T. Roberts, C. D. Skinner, S. J. Stewart, W. D. B. Taylor, S. H. Wallage, M.C., F. G. C. Weare, M.C., May 1st.
Lt. E. D. Harding to be graded for purposes of pay and allowances as Capt. whilst empld. as Capt. (O.), May 1st.
Sec. Lts. to be graded for purposes of pay and allowances as Capts. whilst empld. as Capts. (A.) :—O. A. P. Heron, D.F.C., C. H. Howitt, May 1st.
Sec. Lt. (Hon. Lt.) J. F. D. Tanqueray, D.F.C., to be graded for purposes of pay and allowances as Capt. whilst empld. as Capt. (O.), May 1st.
Sec. Lts. to be Lts. :—(Hon. Lt.) L. R. Wheeler, April 21st, 1918; R. T. Tarrant, March 26th.
Flight Cadet 61479 C. R. Humphries is granted a temp. commn. as Sec. Lt. (O.), Nov. 8th, 1918.
The following relinquish their commns. on ceasing to be empld. :—Sec. Lt. (Hon. Lt.) D. M. Layton (Lt., W. Ont. R.), Jan. 10th; Lt. G. B. Wootten (Lt., New Brunswick R.), May 21st; Maj. C. M. Murphy (Lt.-Commdr., R.N.), July 24th; Lt. W. L. Christian (Lt., R.G.A.), Lt. J. E. Cole (Lt., Quebec R.), Lt. T. I. Findley (Lt., Can. F. Art.), Lt. H. N. Price (Lt., Nova Scotia R.), July 31st; Lt. C. R. Gross (Lt., Manitoba R.), Aug. 8th; Lt. A. C. S. Irwin (Lt., R.I. Rif.), Aug. 9th.
Transferred to unempld. list :—Sec. Lt. J. P. Downey, Feb. 1st; Sec. Lt. A. Boyd, Feb. 8th; Sec. Lt. W. H. Avery, Feb. 12th; Lt. E. B. Lee, Feb. 16th; Sec. Lt. F. T. Boland, Feb. 23rd; Lt. W. H. Kilbourne, March 1st; Lt. F. James, March 7th; Sec. Lt. T. C. Lewis, March 10th; Sec. Lt. J. A. Sherrett, March 11th; Lt. A. M. Rosenbleet, March 12th; Sec. Lt. A. G. Grenchley, March 14th; Lt. B. Farmer, March 20th; Sec. Lt. W. I. Howie, Lt. W. Joyce, Capt. (actg. Maj.) D. U. McGregor, Lt. D. G. Russell, April 1st; Sec. Lt. B. Spaven, April 9th; Lt. W. Allan, April 12th; Lt. A. C. Hardy, Sec. Lt. R. B. Jones, April 13th; Lt. E. W. Bell, April 14th; Lt. (actg. Capt.) H. A. Oakes, April 15th; Lt. T. W. Sclater, April 16th; Lt. C. M. Holbrooks, Lt. C. F. Russell, April 17th; Sec. Lt. C. H. Shallcross, Sec. Lt. P. Stalker, April 18th; Sec. Lt. I. H. Lee, April 19th; Sec. Lt. J. C. Elsworth, April 20th; Capt. H. M. Sison, M.C., April 24th; Lt. E. G. Jones, April 26th; Lt. W. Rodger, Sec. Lt. A. H.

Stent, April 29th; Sec. Lt. W. A. R. Speight, April 30th; Lt. R. S. Jameson, May 2nd; Lt. G. E. Johnson, Sec. Lt. R. W. Jones, May 10th; Lt. E. T. Rogers, May 15th, Sec. Lt. W. K. Hogg, May 18th; Lt. E. G. Rooks, May 20th; Sec. Lt. J. D. Russell, May 23rd; Sec. Lt. G. W. T. Latimer, May 27th; Lt. R. Musgrave, May 29th (substituted for notification in "Gazette," June 6th); Lt. H. M. Gibbs, May 31st; Lt. G. Lacey, June 2nd; Lt. L. S. Birkbeck, M.C., June 3rd; Lt. V. T. Normington, June 4th; Capt. E. S. Moulton-Barrett, June 6th; Lt. A. A. Harris, June 10th; Lt. R. E. Quesnel, June 11th; Sec. Lt. A. Anderson, Lt. C. P. Lowry, Sec. Lt. F. H. N. Marson, June 12th; Lt. H. J. McKenzie, Sec. Lt. C. A. Robertshaw, June 13th; Sec. Lt. J. G. Rodwell, June 14th (substituted for notification in "Gazette," July 22nd); Lt. H. E. Elsworth, June 22nd; Lt. E. H. Ralling, June 27th; Sec. Lt. A. R. Heaver, July 1st; Sec. Lt. G. L. Bell, July 5th; Sec. Lt. M. W. M. Burnside, Sec. Lt. G. W. Shepherd (substituted for notification in "Gazette," Aug. 5th), July 10th; Sec. Lt. C. H. Dickson, July 11th; Sec. Lt. E. M. Faris, Capt. J. L. Gordon, D.F.C., Sec. Lt. W. C. Jakes, Lt. G. Raney, Sec. Lt. W. R. Reid, Capt. W. E. Robinson, Sec. Lt. N. W. Russell, Lt. F. J. Wolno, July 12th; Sec. Lt. J. F. Heydenrych, July 13th; Lt. E. W. T. Fassell, Sec. Lt. A. E. Robertson, Sec. Lt. (Hon. Lt.) J. B. Appleton, Sec. Lt. H. J. G. Rudolf, July 16th; Sec. Lt. J. F. Bates, Lt. E. Brewer, Capt. W. P. Cort, M.B.E., July 24th; Lt. W. Algie, D.S.O., Lt. W. Dancy, Lt. D. R. Douglas, Lt. M. A. Rosenblatt, July 25th; Sec. Lt. A. O. Cox, July 27th; Lt. H. W. Collier, Lt. R. S. Davies, Sec. Lt. (Hon. Lt.) J. A. Parkinson, July 29th; Sec. Lt. W. H. Bland, Sec. Lt. P. E. Bullock, Sec. Lt. J. W. Sole, July 30th; Lt. E. P. Graves, Lt. C. E. Howell, D.S.O., M.C., D.F.C., July 31st; Sec. Lt. P. Bushell, Capt. E. B. Cowell, D.F.C., Sec. Lt. R. P. Hicklin, Maj. M. H. B. Nethersole, D.S.O., Aug. 1st; Lt. J. H. Maingot, M.C., Aug. 2nd; Sec. Lt. D. M. Brown, Lt. S. H. Wrinch, Aug. 3rd; Lt. V. M. Grantham, Aug. 4th; Lt. H. A. Keyser, Aug. 6th; Sec. Lt. J. C. Garlake, Sec. Lt. (Hon. Lt.) F. J. Kisbey-Green, Aug. 7th; Lt. J. Daniel, Sec. Lt. K. H. Ridgway, Aug. 10th; Sec. Lt. F. Ray, Aug. 11th; Sec. Lt. W. T. Armstrong, Lt. C. T. Aulph, Sec. Lt. W. E. Baxter, Sec. Lt. R. H. Gowan, Sec. Lt. S. J. Shaw, Sec. Lt. L. J. Shepbard, Aug. 14th; Lt. L. M. Isitt, Aug. 15th; Capt. D. W. Gray, Aug. 16th; Lt. A. D. Reid, A.F.C., Sec. Lt. D. G. Malhebe, Sec. Lt. R. L. Richards, Aug. 19th.

Capt. C. H. W. Godfrey relinquishes his commn on account of ill-health, and is permitted to retain his rank, Aug. 8th.

Lt. L. Francis relinquishes his commn. on account of ill-health, and is permitted to retain his rank, May 20th (substituted for notification in "Gazette," March 25th and April 29th)

The following Sec. Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank :—L. F. Chisenhall (contracted on active service), May 20th (substituted for notification in "Gazette," May 13th); R. J. Acheson, July 3rd (substituted for notification in "Gazette," May 23rd); J. D. Fitzsimmons, Aug. 8th

The rank of Lt. A. E. Baxter is as now described, and not Sec. Lt. as stated in "Gazette," June 17th.

The rank of Lt. J. G. Angus is as now described, and not Sec. Lt. as stated in "Gazette," Aug. 8th.

The name of Lt. G. P. Packenham-Walsh is as now described, and not "G. P. P. Wash" as stated in "Gazette," July 18th.

The surname of Lt. D. F. Cox is as now described, and not "Fox" as stated in "Gazette," Aug. 1st.

The notification in "Gazette," Aug. 23rd, 1918, concerning T. J. Southern (Lt., W. Yorks. R.) is cancelled.

The notification in "Gazette," Feb. 14th, concerning Sec. Lt. C. H. Wilcox is cancelled.

The notification in "Gazette," April 11th, concerning Sec. Lt. W. T. Leonard is cancelled. The "Gazette" of May 16th stands.

The notification in "Gazette," July 8th, concerning Sec. Lt. D. J. Brooks is cancelled.

The notification in "Gazette," July 11th, concerning Sec. Lt. G. J. Ellsmere is cancelled.

The notification in "Gazette," July 18th, concerning Sec. Lt. F. H. Newton is cancelled.

Administrative Branch.—Maj. C. S. Danby, M.C., to be Maj., from (A.), March 24th.

Capt. D. S. Jillings, M.C., to be graded for purposes of pay and allowances as Maj. while empld. as Maj., May 1st

Capts. to be Capts. :—H. Thompson, from (T.), Jan 18th; W. J. Coombes, from (S.O.), F. E. B. Whitfield, M.B.E., from (S.O.), July 1st.

To be actg. Capts. while empld. as Capts :—Lt. F. R. C. Davidson, from Aug. 29th, 1918, to April 30th; Sec. Lt. W. Rollinson, May 1st.

Lts. to be graded for purposes of pay and allowances as Capts. while empld. as Capts. :—H. G. Bellamy, T. D. S. Purdey, May 1st.

Lt. W. E. N. Growden to be graded for purposes of pay and allowances as Capt. while empld. as P.T. Officer, May 1st.

Lts. to be Lts., from (S.O.) :—L. V. Boxer, June 13th; J. C. Nairn, July 1st; R. B. Fricker, July 10th.

Lt. R. R. Money to be Lt., from (A.), July 14th.

G. Heard (temp. Lt. and Qmr., Gen. List) is granted a temp commn. as Lt., April 1st, 1918.

Sec. Lt. S. A. E. Cowell to be Lt., Aug. 7th.

Sec. Lt. (Hon. Capt.) R. Hodge to be graded for pay and allowances as Lt. while empld. as Lt., May 1st.

T. J. Southern (Lt., Yorks. Hrs.) is granted a temp. commn. as Lt., Aug. 7th, 1918, with seny. April 1st, 1918 (substituted for notification in "Gazette," May 2nd).

Sec. Lt. A. C. Cunison to be Sec. Lt., from unempld. list, May 5th, precd. next below W. Borland.

Sec. Lt. J. G. Renshaw to be Sec. Lt., from (A.), July 11th.

Sec. Lt. (Hon. Lt.) G. F. A. Lewin, M.C., to be Sec. Lt. (Hon. Lt.), from (K.B.), April 15th.

Sec. Lt. S. J. Dodson to be Sec. Lt., from (S.O.), June 16th

Sec. Lt. D. D. Carcary (late Gen. List, R.F.C., on prob.) is confirmed in rank as Sec. Lt., Nov. 9th, 1918.

Transferred to unempld. list :—Sec. Lt. J. H. P. Kither, Jan. 28th; Sec. Lt. (Hon. Lt.) J. G. C. Jones, M.C., Feb. 20th; Sec. Lt. H. N. Bennett, Sec. Lt. S. Rendle, Feb. 28th; Lt. T. L. Green, March 3rd; Lt. N. Smith, April 15th; Sec. Lt. (actg. Lt.) G. N. J. Shaw, April 19th, Lt. R. V. Hope, April 20th; Sec. Lt. (Hon. Lt.) F. A. Herron, May 4th; Sec. Lt. A. Johnson, May 18th; Sec. Lt. R. H. Curtis, June 3rd; Lt. F. W. Alderton, June 14th; Lt. H. W. G. Ripley, June 28th; Lt. B. G. Brown, Lt. A. C. N. Spicer, June 30th; Sec. Lt. A. Engers, July 4th; Sec. Lt. A. H. Jones, Capt. D. P. Rowland, July 12th; Lt. N. J. Mitchell-Innes, July 25th; Lt. H. R. M. Dodd, July 26th; Lt. G. Barr, July 28th; Lt. F. S. E. May, July 29th; Sec. Lt. T. R. Raisley, Lt. J. Harper, Lt. F. L. De S. La Terriere, July 31st; Capt. (Hon. Maj.) J. W. Aldridge, Sec. Lt. F. A. Bird, Sec. Lt. S. H. Coronel, Capt. E. E. R. Heathcote, Lt. A. N. Mercer, Aug. 1st.

Lt. C. Baines relinquishes his commn on account of ill-health caused by wounds and is granted the rank of Capt., Aug. 7th.

Lt. R. H. Harmer relinquishes his commn. on account of ill-health caused by wounds and is permitted to retain his rank, Aug. 7th.

The surname of Maj. R. Money is as now described, and not "Honey" as stated in "Gazette," Aug. 1st.

The date of resignation of commn. of Sec. Lt. H. W. Gallagher is April 16th, and not March 15th as stated in "Gazette," April 15th

The notification in "Gazette," April 1st, concerning Sec. Lt. J. H. P. W. Hither is cancelled.

The notification in "Gazette," April 1st, concerning Sec Lt. E. Rendle is cancelled.

The notification in "Gazette," July 15th, concerning Lt. C. Baines is cancelled.

The notification in "Gazette," July 25th, granting C. H. Haward a temp. commn. as Sec. Lt. is cancelled at his own request.

The notification in "Gazette," March 18th, concerning Sec. Lt. D. J. Brookes is cancelled.

Technical Branch.—Lt. (Hon. Maj.) W. R. Bernard to be actg. Maj. whilst empld. as Maj., Grade (A.), from Sept. 9th, 1918, to April 30th.

Capts. to be graded for purposes of pay and allowances as Majs. whilst empld. as Majs., Grade (A.) :—G. L. Gooden, D. MacK. P. Riach, M.B.E., O. V. Thomas, O.B.E., May 1st; J. Robinson, July 20th.

Capt. H. G. Ford, O.B.E., to be graded for purposes of pay and allowances as Maj whilst empld. as Maj., Grade (B.), from May 1st to June 24th.

Capt. A. J. Hurst to be Capt., Grade (A.), from (S.O.), May 1st.

Lt. P. M. Brambley to be actg. Capt whilst empld. as Capt., Grade (B.), May 1st

Lts. to be graded for purposes of pay and allowances as Capts. whilst empld. as Capts., Grade (A.) :—D. Drover, H. W. G. Drummond, W. B. Everton, P. R. Hutchinson, N. Liddall, A. W. H. Phillips, C. A. Stevenson, J. D. Whiteman, May 1st.

Lts. to be graded for purposes of pay and allowances as Capts. whilst empld. as Capts., Grade (B.) :—C. H. Boyle, H. L. Connor, A. H. Dye, F. Hitchins, from (Ad.), H. Stansfield, W. Yonge, May 1st.

Sec. Lts. to be graded for purposes of pay and allowances as Capts. whilst empld. as Capts., Grade (A.) :—F. A. Dickinson, N. B. Helmsley, M.B.E., J. W. Jean, D.S.M., May 1st; J. R. Brown, M.C., from May 12th to July 14th; T. E. H. P. Kennedy, May 22nd; (Hon. Lt.) J. K. M. Dodds, June 16th.

Sec. Lts. to be graded for purposes of pay and allowances as Capts. while empld. as Capts., Grade (B.) :—C. F. Chinery, J. V. Martyn, N. Openshaw, H. H. Williams, May 1st.

Sec. Lt. (Hon. Lt.) T. E. Pennington to be actg. Capt., without pay and allowances of that rank, while spec. empld., June 28th

Lt. A. E. W. Finch to be Lt., Grade (A.), from Grade (B.), May 1st.

Sec. Lts. to be graded for purposes of pay and allowances as Lts. while empld. as Lts., Grade (A.) : N. F. Burch, F. O. Burnley, J. O. Cooper, R. M. Duke, M. B. Fitzgerald, (Hon. Lt.) R. A. Law, W. St. J. Littlewood, G. J. H. Stein, E. J. Wilkins, May 1st.

Sec. Lts. to be graded for purposes of pay and allowances as Capts. while empld. as Capts., Grade (B.) :—(Hon. Lt.) H. Allsebrook, F. Adams, R. Fell, H. Haworth, F. Hembley, (Hon. Lt.) R. Kearton, C. H. Nunn, C. G. A. Poole, W. R. Tuddenham, May 1st.

Sec. Lt. C. F. B. Bassil to be Lt., Oct. 13th, 1918 (substituted for notification in "Gazette," Jan. 3rd).

Sec. Lt. E. L. M. Emtage to be Lt., Aug. 12th, 1918 (substituted for notification in "Gazette," Jan. 3rd)

Sec. Lt. A. E. Firth to be Lt., without pay and allowances of that rank, Dec. 10th, 1918.

Sec. Lt. F. W. Corbett to be Sec. Lt., Grade (A.), from Grade (B.), May 21st.

Sec. Lt. I. Van N. Reynecke to be Sec. Lt., Grade (A.), from (Ad.), Nov. 28th, 1918.

Sec. Lt. A. K. Murray to be Sec. Lt., Grade (B.), from (S.O.), July 21st.

Sec. Lt. W. Z. Grandi to be Sec. Lt., Grade (B.), from (A.), July 10th.

Transferred to unempld. list :—Sec. Lt. (actg. Capt.) D. H. Moore, Feb. 15th (substituted for notification in "Gazette," April 1st); Maj. B. M. Jones, March 1st; Sec. Lt. (Hon. Lt.) (actg. Lt.) J. C. Lathan, March 26th; Lt. (Hon. Capt.) (actg. Capt.) W. E. Smith, April 13th; Sec. Lt. K. G. Moffatt, April 15th; Lt. H. A. Heaton, M.C., Sec. Lt. E. Hodgson, May 1st; Sec. Lt. A. A. F. De Jonquet, Lt. A. H. Johnson, May 20th; Lt. R. F. Rowbotham, May 31st; Capt. A. J. G. Anderson, June 3rd; Sec. Lt. (Hon. Capt.) J. G. Russell, June 12th; Capt. A. H. Horsfield, June 27th; Maj. A. R. Low, Sec. Lt. W. M. Russell, July 11th; Sec. Lt. N. B. Capes, July 12th; Lt. E. W. Bowen, July 13th; Sec. Lt. W. J. Bramley, July 17th; Sec. Lt. (Hon. Lt.) N. W. Birkett, Sec. Lt. W. D. Geddes, July 18th; Sec. Lt. A. E. Fallon, July 21st; Lt. G. A. Harrison, July 23rd; Lt. G. T. Beer, July 25th; Lt. B. H. England, July 28th; Sec. Lt. P. H. Paton, July 30th; Sec. Lt. W. A. Bradwell, Sec. Lt. C. Duffy, July 31st; Maj. R. B. Berkeley, Capt. E. I. David, Aug. 1st; Lt. R. Leedal, Aug. 2nd; Sec. Lt. R. B. Aitken, Aug. 6th; Lt. B. E. Leeson, Aug. 7th; Lt. H. J. Burns, Aug. 15th.

Sec. Lt. (Hon. Lt.) C. N. Smith relinquishes his commn. on account of ill-health caused by wounds and is permitted to retain the rank of Lt., Aug. 9th.

Sec. Lt. C. Rawdon-Schofield relinquishes his commn. on account of ill-health contracted on active service and is permitted to retain his rank, Aug. 7th.

The initials of Maj. J. P. Elsden are as now described, and not "J. R." as stated in "Gazette," April 1st.

The notification in "Gazette," April 29th, concerning Sec. Lt. E. W. Bell is cancelled

The notification in "Gazette," July 8th, concerning Sec. Lt. E. B. Saunders is cancelled.

The notification in "Gazette," Dec. 13th, 1918, concerning Sec. Lt. (Hon. Lt.) J. D. Robinson is cancelled.

Medical Branch.—Lts. to be Capts. :—C. T. Costello, March 26th; G. M. Mellor, May 15th; H. C. Cox, G. Meadows, June 1st; L. C. Broughton-Head, H. B. Troup, H. T. Prys-Jones, June 6th; J. Coulter-Smith, R. Mugliston, P. E. Williams, June 10th; C. Lambrinudi, June 14th; A. Kirkhope, June 17th; P. M. Carroll, June 18th; J. P. Horsford, July 5th; A. K. Soutar, July 6th; G. Dunderdale, J. P. Hennessey, July 12th; G. W. Harbottle, M. J. Whelton, July 15th; J. Valerie, July 22nd; J. P. Wells, July 24th; A. St. J. Hennessey, July 29th; G. W. J. Bonsfield, Aug. 5th.

Transferred to unempld. list :—Maj. C. F. Bainbridge, Feb. 5th; Lt. N. Homewood, March 20th; Capt. K. B. Aickman, Aug. 6th.

Dental Branch.—Lts. to be Capts. :—G. Warner, May 20th; R. Fyson, May 25th; C. M. Shirreff, June 6th; H. L. Thorn, June 10th; N. H. Medhurst, June 17th; N. L. Smallbone, July 1st; C. M. John, July 18th; G. Hughes, July 22nd; G. F. H. Bloom, Aug. 10th.

Memoranda.—The following Oversea Cadets are granted temp. commns. as Sec. Lts., with effect from Feb. 15th, and relinquish such commns., with permission to retain the rank from the day following termination of the standardised voyage in the case of those claiming immediate repatriation, and from the day following demobilisation in England in all other cases :—179145 L. L. C. Field, 602978 W. J. Holley, 316825 R. C. MacNiven, 179493 R. G. Porter, 182603 W. Pitts-Brown, 154928 H. J. Quinn.

The following Cadets are granted hon. commns. as Sec. Lts. :—183669 A. R. Wilkins, Jan. 7th; 178035 J. S. Adam, 176857 E. E. Allsop, 177346 E. H. Arm, 177561 E. T. Amers, 177243 W. F. Anderson, 178452 R. C. Andrew, 176302 G. Aspinall, 178610 L. R. Anson, 178613 C. G. Buckeridge, 178667 R. L. Bell, 178747 L. G. E. Beeching, 177398 E. F. Beard, 175171 G. E. Brown, 177044 P. Bradley, 177313 W. W. Barry, 176174 E. J. Buckley, 176218 W. J. Bowley, 176439 J. W. Biglin, 176744 J. O. Baker, 176749 A. P. Bray, 176405 G. A. Broadbridge, 176301 H. C. Barraclough, 176003 R. Baillie, 177521 H. Barclay, 176931 W. K. C. Chalk, 177005 W. W.

Cook, 126312 R. M. Campbell, 176247 J. Craig, 176862 J. H. Clark, 176863 L. Cartear, 176933 C. C. Cowley, 176920 D. Campbell, 177316 H. Chapman, 177654 C. Coupe, 177097 W. T. Canner, 177193 L. C. Carr, 177405 R. W. Cunningham, 177253 A. L. Clarke, 177771 J. J. Chivers, 178344 J. Crowe, 177614 S. A. Dickman, 176414 R. E. Davis, 178621 F. W. Dickson, 177100 H. Dronefield, 177407 C. J. Davies, 137183 J. H. Dickinson, 142243 J. H. Dickin, 137180 W. G. Dukes, 176756 E. Donnelly, 177021 W. Dinwoodie, 178325 E. Fawthrop, 176767 W. Fitzgerald, 176559 H. C. Ford, 177163 A. C. Francis, 177292 R. H. Freeman, 177305 W. G. Faulkes, 177741 C. E. Forryan, 177625 C. H. Farnill-Scott, 175260 I. Gibson, 177364 W. M. L. Gray, 177457 W. Gartshaw, 177529 F. A. Gander, 176663 F. H. Grylls, 177001 T. Gaskell, 177511 P. E. Grundy, 177367 W. A. Houghton, 175265 S. E. Holt, 175206 R. L. Hardie, 177109 W. E. Hallett, 177204 G. E. H. Harris, 177270 J. W. Harrison, 177278 W. G. Hyfield, 177305 A. J. Hill, 177410 A. J. T. Hurst, 177499 W. J. Houchin, 177595 M. J. Hubbell, 177692 J. D. Hogg, 177378 J. Hampson, 176738 T. J. Hewison, 176077 J. H. Hodkinson, 177369 W. Hammond, 176775 T. L. Impey, 177057 H. Johnson, 177170 J. F. F. James, 177374 S. G. Jackson, 177411 G. Jarvis, 177095 T. J. Janes, 176183 R. S. Jones, 175271 C. N. Knowles, 176347 H. H. Knowles, 177538 C. W. Link, 177634 J. Lawrence, 177635 R. D. Langford, 175199 C. G. Leadbetter, 176939 L. C. Lishman, 177012 G. B. Latore, 177413 J. Lockhead, 177416 F. Lacerby, 177890 W. B. Lewis, 177700 A. G. Murray, 97209 A. L. Mann, 175339 J. N. Martin, 176968 T. M. Moses, 177014 C. B. McGuire, 177417 S. Mellom, 177666 P. G. Martin, 175283 E. R. Mitchell, 176359 H. V. Minet, 176971 D. B. Mirk, 177866 A. E. McCormick, 178055 A. S. McQueen, 176972 J. A. R. Macdonald, 176681 R. McArthur, 177668 H. S. Mills, 177070 W. Nelson, 177464 D. D. Neilson, 177219 H. Nichols, 176426 E. G. Neary, 128484 F. H. Nye, 177639 A. S. Overgage, 177426 J. J. Oakes, 177425 W. Orr, 157505 M. A. O'Connor, 177606 J. F. Page, 176809 J. Plenderleith, 176852 N. A. Parker, 176043 F. Phillips, 177381 F. G. Prime, 178588 W. F. Payling, 177223 C. L. Reed, 177430 G. C. Rhys-Jones, 177704 D. O. Russell, 175016 R. J. N. Rayner, 176022 P. Rugg, 176982 A. E. Roberts, 177121 L. J. Rowse, 177382 J. R. Randall, 177432 W. C. Ridley, 177509 W. S. Reid, 177670 J. Rallston, 177834 C. Rushforth, 177981 A. E. Reynolds, 177705 C. F. Robinson, 177433 W. A. Robertson, 177838 W. S. Sharp, 177982 H. Stansfield, 178101 C. H. Smith, 177294 R. C. G. Stott, 166637 T. P. Smith, 177548 R. W. Savage, 177675 R. Stewart, 175781 D. F. Stewart, 177122 G. R. Smith, 177296 S. Sherratt, 175150 T. H. Sudlow, 175550 A. J. L. Seacombe, 177293 A. D. A. Stearns, 177571 R. Shipperbottom, 178393 W. L. Stewart, 178399 H. M. Spiers, 178434 J. R. Sinclair, 178386 F. A. Tuck, 177235 H. O. V. Turner, 177512 L. D. J. Turnbull, 177643 W. S. Thenson, 137035 R. L. Travers, 175562 K. Topping, 176032 V. R. Thomas, 176947 S. Tapper, 177184 A. J. Trenouth, 177298 A. Todd, 175783 N. G. Thrall, 177388 H. S. Taylor, 177991 G. H. Tarling, 177337 L. J. Tidmarsh, 177474 S. G. Veignaux, 176402 G. H. Wrigley, 177188 W. A. Waygood, 175790 R. Woodhall, 176288 A. Wagstaff, 177037 W. R. Walters, 177078 J. Walton, 177132 H. E. Woodhead, 177343 J. Watson, 177610 A. C. West, 175627 C. V. Willett, 176443 C. P. Walton, 177145 A. P. S. Welsh, 177559 A. Williamson, 177846 E. F. Wooley, 177994 H. M. Wood, Jan. 16th; 128336 F. A. Andrews, 177041 F. Allan, 176737 A. F. Allen, 64491 S. G. Bond, 177632 S. G. Bryson, 128783 S. Barker. 176747 E. C. Bowes, 177092 J. W. Bezzant, 177093 E. H. Begley, 177353 A. Collis, 176909 F. Cooper, 176934 D. Crawford, 177360 A. Davidson, 137187 B. W. Davies, 177449 F. W. Elliott, 177490 W. J. Flint, 177593 W. R. Gaitley, 176063 H. R. Green, 176962 J. N. Gwynne, 176665 W. Higginson, 177370 G. R. C. Hunt, 177011 R. S. Keightly, 177328 V. Longie, 176185 H. S. Little, 177059 A. M. Lenox, 176259 A. V. Mitchell, 177463 A. K. Matthew, 177502 R. G. Morris, 177175 H. E. L. Markham, 175289 L. T. Pirie, 176978 W. Pratt, 177021 H. J. Perrin, 176429 A. W. Pearce, 178402 J. C. W. Rumbold, 176979 F. Rogers, 177288 A. V. Robson, 177384 G. S. Richardson, 177434 J. Rutson, 176431 W. L. Routledge, 175661 G. H. M. Roberts, 177126 A. L. Stevens, 177228 H. W. Stoneman, 177437 J. H. Spencer, 177295 R. Sempio, 177335 W. E. Stone, 175004 F. A. Smith, 175467 J. W. Thompson, 176033 L. A. Turney, 176287 F. Taylor, 177028 E. E. Turner, 177029 H. Taylor, 177030 W. Tomlinson, 177129 H. H. Thomas, 177553 C. H. Tester, 176946 G. A. Thompson, 176894 J. G. Vince, 177504 A. W. Willis, 176950 R. P. White, 176298 A. H. Wakefield, 177444 E. N. Wood, Jan. 18th; 177050 G. F. Ainge, 178516 R. Bailey, 177999 H. B. Barber, 178770 F. W. Ball, 137337 H. O. D. Edmonds, 177455 L. Glancey, 176805 R. C. Philips, 177506 W. H. Pirie, 178061 G. Stone, 177391 R. R. Wheeler, Jan. 19th; 240698 D. G. Frost (deceased), Jan. 29th; 97074 M. J. Finklestone, Feb. 8th; 181190 V. H. W. Pullar, Feb. 12th; 1802 J. W. Clarke, Feb. 26th; 94798 J. W. Shaw, March 2nd; 300099 V. F. Spong, March 12th; 137226 A. James, March 26th; 91452 J. H. Roberts, April 9th; 99482 G. E. Coupland, April 26th; 219712 S. G. Shaw, May 5th, P/320051 S. A. Huddlestone, May 7th.

Transferred to unempld. list:—Capt. P. P. C. Penberthy, O.B.E., from (S.O.), April 30th (substituted for notification in "Gazette," Aug. 8th), Capt. H. P. Maybury, O.B.E., from (S.O.), July 16th.

Capt. R. H. Parkinson (Capt., R.E., T.F.) relinquishes his commn. on account of ill-health contracted on active service, and is granted the hon. rank of Maj., Aug. 19th.

The surname of Capt. W. B. Callaway is as now described, and not "Galloway," as stated in "Gazette," Jan. 3rd.

The Christian names of 531467 Herbert James Blackwell are as now described, and not as stated in "Gazette," July 15th.

Air Ministry, August 22nd.

R.A.F.—Permanent Officers.—The attention of the officers named in this "Gazette" is directed to Air Ministry Weekly Orders Nos. 866 and 942 of 1919, relating to the grant of permanent commns. and to the rates and conditions of pay and other emoluments.

The following are granted permanent commns. in the R.A.F. in the ranks stated, with seny. as shown in the current Air Force List:—

Cols.—H. R. Brooke-Popham, C.B., C.M.G., D.S.O., A.F.C., (actg. Brig.-Gen.) B. C. H. Drew, C.M.G., C.B.E. (S.O.).

Lt.-Cols.—A. D. Warrington-Morris, C.M.G., O.B.E. (S.O.), R. E. M. Russell, C.B.E., D.S.O. (S.O.), J. L. Forbes (A.P., T.), P. Ranken (A.P., T.), C. T. Maclean, D.S.O., M.C. (A.), O. H. K. Maguire, D.S.O. (A.).

Majs.—R. H. Verney, O.B.E. (A.P., T.), A. H. W. E. Wynne, O.B.E. (S.O.), A. J. Miley, O.B.E. (A.P., T.), R. Hilton-Jones, O.B.E. (S.O.), R. M. Hill, M.C., A.F.C. (A.), G. H. Norman (A.), H. J. F. Hunter, M.C. (A.), V. S. Brown (A.P., T.), F. W. Scarff, M.B.E. (A.P., T.), W. A. McLaughry, D.S.O., M.C., D.F.C. (A.).

Capts.—R. Addenbrooke-Prout, O.B.E., M.C. (S.O.), A. S. C. MacLaren, M.C., A.F.C., (A.) K. M. St. C. G. Leask, M.C. (A.), O. M. Sutton, M.C. (A.), J. Noakes (A.), O. Stewart, M.C., A.F.C. (A.), G. S. M. Insall, V.C. (A.), H. J. Edgar (A.), G. Barrett, A.F.C. (A.), G. L. Godden, O.B.E. (T.), C. Turner, A.F.C. (A.), J. F. Roche (A.), M. F. Browne (T.), R. F. L. Dickey, D.S.C. (A. and S.), W. J. de Sabis, D.S.C. (A. and S.), G. T. R. Hill (A.), J. G. S. Candy (A.).

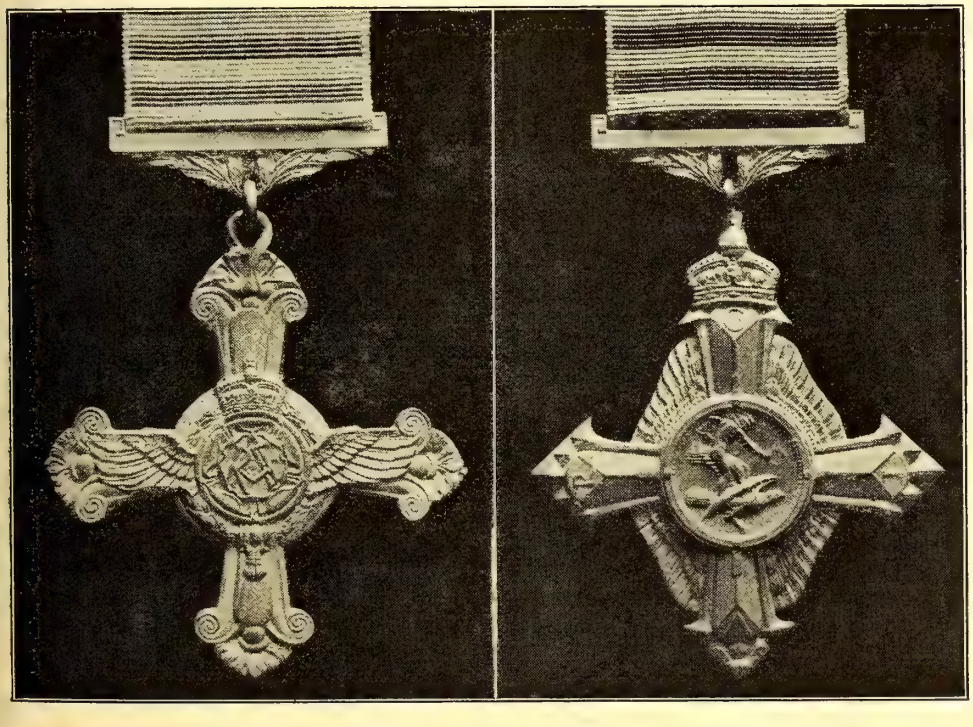
Lts.—R. S. Capon (A.), A. G. Mathew (A.), J. W. D. Leigh, M.C. (A.), T. C. Lake, M.C. (A.), C. G. Mathew (A.), J. H. Jephson (A.), Aug. 1st.

The following temp. appointment is made:—Staff Officer, 3rd Class.—(T.).—Sec. Lt. H. Norrington, May 1st (substituted for notification in "Gazette," July 22nd).

Flying Branch.—Lt. S. L. Pope relinquishes the grading for purposes of pay and allowances as Capt., Aug. 4th.

The following relinquish their commns. on ceasing to be empld.:—Lt. P. W. Taylor, D.C.M. (Lt., R.G.A.), April 30th; Lt. D. F. Lawson (Lt., Dorset R.), July 23rd; Sec. Lt. (Hon. Lt.) W. L. W. Dryland (Lt., Northants R.), Lt. A. D. MacDonald (Can. Engrs.), July 29th; Lt. W. E. Lambert (Lt., B. Col. R.), July 31st.

Transferred to unempld. list:—Sec. Lt. T. C. Sutcliffe, Jan. 27th; Capt. S. Bell, A.F.C., Jan. 30th; Sec. Lt. J. R. Paird, Feb. 1st; Lt. C. G. Brock, Feb. 9th; Sec. Lt. D. Smith, Feb. 12th; Sec. Lt. W. H. Salmon, Feb. 27th; Lt. J. P. Edwards, March 7th; Lt. L. C. Spaven, March 25th (substituted for notification in "Gazette," Aug. 5th); Lt. H. G. Robinson, March 30th; Lt. F. H. Sillem, April 9th; Sec. Lt. T. V. Smyter, April 10th; Lt. J. A. Beeny, D.F.C., Sec. Lt. K. L. Kirkby, April 11th; Sec. Lt. S. H. Smith, April 15th; Sec. Lt. (Hon. Lt.) J. S. Smith, Sec. Lt. H. M. Smith, April 17th; Lt. A. R. Brassington, April 18th; Lt. G. P. Alexander, Lt. W. H. Brown, Sec. Lt. A. G. M. Strowger, Sec. Lt. W. J. Scudamore, April 19th; Lt. (Hon. Capt.) S. J. Read, April 24th; Lt. W. M. Smith, April 29th; Sec. Lt. A. Smethurst, May 6th; Sec. Lt. H. L. Smith, May 8th; Sec. Lt. W. R. Gilmartin, May 11th; Lt. C. V. Kerpen, May 17th; Sec. Lt. L. Scholes, May 22nd; Lt. A. W. Bennett, May 28th; Lt. M. H. Rattray, May 30th (substituted for notification in "Gazette," July 22nd; Lt. S. A. Gibbons, June 3rd; Lt. C. W. Sowter, June 5th; Lt. I. C. G. Simpson, June 7th; Sec. Lt. H. A. Sanders, June 10th; Lt. P. A. H. De Metz, Lt. J. L. Tibbetts, June 11th, Capt. R. T. H. Duff, June 12th; Sec. Lt. M. A. Watts, June 15th (substituted for notification in "Gazette," July 8th); Sec. Lt. H. Toms, June 24th; Capt. M. O. F. England, Lt. C. G. Gilbert, June 30th; Lt. J. Wallace, July 6th; Sec. Lt. C. R. Murray, July 9th; Sec. Lt. J. Donnan, July 11th; Sec. Lt. C. D.



The decoration on the left is the Distinguished Flying Cross (obverse) and that on the right the Air Force Cross (obverse). These photographs were supplied by the Air Ministry. No details were given and no illustrations of the reverse of these decorations have so far been received. It is understood that these Crosses are cast in silver.

Gile, Sec. Lt. H. McK. Gordon, Sec. Lt. W. J. Spicer, July 12th; Lt. F. D. H. Samms, July 13th; Sec. Lt. G. M. Scarfe, July 16th; Capt. G. H. S. Dinsmore, Lt. K. F. De Long, July 18th; Sec. Lt. H. Bates, Sec. Lt. G. Roberts, July 23rd; Sec. Lt. H. G. Wepener, July 25th; Second Lieutenant H. G. Dixon, Lieutenant C. L. J. Garrad, Lieutenant F. E. Gibson, July 26th; Maj. J. R. Gould, Sec. Lt. P. S. Tennant, July 27th; Capt. S. Blackley, Sec. Lt. (Hon. Lt.) R. Simpson, July 28th; Sec. Lt. G. Godley, July 29th; Lt. N. J. Dakers, July 30th; Lt. H. Good, Lt. E. H. Menhenitt, Sec. Lt. S. J. R. Smith, July 31st; Lt. S. M. Sproat, Aug. 1st; Lt. A. E. Morgan, Sec. Lt. J. Mortimer, Aug. 2nd; Sec. Lt. W. H. Gladwell, Sec. Lt. R. L. H. Valentine, Aug. 3rd; Sec. Lt. W. F. A. Snell, Aug. 6th; Sec. Lt. J. H. E. Biggs, Lt. H. G. D. Ereckson, Lt. H. R. Sayers, Aug. 7th; Sec. Lt. J. H. Ashton, Lt. T. G. Reed, Sec. Lt. I. F. Stott, Aug. 8th; Lt. (Hon. Capt.) T. Edwards, Sec. Lt. S. E. Gillmar, Aug. 10th; Sec. Lt. B. Rooke-Cowell, Lt. A. D. McBride, Aug. 13th; Sec. Lt. R. S. S. Chaffe, Capt. E. W. C. Corry, Capt. J. A. G. Gilray, Sec. Lt. W. S. Phelps, Sec. Lt. E. W. C. Sharpe, Sec. Lt. F. M. Stieber, Sec. Lt. A. Tapping, Sec. Lt. I. B. Williamson, Aug. 14th; Sec. Lt. W. M. Baber, Sec. Lt. C. I. McFadden, Aug. 15th; Lt. O. L. Vetter, Aug. 16th; Capt. E. M. King, D.F.C., Aug. 18th; Sec. Lt. G. L. C. Beattie, Lt. J. P. Bosman, Capt. W. Buckingham, Sec. Lt. T. Dunn, Sec. Lt. G. M. Van Der Merwe, Sec. Lt. W. G. Staples, Sec. Lt. G. Vaughan, Sec. Lt. F. N. Winskill, Sec. Lt. A. Wright, Aug. 19th; Sec. Lt. A. S. Bottom, Sec. Lt. H. W. McL. Hammond, Sec. Lt. F. Krockel, Lt. T. P. Morgan, Lt. A. H. Peile, Lt. E. Scholtz, Sec. Lt. F. R. Schmidt, Sec. Lt. E. H. C. Steeds, Lt. J. K. Stewart, Sec. Lt. C. B. De Villiers, Lt. O. E. Ward, Aug. 20th; Lt. E. T. Simpson, Aug. 21st (substituted for notification in "Gazette," July 29th); Sec. Lt. J. G. Munro, Sec. Lt. M. Segel, Aug. 22nd.

The following Lts. resign their commns.:—L. L. Grant, July 23rd, 1918 (substituted for notification in "Gazette," June 11th, 1918); G. B. E. Norburn (Lt., R.I. Rif.), Aug. 22nd.

Lt. T. J. Donovan is cashiered by sentence of a Gen. Court Martial, August 1st.

Sec. Lt. C. L. Stewart relinquishes his commn. on account of ill-health and is permitted to retain his rank, July 28th.

Sec. Lt (Hon. Lt.) W. S. McLean (R.F.A.) relinquishes his commn. on account of ill-health contracted on active service, Aug. 21st

The initials of Lt. H. A. Wallace are as now described, and not "A. H." as stated in "Gazette," July 8th.

The surname of Lt. S. H. Wallage is as now described, and not "Wallace" as stated in "Gazette," July 8th.

The surname of Sec. Lt. B. G. Whatmough is as now described, and not "Wattmough" as stated in "Gazette," July 8th

The initials of Sec. Lt. R. T. North are as now described, and not "N. T." as stated in "Gazette," July 29th

The surname of Sec. Lt. (Hon. Capt.) E. E. Carnall-Wilcocks is as now described, and not "E. E. C. Wilcocks" as stated in "Gazette," June 13th.

The notification in "Gazette," July 8th, concerning Sec. Lt. C. S. Gregg is cancelled.

Administrative Branch.—Lt. (Hon. Capt.) H. G. White to be Lt. (Hon. Capt.), from unempld. list, prec. next below Lt. E. King, Aug. 9th.

The following are granted temp. commns as Sec. Lts.:—S. P. Jacoby (temp. Lt., K.A. Rif.), Nov. 13th, seny. April 1st, 1918, and to be Hon. Lt.; W. A. Hatchett, Aug. 18th; A. G. Owen, Aug. 19th

Transferred to unempld. list:—Maj. G. G. Gold, Jan. 28th; Sec. Lt. R. W. F. Smee, Feb. 23rd; Lt. J. R. S. Spearing, Feb. 27th; Lt. L. Abraham, March 6th; Lt. F. C. Smith, April 1st; Lt. J. Edwards, April 24th; Lt. L. C. Messiter, May 16th; Sec. Lt. C. B. Dove, May 30th; Lt. W. S. Scatterty, June 3rd; Lt. H. Shaw, June 5th; Capt. J. R. Fox, June 12th; Sec. Lt. A. Turnbull, July 13th (substituted for notification in "Gazette," March 25th); Sec. Lt. W. Giddings, July 18th; Lt. P. C. Ward, July 30th; Sec. Lt. C. C. Dance, Lt. (Hon. Capt.) J. Woulds, D.C.M., Lt. C. B. Whelan, July 31st; Sec. Lt. (Hon. Lt.) J. E. Saunders, Aug. 1st; Lt. A. D. R. Jones, Aug. 7th; Sec. Lt. J. E. W. Billings, Aug. 9th; Capt. M. L. Fitzgerald, Aug. 14th (substituted for notification in "Gazette," July 1st).

Lt. J. Dudley relinquishes his commn. on account of ill-health contracted on active service and is permitted to retain his rank, Aug. 7th.

Sec. Lt. (Hon. Lt.) J. D. C. Curtis, M.C. (Lancashire R.), relinquishes his commn. on account of ill-health caused by wounds, Aug. 21st.

The initials of Sec. Lt. J. G. Elliott are as now described, and not "J. T." as stated in "Gazette," June 3rd

The Christian names of Harold Clyde Thomas are as now described, and not "H. C." as stated in "Gazette," Aug. 1st

The surname of Lt. P. R. Mallinson is as now described, and not "Mattinson" as stated in "Gazette," Aug. 12th.

The surname of Sec. Lt. K. Draco is as now described, and not "Drago" as stated in "Gazette," July 29th

The surname of Lt. G. Wallas is as now described, and not "Wallis" as stated in "Gazette," July 8th.

The notification in "Gazette," July 18th, concerning Sec. Lt. H. Smith, D.F.C., is cancelled.

The notification in "Gazette," July 29th, concerning Sec. Lt. A. Challins is cancelled.

Technical Branch.—Capt. C. J. Smith to be actg. Maj., Grade (B), from Aug. 16th, 1918, to April 30th

Capt. C. J. Smith to be graded for purposes of pay and allowances as Maj. whilst empld. as Maj., Grade (B), May 1st.

Sec. Lt. E. A. Blundell to be Sec. Lt., Grade (A), from (A'ship), June 26th, 1918 (substituted for notification in "Gazette," June 3rd).

Transferred to unempld. list:—Capt. (actg. Maj.) B. T. Metcalfe, Feb. 16th (substituted for notification in "Gazette," March 28th); Capt. G. M. Johnstone, April 15th; Sec. Lt. R. G. Wells, April 23rd (substituted for notification in "Gazette," May 20th); Sec. Lt. A. Spille, April 25th; Capt. A. Scott, April 30th; Capt. I. McK. Bellaires, May 28th; Lt. G. Glen, June 4th; Lt. E. A. Gulson, June 12th; Sec. Lt. A. I. Morris, June 17th; Sec. Lt. L. J. Grant, July 11th; Lt. P. R. Garner, June 17th; Lt. H. B. D. Grazebrook, July 21st, Capt. E. Brown, Sec. Lt. E. I. Coor, July 22nd; Capt. D. N. Gillmore, July 23rd; Lt. F. H. E. Nash, July 24th; Capt. S. Clark, July 28th; Lt. F. J. F. English, July 31st; Sec. Lt. H. W. Davidson, Sec. Lt. W. Higson, Aug. 5th; Lt. W. A. Haslem, Lt. A. F. St. J. Kinsey, Aug. 6th; Capt. A. G. Buckham, Sec. Lt. J. E. Kingham, Capt. R. P. T. McCoy, Aug. 7th; Lt. T. F. Northcote, Aug. 20th

Lt. J. T. Rossiter resigns his commn. and is permitted to retain his rank, July 31st, 1918.

The notification in "Gazette," April 1st, concerning Lt. C. A. Elliott is cancelled (substituted for notification in "Gazette," June 27th)

The notification in "Gazette," July 30th, 1918, concerning Lt. J. T. Rossiter is cancelled.

The notification in "Gazette," Aug. 15th, concerning Sec. Lt. E. L. M. Emtage is cancelled.

Medical Branch.—C. P. V. MacCormack is granted a temp. commn. as Capt., Aug. 22nd

Lt. C. Duggan to be actg. Capt. whilst empld. as Capt., without pay and allowances of that rank, June 20th.

G. H. H. Maxwell is granted a temp. commn. as Lt., Aug. 22nd.

T. H. K. MacLaughlin is granted a temp. commn. as Lt., Aug. 7th.

Transferred to unempld. list:—Capt. J. W. Brash, March 1st; Capt. G. Sparrow, May 19th; Lt. N. C. Cooper, June 23rd; Capt. N. C. Graham, M.C., Aug. 13th.

Chaplains Branch.—The Rev. A. S. Bishop relinquishes his commn. on ceasing to be empld., April 26th.

Memoranda.—The following temp. Hon. Lts. relinquish their commns. on ceasing to be empld.:—P. J. Boucher, May 31st; F. J. Lynes, Aug. 20th.

Transferred to unempld. list:—Sec. Lt. R. J. Walker, July 17th; Sec. Lt. C. A. Russell, Aug. 14th.

Capt. C. F. Greaves relinquishes his commn. on account of ill-health contracted on active service, and is permitted to retain his rank, Aug. 12th.

Air Ministry, August 23rd.

The King has been pleased to give orders for the following appointment, in recognition of distinguished services to aviation:—

C.B.E. (Military Division).

Major George Herbert Scott, A.F.C., Royal Air Force, Commander of H.M. Airship R34 on the outward voyage to United States of America and also on the homeward journey.

The King has been pleased to confer the following rewards in recognition of distinguished services rendered to aviation, in the successful voyages of R34 from the United Kingdom to the United States of America and back.

Outward journey.—Left East Fortune at 1.42 a.m., July 2nd, 1919, and arrived at Hazlehurst Field, Long Island, at 1.54 p.m. (G.M.T.), July 6th, 1919. (Duration, 108 hours 12 minutes.)

Homeward journey.—Left Long Island 3.54 a.m. (G.M.T.), July 10th, 1919, and arrived at Pulham, Norfolk, at 6.57 a.m., July 13th, 1919. (Duration, 75 hours 3 minutes.)

Air Force Cross

Col. (actg. Brig.-Gen.) Edward Maitland Maitland, C.M.G., D.S.O.
Capt. (actg. Maj.) Gilbert George Herbert Cooke, D.S.C.
Lieut. Guy Harris.
Sec. Lieut. John Durham Shotter

Air Force Medal.

No. 206345 Flt. Serjt. William Rose Gent.
No. 200965 Serjt.-Maj. H. Walter Robert Mayes, D.S.M.
No. 314353 Flt. Serjt. Walter James Robinson.
No. 200079 Flt. Serjt. Reginald William Ripley.
No. 201741 Flt. Serjt. Norman Albert Scull
No. J./3349 Serjt. Herbert Murray Watson, D.S.M.

FOREIGN DECORATIONS.

The King has granted unrestricted permission for the wearing of the following decorations, conferred on the officers and other ranks indicated for valuable services rendered in connection with the war:—

Conferred by the President of the French Republic.

Legion d'Honneur, Officier.—Maj.-Gen. Sir F. H. Sykes, K.C.B., C.M.G. (Ret. List).

Legion d'Honneur, Chevalier.—Lt.-Col. G. W. F. Fraser, O.B.E.; Capt. (actg. Maj.) G. Gude, O.B.E.; Maj. C. A. L. Harrison, O.B.E.; Capt. L. E. Innes-Baillie (R.M.L.I.).

Croix de Guerre, avec Palme.—Capt. (actg. Maj.) E. J. Briscoe, O.B.E.; Capt. C. B. Dalison, A.F.C.; Lt.-Col. R. B. Davies, V.C., D.S.O.; Maj. C. Draper, D.S.O.; Capt. W. L. Elder, C.M.G., R.N. (formerly R.N.A.S.); Lt. W. J. Gillespie (41st Sqdn.); Capt. J. A. Glen, D.S.C.; Maj. H. P. L. Higman, D.F.C.; Lt. J. D. Newberry (deceased); Capt. L. V. Pearkes; Lt. E. C. Potter; Wt. Offr., Cl. II. (now Sec. Lt.) J. Rees.

Croix de Guerre, avec Étoile, en Vermeil.—245207 Serjt.-Mech. J. P. Hazell (107th Sqdn.).

Medialle d'Honneur avec Glaives, en Argent.—216604 Serjt. Obsr. W. J. Middleton, D.F.M.

Medialle d'Honneur avec Glaives, en Bronze.—25970 Pte. A. Weickers; 8259 A./Mil. C. H. Cobden.

Conferred by the King of Italy.

Officer of the Order of St. Maurice and St. Lazarus.—Lt.-Col. (actg. Brig.-Gen.) R. H. More, C.M.G., C.B.E.

Cavalier of the Order of St. Maurice and St. Lazarus.—Maj. A. McAlister, Lt. L. F. de Peyrecave.

Cavalier of the Order of the Crown of Italy.—Maj. R. P. Whitehead.

Conferred by the King of the Belgians.

Medialle de la Reine Elizabeth.—Asst. Admtr. Miss M. S. Cole-Hamilton, W.R.A.F.

Conferred by the King of Rumania.

Officer of the Order of the Crown, with Swords, and Knight of the Star of Rumania, with Swords.—Capt. (actg. Maj.) F. S. Moller, M.C., D.F.C.

Conferred by the Bey of Tunis.
(For Services at Bizerta.

The Order of Nichan Iftikhar, Third Class.—Lt. F. H. Bell (Flying Officer); Lt. A. V. Gash; Lt. A. Smith (Flying Officer).

Order of Nichan Iftikhar, Chevalier, Classe I.—209246 L.A.C. Blight (St. Austell); 208551 A./C.1 G. C. Crane (Stratford); 206142 L.A.C. F. Coward (Ventnor); 211479 L.A.C. S. Reeve (Norfolk); 209464 L.A.C. A. F. Mason (Newmarket); 206403 L.A.C. E. Thompson (Wimbledon).

Correction.

Maj. James Percy Carre Cooper, O.B.E., M.C. (10th Bde., France) is the correct description of the officer awarded the Star of Roumania, Officier, in "Gazette," July 15th, 1919.

As a considerable number of officers and other ranks of the Royal Air Force have been awarded a foreign decoration during the war, and have not yet received the insignia, a list of such cases is being compiled by the Air Ministry with a view to the decorations being obtained.

Officers and other ranks concerned (a) who have now been released from the Service, or (b) who are not serving either abroad or in the area commands at home, are accordingly requested to communicate with the Secretary, Air Ministry, quoting A.M.W.O. 946, and giving the following particulars:—Air Force number; rank; full Christian name and surname; designation of decoration not received; date (approx.) of "Gazette" in which notification of award was made; and full postal address.

Pilots of aircraft are warned by the Air Ministry that kite-balloons will be flown from time to time for purposes of meteorological observation at the following places:—Merifield (Tor Point); Larkhill (Salisbury); Caldale (Orkneys); North Queensferry (near Edinburgh).

The cables of these balloons when flying will be marked by streamers at intervals of not more than 500 ft.

* * *

It is notified by the Air Ministry that in the event of R.A.F. officers on duty landing at aerodromes not owned by the Government, the aerodrome authorities, having charges to be paid, should render a bill to the Officer Commanding the Unit to which the officers belong. Officers have been instructed to sign a receipt for services obtained in these circumstances.

The Air Ministry announces that the aerodrome at Guston Road (Dover), and the landing ground at New Holland (Yorks), are being relinquished by the R.A.F.

* * *

In future, visitors to R.A.F. aerodromes must first obtain permits from the Air Ministry.

Requests for permits should be addressed to the Secretary, Air Ministry, and should state clearly the purpose for which a permit is required. The permits, if granted, will be issued subject to such restrictions as the Air Ministry may direct.

* * *

It is announced by the Air Ministry that Sir H. H Shephard, father of the late Brig.-General G. S. Shephard, D.S.O., M.C., R.A.F., has, in memory of his son, placed a sum of money in trust, the income of which is to be applied to the provision of annual prizes for essays by Officers, N.C.Os., and Men of the R.A.F.

The subjects for the essays will concern the airman's work in the air, and this year separate prizes will be given for essays on (1) Sea and Fleet Reconnaissance, and (2) Aerial Navigation and Pilotage.

The administration of the yearly competitions will be carried out by the Air Council.

* * *

The Danish correspondent of THE AEROPLANE writes:—

A British flying officer has passed Bergen en route for Spitzbergen. He will be stationed there with an air mechanic.

* * *

A British aeroplane operating with the forces of General Denikin was recently brought down at Tcherny, on the Volga, South-East of Tsaritsin. Another British aeroplane, which was returning to the British lines with a punctured petrol-tank, seeing the aeroplane land and noticing the approach of enemy troops, also landed and opened fire on the Bolsheviks with its machine-gun while the pilot and observer of the first aeroplane set light to their machine. They then boarded the second aeroplane, which contrived to ascend, and returned to the British lines.

The observer, by standing on the right wing of the aeroplane, largely saved the situation by plugging the hole in the petrol tank with his finger.

* * *

An air station is being established at St. Raphael (Var), and has been placed under the command of Sqdn. Leader A. S. MacLaren, R.A.F. This station, which is situated near to the French Naval Air Station at Frejus, will form an important landing-ground on the England-India aerial route. It is stated that Flt. Lt. Berwick, R.A.F., is the second in command.

Three flying-boats arrived at St. Raphael on Aug. 18th on their way to India from England.

Another British aeroplane (Lieut. Halliwell, R.A.F.) arrived on August 25th on his way to India.

* * *

The construction of big rigid airships appears to have been stopped by the authorities. Short Bros. have three ships under construction and are stopping work on one.

* * *

No. 1 Aircraft Constructional Wing at Camden Road has developed very greatly. It is fortunate in having the personal interest of officers of the highest rank in the Air Ministry, who do everything they can for the furtherance of the scheme. Two of these officers are Air Marshal Sir Hugh Trenchard, K.C.B., D.S.O., and Group Captain Philip Game, C.B., C.M.G., D.S.O.

On July 23rd the Mayor of St. Pancras received the Military and Air Attachés of the Belgian Legation at the Headquarters, and among those present were the Right Hon. Lord Rothschild, F.R.S., Brig.-Gen. Lord Montague of Beaulieu, C.S.I., Sir Horace Byers, K.C.M.G., and Col. L. Rees, V.C., D.S.O., M.C.

On July 26th a guard of honour of the Wing turned out to welcome General Corvisart (the French Military Attaché), Captain Finsi (the Italian Air Attaché), the French Air Attaché, and representatives of the Esthonian Army, the Military Mission, and the Russian War Office.

Major F. G. Moore, T.F.A., the Officer Commanding this Wing, is the Chief Technical Inspecting Officer for the County of London, and has been lucky in getting as his second in command Major C. W. F. Morgan, of the Martinsyde firm. There is now a complete staff of 28 officers who instruct the cadets in rigging, engines, gunnery, etc. In September classes will be held every night except Saturdays.

As mentioned in a previous issue of THE AEROPLANE, the Air Ministry have given to the Wing many drawings and small parts, and many big aircraft firms have given aeroplanes and engines. If only there were more accommodation at the Wing, advantage could be taken of the offers of these firms to give and lend more aeroplane parts, etc. The Marconi Company have supplied a complete wireless telephony and telegraphy set with a range of 600 miles which is to be erected over the headquarters

On Aug. 2nd some 200 cadets went down to Eastbourne for a week. They were housed in the huts on the aerodrome, and were given practical instruction on the aeroplanes and seaplanes there. At present they are enjoying a month's leave, until the classes start again in September.

Great attention is given to games, and later on a football club will be run on Service battalion lines by the cadets themselves.

A second Aircraft Construction Wing is being formed in Hackney, affiliated to the 10th London Regiment (Hackney Rifles). Major Moore states that before Christmas five or six more Aircraft Wings will be in existence in various parts of London.

On leaving the Wing the cadets, many of whom worked during the war in aircraft factories in N. and N.W. London, are free to join the R.A.F., an aircraft firm, or anything they please. The wireless set will doubtless make many keen to become wireless operators at sea or on land for the Marconi Company.

In the second week in September another function is taking place at which those interested in the scheme at the Air Ministry, and many leading men in the Aircraft Industry will be present. The work will then be carried out on a far bigger scale than hitherto.

A scheme having so many men high up in the Aeronautical World interested in it, and having attained so much since its official opening by Major-Gen. Trenchard on June 20th, must continue to grow until Aircraft Constructional Wings are in operation all over the country.—G. L. O.

* * *

On Aug. 21st the Royal Air Force held their annual athletic meeting at Stamford Bridge. The King's Cup was won by the South-Western Area after keen competition, the Midland Area running them very close. This Cup is given to the Area with the greatest number of points.

Three Mile Race.—Capt. Irwine (Northern Area), 1; Serjt. C. I. Clibbon (Halton), 2; A./C. Pratt (S.E. Area), 3; Capt. Austin (R.A.F., Rhine), 4. Won by a yard. Time, 15 min. 15 3-5 sec.

W.R.A.F. Relay Race (440 yards).—S.-W. Area, 1; Halton, 2; Northern Area, 3. Won by eight yards. Time, 57 1-5 sec.

440 Yards Race.—Capt. A. P. Mitchell (Halton), 1; Cpl. Bosberry (R.A.F., Rhine), 2; Serjt. Poigndestre (S.-E. Area), 3; Lieut. Jones (R.A.F., Rhine), 4. Won by 12 yards. Time, 51 4-5 sec.

One Mile Race (open to members of Imperial Allied Forces).—Lieut. R. D. Chalmers (A.I.F.), 1; Drvr. W. G. Battersbie (R.F.A.), 2; H./C. H. Ashby (late R.A.F.), 3; Serjt. R. H. Geary (R.A.F.), 4. Won by 20 yards. Time, 4 min. 51 1-5 sec.

880 Yards Race (open to former members of the R.A.F.).—Cpl. P. A. Beard, 1; Cadet J. Noble, 2. Won by 10 yards. Time, 2 min. 9 4-5 sec.

One Mile Race (R.A.F.).—Capt. Gibbs (Midland Area), 1; A./C. Nix (S.-W. Area), 2; Flight Serjt. Darlington, 3. Won by 15 yards. Time, 4 min. 34 1-5 sec.

100 Yards Race.—Serjt.-Maj. Mawby (Midland Area), 1; Serjt.-Maj. Kressler (Northern Area), 2; Cpl. Bosberry (R.A.F., Rhine), 3. Won by half a yard. Time, 10 3-5 sec

880 Yards Race.—Flying Officer Shaw (S.-W. Area), 1; A./M. Morris (Midland Area), 2; Lieut. Catchpole (Northern Area), 3. Won by 10 yards. Time, 2 min. 3 2-5 sec.

120 Yards Hurdles.—Flying Officer Fraser (S.-W. Area), 1; Flight Lieut. Scott (S.-W. Area), 2; Lieut. Bellin (R.A.F., Rhine), 3. Won by five yards. Time, 17 1-5 sec.

880 Yards Race (for Enlisted Boys).—Snaith (Northern Area), 1; T. Weatherall (S.-E. Area), 2; Fox (Midland Area), 3. Won by six yards. Time, 2 min. 9 1-5 sec.

220 Yards Race.—Serjt.-Maj. Mawby (Midland Area), 1; Capt. A. P. Mitchell (Halton), 2; Serjt. Clarkson (Midland Area), 3. Won by three yards. Time, 23 1-5 sec.

100 Yards Race (Imperial and Allied Forces).—Serjt. Wilson (New Zealand), 1; Drvr. L. J. Hume (Australia), 2; Lieut. N. V. Webbe, 3. Won by a yard, after a dead-heat. Time, 10 3-5 sec.

Tug-of-War.—Midland Area beat R.A.F., Rhine, by two pulls to none.

High Jump.—Lieut. F. C. Penny (Irish Group) and Serjt.-Maj. Miller (Midland Area), tied at 5 ft. 7 in. for first place; Lieut. Walmsley (Midland Area), 5 ft. 3 in., 3.

Putting the Weight.—Serjt.-Maj. Mawby (Midland Area), 32 ft. 3 in., 1; Lieut. Fish (Midland Area), 32 ft., 2; Capt. Jones (Northern Area), 31 ft. 8½ in., 3.

Long Jump.—Flying Officer Fraser (S.-W. Area), 21 ft. 4¾ in.; 1; Flight Lieut. Lieut. Scott (S.-W. Area), 20 ft. 7 in., 2; Maj. Saul (R.A.F., Rhine), 20 ft. 6¼ in., 3.

One Mile Relay Race.—South-Western Area, 1; Northern Area, 2. Won by 12 yards. Time, 3 min. 47 1-5 sec.

Composite Relay Race (Field Officer, Officer, Warrant Officer, N.C.O., or Man, each to run 100 yards; W.R.A.F. to run 40 yards).—Midland Area, 1; Northern Area, 2; R.A.F., Rhine, 3; South-Eastern Area, 4. Won by six yards. Time, 49 4-5 sec.

FRANCE.

It is announced Lieut. de Vaisseau Sablé has been appointed Air Attaché to the French Embassy in London.

GERMANY.

On Aug. 18th a German aviator bombed Sosnowice, Poland. Several people, including some civilians, were killed. The Polish Government ordered its Mission in Berlin to make a protest and to demand satisfaction from the German Government. The Note was handed in on Aug. 20th.

The following is an extract from the Memoirs of General Ludendorff which have been recently the subject of some four articles in the "Times" newspaper:—

"The battle cost me a great deal also. My wife's youngest son fell on the 23rd. He was a flying officer, and was at first reported missing. On the battlefield we found a grave with the English inscription, 'Here rest two German flying officers.' I had the sad task of identifying my son. Now he rests in German soil. The war has spared me nothing."

A message from Dortmund states that Lieut. Bongartz crashed from a height of about 150 ft. during an exhibition flight at Neheim. His condition is said to be hopeless. Lieut. Bongartz brought down 39 Allied machines during the war, and was brought down by a British aviator in May, 1918.

The Danish correspondent of The Aeroplane writes:—

A Commission to control and represent German flying sport has been formed after negotiations with the Government Air Ministry. The President is Major von Tschudi, the former manager of the Johannisthal aerodrome. Lieut.-Col. Siegert, who was the second in command of the German Air Forces during the war, is on the Committee.

ITALY.

On Aug. 23rd four Italian military aviators were killed at the Aspern Aerodrome, near Vienna, owing to their machine crashing.

SWEDEN.

A correspondent in Sweden writes that the first German machine for the Swedish Air Force has arrived in Sweden.

RUSSIA.

Official Communique (Bolshevik).

Aug. 19th.—A flotilla of fast enemy ships having broken into Kronstadt Harbour, our guard ships sank three of them by artillery fire. At the same time a considerable number of enemy aeroplanes made an attack on Kronstadt.

* * *

On Aug. 18th the Bolshevik Forces carried out what is claimed to be a retaliatory air-raid upon Teri Joki. It is stated that this raid was a reprisal for the sinking of the Bolshevik warships by the British. No casualties were caused.

U.S.A.

It is understood that the U.S. Navy are entering N.C.4 (Lt. Cmdr. A. C. Read) for the trans-Pacific Competition. The prize is again £10,000, and there is again two alternative routes, and once again Lt. Cmdr. Read will probably take the Southern route, which means refuelling at sea, so that history may be given another opportunity of repeating itself.

* * *

The two U.S. Army aviators, Lieuts. Petersen and Davis, whose capture by Mexican bandits has been already reported, returned to the States under the escort of a Capt. Matlock, U.S. Cavalry, who had successfully paid but half the ransom money to the bandits. These latter are now being pursued by U.S. Cavalry and aeroplanes, but hitherto have, despite the pursuers' advantages, managed to get away.

A flying base for this expedition has been established at Presidio.

It was announced later that Jesus Renteria, the leader of the bandits, was shot from an aeroplane during a skirmish between the American troops and the bandits. The U.S. troops returned to the States on August 24th.

PERSONAL NOTICES.

NAVAL.

Engagement.

ELLWOOD—MATTHEWS.—The engagement is announced between Capt. Aubrey B. Ellwood, D.S.C., R.A.F., youngest son of the Rev. C. E. and Mrs. Ellwood, Cottesmore Rectory, Oakham, and Lesley Mary Joan, daughter of Mr. and Mrs. W. P. Matthews, The Old House, Walmer, Kent.

MILITARY.

Births.

O'BRIEN.—On Aug. 16th, 1919, at Nakuru, British East Africa, the wife of Maj. A. K. O'Brien, late Queen's Bays and R.A.F., of Mtaragon, Lumbwa, British East Africa, of a son.

HEAD.—On Aug. 17th, to Peggy, (nee Grant), wife of Lieut. L. Laurence Head, Royal Sussex Regt. and R.A.F., a son.

AIR FORCE.

Marriages.

HALL-SMITH—HUTCHINSON.—On May 13th, 1919, at St. George's Church, Hanover Square, London, Lieut. Philip Hall-Smith, R.A.F. (since killed), eldest son of the Reverend Philip Merton Smith, of Vancouver, British Columbia, was married to Marjorie Emma Hutchinson, widow of Capt. J. S. Hutchinson, 2nd South Lancashire Regiment, and daughter of Frederick Wrigley, Esq., of Broadoaks, Bury, Lancashire, by the Rector.

OMMANNEY—CHAMBERS.—The marriage took place on July 15th, at Brompton Parish Church, of Major Patrick Gream Nelson Ommanney, R.A.F., younger son of Admiral Sir Nelson and Lady Ommanney, and Miss Pansy Nina Grace Chambers, daughter of Major Grahame Chambers, R.A.F. Prebendary Gough performed the ceremony.

POLLARD—CHEETHAM.—On July 31st, 1919, at St. Martin's Church, Brighouse, Capt. George Reginald Pollard, R.A.F., youngest son of Sir George H. Pollard and Lady Pollard, "Sundown," Southport, was married to Sarah Dorothy, youngest daughter of Mr. and Mrs. John A. Cheetham, "Oaklands," Brighouse, by the Rev. Canon Hone, Vicar.

SANDERS—SPROT.—On July 23rd, at St. Baldred's, North Berwick, Capt. Denis C. W. Sanders, A.F.C., R.A.F., eldest son of Dr. and Mrs. Gordon Sanders, Villa Martha, Cannes, France, was married to Nancy M. G., widow of the late Ivan B. Sprot, Lieutenant, 1st Bn. The Queen's Own Cameron Highlanders, and daughter of Sir George and Lady Berry, Drumsheugh Gardens, Edinburgh, and King's Knoll, North Berwick, by the Right Rev. the Lord Bishop of St. Andrews, assisted by the Rev. T. A. Hughes, M.A., Rector.

SNOW—COLWELL.—On July 29th, at St. Jude's, Southsea, Capt. C. C. Snow, D.F.C., R.A.F., only son of Mr. and Mrs. C. Snow, South Kirkby, Wakefield, was married to Gladys Burton, eldest daughter of the late General Colwell, C.B., Royal Marines, and Mrs. Colwell, Claremont Lodge, Southsea, by the Rev. C. E. Matthews, C.F., the Right Rev. Bishop Ingham, D.D., Vicar, and the Rev. W. R. Musselwhite.

STEDDY—HARVEY.—On July 23rd, at Chartham Parish Church, Capt. Edwin Seymour Steddy, R.A.F., youngest son of Mr. and Mrs. G. T. Steddy, of Sarre, Kent, was married to Elsa Dorothy, younger daughter of Mr. and Mrs. W. R. Harvey, of Hatch House, Chartham, Kent, by the Rev. E. W. Taylor Jones.

TOZER—DAVIES.—On July 30th, at St. Peter's, Parkstone, Lieut. Philip H. S. Tozer, R.A.F., was married to Margaret E. H., younger daughter of the late Edward Davies, Machen House, Mon., and of Mrs. Davies, Bruffe Lodge, Parkstone.

Births.

ALLEN.—On August 11th, at nursing home, Colchester, the wife of Claude A. B. Allen, Chaplain R.A.F.—a son.

CURTIS.—On July 28th, 1919, at 40, Alwyne Road, Wimbledon, the wife of James Stanley Curtis (late Capt. R.A.F.), of a daughter.

ELPHICK.—On Aug. 7th, at 10, Coates Crescent, Edinburgh, the wife of Capt. R. Elphick, R.A.F., of a son

GOODE.—On July 17th, at 24, Walpole Street, S.W., the wife of Captain H. M. Goode, R.A.F., of a daughter.

LOWE.—On Aug. 1st, at Baston Lodge, St. Leonard's-on-Sea, the wife of Lieut. L. G. Lowe, R.A.F., of a son.

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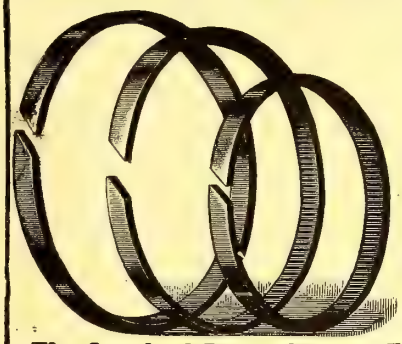

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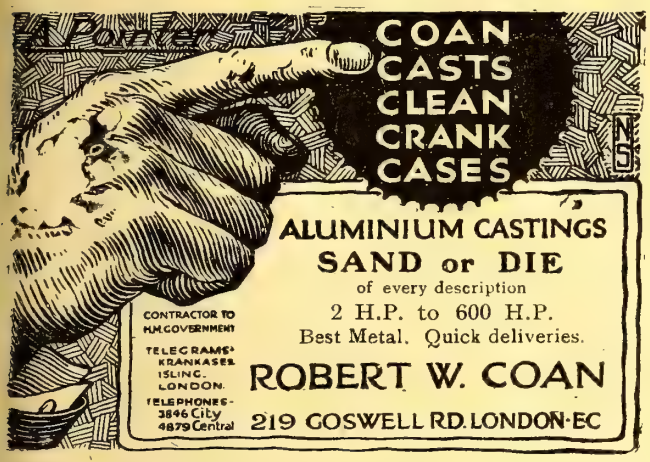

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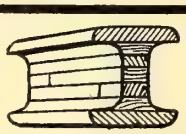
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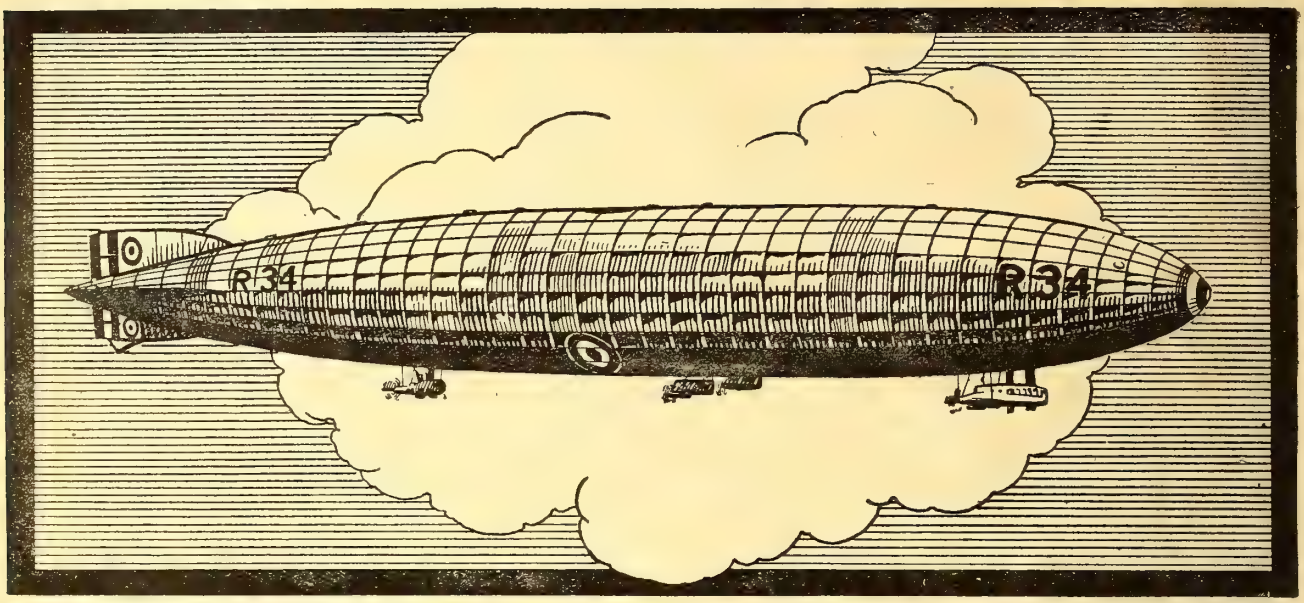

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SEPT. 3, 1919.

THE AEROPLANE

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ON THE AERONAUTICAL PROSPECTS IN CANADA.

It seems that the British Aircraft Industry and the Civil Aviation Department of the Air Ministry are showing a regrettable lack of interest in the prospects of aeronautics in Canada. There is in that country a vast opportunity for British enterprise, and a few facts on the subject deserve the attention of all concerned with Commercial Aeronautics.

There was introduced into the House of Commons in Canada, on April 29th, Bill Number 80, entitled "An Act to Authorise the Appointment of an Air Board for the control of Aeronautics." This Bill passed the Committee stage without amendment on May 6th. It was drafted by Mr. J. A. Wilson, the Assistant Minister of Naval Service, and was introduced by Mr. Maclean of Halifax.

The Act provides for the appointment of a Minister of the Crown to be Chairman of the Air Board and for another member of the Air Board to be Vice-Chairman. One member of the Air Board shall be a representative of the Department of Militia and Defence and one a representative of the Department of Naval Service.

The text of the Bill is as follows:—

THE HOUSE OF COMMONS OF CANADA.

BILL 80.

An Act to authorise the appointment of an Air Board for the control of Aeronautics.

His Majesty, by and with the advice and consent of the Senate and House of Commons of Canada, enacts as follows:—

SHORT TITLE.

1. This Act may be cited as "The Air Board Act."

AIR BOARD.

2. (1) There shall be a Board on Aeronautics (hereinafter called the "Air Board") which shall consist of not less than five and not more than seven members, who shall be appointed by the Governor in Council.

CHAIRMAN AND VICE-CHAIRMAN.

(2) The Governor in Council shall appoint a member of the Air Board who is one of the Ministers of the Crown to be Chairman of the Board, and shall appoint one of the other members of the Air Board to be Vice-Chairman.

REPRESENTATIVES OF MILITIA AND DEFENCE AND NAVAL SERVICE DEPARTMENTS.

(3) One member of the Air Board shall be appointed as a representative of the Department of Militia and Defence and one as a representative of the Department of the Naval Service.

TERM OF OFFICE.

(4) The members of the Air Board shall be appointed for a term of three years, and shall be eligible for reappointment.

SALARIES.

(5) The members of the Air Board shall be paid such salaries as the Governor in Council may determine.

DUTIES OF AIR BOARD.

3. It shall be the duty of the Air Board:—

(a) to supervise all matters connected with aeronautics;

(b) to study the development of aeronautics in Canada and in other countries, and to undertake such technical research as may be requisite for the development of aeronautics, and to co-operate with other institutions in carrying out such research;

(c) to construct and maintain all Government aerodromes and air stations, including all plant, machinery and buildings necessary for their efficient equipment and upkeep;

(d) to control and manage all aircraft and equipment necessary for the conduct of any of His Majesty's Services;

(e) to operate such Services as the Governor in Council may approve;

(f) to prescribe aerial routes;

(g) to co-operate with other officers of His Majesty, and to assist in the carrying out of any Services under their jurisdiction which may require aerial work of any nature, and to collaborate with the officers employed in existing Air Services of His Majesty in such extension of their present work as the development of aeronautics may require;

(h) to take such action as may be necessary to secure, by International Regulation or otherwise, the rights of His Majesty in respect of his Government of Canada in International Air Routes;

(i) to co-operate with the officers of the Departments of Militia and Defence and of the Naval Service on all questions relating to the air defence of Canada;

(j) to co-operate with the Air Staffs or Authorities of other Governments or countries for any purposes pertaining to Air Services;

(k) to investigate, examine and report on all proposals for the institution of commercial Air Services within or partly within Canada or the limits of the territorial waters of Canada;

(l) to consider, draft, and prepare for approval by the Governor in Council such regulations as may be considered necessary for the control or operation of aeronautics in Canada or within the limits of the territorial waters of Canada; and,

(m) to perform such other duties as the Governor in Council may from time to time impose.

POWERS OF AIR BOARD TO MAKE REGULATIONS WITH APPROVAL OF GOVERNOR IN COUNCIL.

4. (1) Subject to approval by the Governor in Council, the Air Board shall have power to regulate and control aerial navigation over Canada and the territorial waters of Canada, and in particular, but not to restrict the generality of the foregoing terms of this section, it may, with the approval aforesaid, make regulations with respect to—

(a) licensing pilots and other persons engaged in the navigation of aircraft, and the suspension and revocation of such licenses;

(b) the registration, identification, inspection, certification, and licensing of all aircraft;

(c) the licensing, inspection, and regulation of all aerodromes and air-stations;

(d) the conditions under which aircraft may be used for carrying goods, mails, and passengers, or for the operation of any commercial service whatsoever, and the licensing of any such services;

(e) the conditions under which goods, mails, and passengers may be imported and exported in aircraft into or from Canada or within the limits of the territorial waters of Canada, or may be transported over any part of such territory;

(f) the prohibition of navigation of aircraft over such areas as may be prescribed, either at all times or at such times or on such occasions only as may be specified in the regulation, and either absolutely or subject to such exceptions or conditions as may be so specified;

(g) the areas within which aircraft coming from any places outside of Canada are to land, and the conditions to be complied with by any such aircraft;

(h) aerial routes, their use and control;

(i) the institution and enforcement of such laws, rules and regulations as may be deemed necessary for the safe and proper navigation of aircraft in Canada or within the limits of the territorial waters of Canada; and,

(j) organisation, discipline, efficiency, and good government generally of the officers and men employed under the Air Board.

Penalty.

(2) Any person guilty of violating the provisions of any such regulation shall be liable, on summary conviction, to a fine not exceeding one thousand dollars, or to imprisonment for any term not exceeding six months, or to both fine and imprisonment.

Publication of Regulations.

(3) All regulations enacted under the provisions of this Act shall be published in the "Canada Gazette," and, upon being so published, shall have the same force in law as if they formed part of this Act. Such regulations shall be laid before both Houses of Parliament within 10 days after the publication thereof if Parliament is then sitting, and if Parliament is not then sitting, then within 10 days after the next meeting thereof.

Officers and Men.

5. The Air Board shall have power to employ such officers and men under this Act as may be authorised by the Governor in Council, under such conditions as to discipline and pay as the Governor in Council may determine, and may make such arrangements for their proper training, housing, board, clothing, and equipment as may be deemed necessary and as may be approved by the Governor in Council.

Civil Staff.

6. Subject to the provisions of the Civil Service Act, 1918, the Air Board shall have power to employ such officers, clerks, and employees as may be necessary for attending to the business of the Air Board.

Payment of Expenses, etc., under Act.

7. All salaries mentioned herein and all expenses incurred under the provisions of this Act shall be paid out of such money as may be appropriated by Parliament therefor.

Since that Act came into force a number of offices have been created under the Canadian Air Board, as was duly recorded in this paper recently, but so far the names of the officials appointed to those offices have not been made known. The future of aeronautics in Canada, so far as the British Aircraft Industry is concerned, will depend largely on whether these officials are pro-British or pro-American in their sympathies. But to a far greater extent it will depend on whether the British Aircraft Industry has the energy to go and get the Canadian business, or whether it is to be left entirely to the enterprise of cute business men from the United States.

Vast Opportunities.

Although undoubtedly Aeronautics in Canada must develop comparatively slowly, there seem to be very many people in that Dominion who are not merely enthusiastic about flying as such, but who believe firmly in its commercial future. In this they are fully justified because of the fact that Canada is a country of vast expanses with very imperfect communications. The waterways and the plains of Canada afford great opportunities for flying-boats and land-going aeroplanes, and aerial traffic can be established long before railways can be developed.

In this connection it is interesting to note that a trans-Continental route has already been mapped out for aeroplanes. The instructions to those who were given the job of mapping were to keep within reach of a railway as nearly as possible. The particular point of interest in the route chosen is that it is peculiarly suitable for waterplanes of modern type in that, excepting in the Rocky Mountains, there is only one gap between lakes of as much as 150 miles. In most cases the distances between lakes is not more than 20 miles.

Another matter of interest is that, with a view to educating Canadian Members of Parliament as to the uses of aircraft, waterplanes have been told off to make a photographic survey of forest lands between Ottawa in order to check the existing topographical land survey.

Yet another use for water-going aircraft is to be found in communication between the old trading points of the Hudson Bay Company which were originally established so as to give inter-communication by canoes. The great Quebec Company of Reville Frères, who trade with hundreds of these Hudson Bay stations, have been lent a waterplane of some sort to test its possibilities for an exhibition of inter-communication this summer.

In all these cases, one is told, the machines so used are low-powered Curtiss flying-boats which, though good enough in their day, are now utterly obsolete, and would be despised by any pilot with experience of modern seaplanes. Consequently they are much more likely to do harm than good by their evolutions.

Forest patrol, as a safeguard against fires, has been mentioned on various occasions as one form of activity for aircraft in Canada, and it is interesting to learn that two American flying-boats have been lent to the St. Lawrence Forest Protective Association to patrol the large districts north of the St. Lawrence River, and the Quebec Government has made a substantial subsidy to support these boats. It is very much to be regretted that no British firm of seaplane builders had the enterprise to send machines and men to Canada to demonstrate to all and sundry the capabilities of the machines of to-day.

New Activities.

A Canadian evening paper reports that the firm of Greenshields is bringing out a big Canadian company for the manufacture of Handley Page machines. Nothing has been heard of the flotation on this side of the Atlantic, but it is possible that the business may have been achieved. If so, one would like to hear more of it.

Another sphere of activity is disclosed by the fact that the Canadian Pacific Railway about a month ago took out a charter for a flying department, the duties of which would be to organise aeroplane services as auxiliaries or feeders to the railway.

Those interested in flying in Canada would do well to note that practically every Canadian country town has an exhibition ground or racecourse which in most cases is actually suitable for a landing-ground, and in any case could be easily adapted to the purpose.

The Political Situation.

The Canadian House of Commons is utterly lethargic, as one would expect in such a thoroughly British institution, and the expenditure of money is more necessary in developing business in Canada than it is in England, but the business is certainly there to be done.

One point which British manufacturers should particularly note is that the group of Toronto people which is interested in aviation is very largely Americanised, and that if the British Aircraft Industry is to get business in America it will have to make up its mind to fight strenuous American competition.

It must be remembered that a group of American speculators bought 400 Curtiss aeroplanes which had been built either in America or Canada for the training of the Canadian Air Force, and that these machines have been planted on Canadian buyers. In the end this may very possibly work to the advantage of the British Aircraft Industry, as proving that British aeroplanes are the best in the world, but it is bound to give aviation in Canada a set-back unless the British Industry gets to work immediately. Without in the least decrying the quality of material or workmanship in the Curtiss machines, it must be obvious to anybody who knows anything of aviation that, good as a 90 h.p. or 120 h.p. Curtiss machine may be for training purposes, it is not the type of machine with which to develop serious aviation in a vast country like Canada.

The Need for British Enterprise.

If the Canadian business man is to be impressed with the practical utility of aircraft he must be convinced by means of demonstrations with the very latest and best types of British commercial aeroplanes, and not by means of converted war machines, and most certainly not by means of elementary training machines.

British firms who want to do business in Canada must not expect Canadians to fall upon them with entreaties to be allowed to buy British aeroplanes; they have got to go and get the business. They have got to convince the Canadians that aeroplanes are practical vehicles; they have got to remove any bad impression which may have been given by failures of inferior machines; and they have got to do a great deal of the actual operating of the aeroplanes with their own money during that period. When British aeroplanes and British transport services have made good in Canada, then Canadian money will be forthcoming for further developments.

THE SAVING CLAUSE.

Happily there is a strong pro-British element among those in Canada who are interested in aviation; for example, a new Association has recently been formed in Montreal which embraces 300 ex-flying people of the R.A.F. who have broken loose from the Americanised Canadian Aero Club, and who are full out to support British enterprise, but they in turn must be supported by British enterprise.

The British Aircraft Industry has a great opportunity in Canada if it will only lay itself out to grasp that opportunity; but the Industry will wreck the progress of aviation in Canada as well as all its own prospects of future business there if it leaves the field at the moment to get-rich-quick Americans who are only intent on planting what in this country would be low-grade salvage stuff on the innocent Canadian buyer.—C. G. G.

"ECONOMY" IN AIRSHIP CONSTRUCTION.

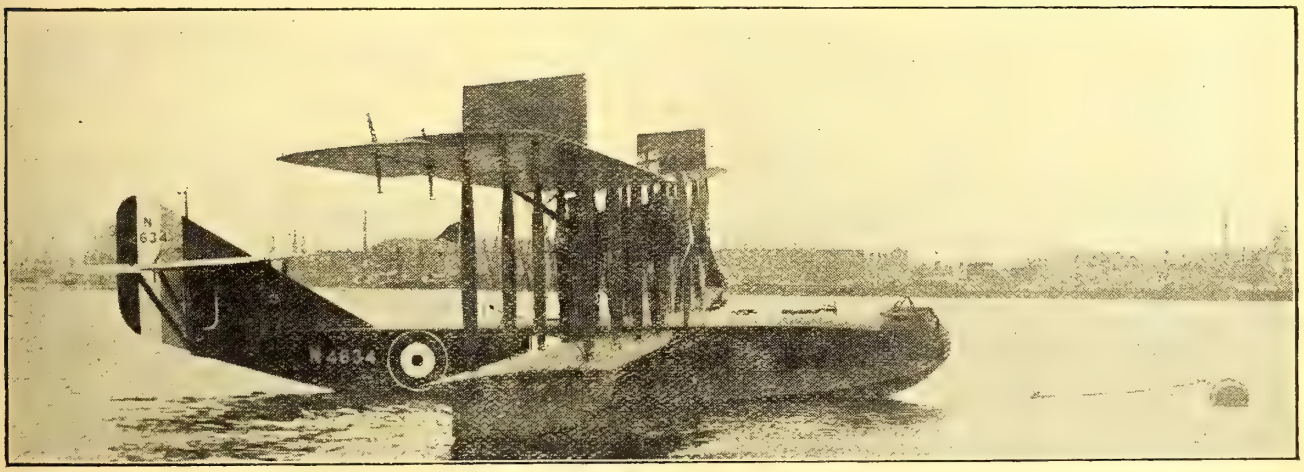
In earlier and happier days the more popular news-prints, deprived of the humour of Parliament, the thrill of murder, or the absorbing charms of Divorce Court drama by the placid instincts of late summer and autumn, resorted to a form of amusement aptly termed "Silly Season Topics." Started by an an intriguing letter written by a member of the editorial staff, though signed by "A Father of Nine" or "A Tooting Cyclist," leaders, correspondence columns, and news pages were each day charged with argument and enthusiasm as to some such subject as "Paper-Bag Cookery" or "Are Tomatoes Nourishing?" The amusement served its purpose. It filled the columns and helped music-hall comedians, while it did no harm to the public, as none of discrimination ever read one single line of all that was written.

To-day, in sadder times, there are greater subjects with which to fill the summer hours of idleness. The war is over, the debt of life is paid, and all that remains is to settle that part of the bill which money alone will satisfy. The paying of the bill gives a happy opening to the editors of "Silly Season" columns, and they have not failed to avail themselves of the opportunity. Each day the cheaper news-prints are filled with heavily leaded columns demanding retrenchment and economy without ever suggesting any reasonable method of obtaining either. The public, angered by the price of beer or butter, has accepted readily the opportunity to criticise in tube, tram, and dining-room those who are charged with the care of the national finances. All humankind are spending wildly in the reaction of peace, but none approve of the governing classes in their methods of settling the national accounts.

There is waste—and colossal waste—in many branches of the Government Services, but it is entirely the result of war. If the nations demand war, the nations must pay for war. All amusements are expensive, and after the joy is dead regrets are only too apt to linger. It was necessary in war-time to order far in advance of immediate requirements, and with no knowledge of the time when such material would cease to be necessary. War is not like the shooting season, with a definite calendered beginning and end. It ends only with victory or defeat, and either of these are in the hands of Fate alone.

But the news-prints and popular clamour have scared Mr. Lloyd George, whose dislike of unpopularity amongst the proletariat is the prevailing instinct in his life. The fear of downfall has driven him to incite his colleagues to ruthless "economy." At the same time he is forming new Ministries to control everything except the sea tides, which even his mental predecessor, King Canute, found unamenable to his will.

At his direction works begun during the war and rapidly nearing completion are being destroyed at vast expense. Staffs are being reduced in every working department of State, regardless of the morrow. The machinery of government is suffering from the pruning of an amateur gardener, whose only true knowledge is oratory. But the future disasters will be camouflaged for the present, while the public happiness is increased



The F5 Flying-boat (two 350 h.p. Rolls-Royce engines) built by the Gosport Aviation Co., which was exhibited and demonstrated by that company at the E.L.T.A., Amsterdam, by permission of the Air Ministry. The photograph shows the boat moored off Amsterdam. This Flying-boat has now returned to England.

by the sight of widespread destruction wrought in the name of "economy." (It would do Mr. Lloyd George but little harm if he were to look up the word "economy" in the New English Dictionary. He would then perhaps realise its meaning.)

But that side of the "economy" campaign which interests the aeronautical industry is the action taken this week by the Admiralty in the practical stoppage of all work on airships.

Before the war we were a decade behind the Germans in the theory and practice of airship design. Where we had argued they had done the work. With the war came the realisation of the value of airships, and in a curiously haphazard way we began to make up for lost ground. Against innumerable difficulties the Airship Department of the Admiralty carried through a programme which in the last year of war produced rigid airships but little behind the best German rigid airships in design and performance, whilst in the non-rigid classes we lead the world.

As a result of the experience gained, several rigid airships of large size were at the beginning of this week under construction in the works of Armstrongs, Vickers, and Shorts. All work has now ceased at these three places, though the R37 at Shorts may be completed at a later date. As a result about 1,400 workpeople experienced in the intricacies of airship construction are out of work, and will disperse to other industries more stable of existence. Their training is wasted, and shortly they will forget all they have learned.

The one industry in which Great Britain can gain and maintain a world supremacy is that of aeronautics. Yet now as a measure of economy we are to throw aside one part of our leadership. Airship design is in its infancy —that period in which careful nurture is most essential. The child industry cannot live by itself. It must be supported. Yet that support is being removed.

The immediate prospects of profit from the employment of airships are not promising. Further progress, both in design and performance, is essential before an airship transport service can be safely and profitably maintained. And the Government alone can bring about that progress by the economical (in the proper sense) production of a series of airships.

If these airships are completed, they will possess a certain capital value. If they are left in their present state, they are entirely valueless. The expense of shutting down the works will be almost as great as that of completing the ships.

Cannot the public, who are mainly responsible for the shutting down of construction, wake up a little from its drugged dream of "economy" and demand that here at least we shall not waste future prosperity through present parsimony.

It is useless to blame the Admiralty. The airship programme would still be carried out were it not for the effect of public clamour on the thoughts of Mr. Lloyd George. Therefore as Mr. Lloyd George is so easily influenced, it is the duty of the people, if they are to show that democratic rule has any advantages at all, to insist that the Admiralty decision must be reconsidered at once.

W. E. de B. W.

AN HONOUR FOR MAJOR-GENERAL SIR F. H. SYKES, K.C.B., C.M.G.

The appointment of Major-General Sir Frederick Hugh Sykes, K.C.B., C.M.G., to be Knight Grand Cross of the Order of the British Empire (Military Division) was gazetted on August 26th. This award has been made specifically because of his services to aeronautics. He has been a loyal servant of the new science since the very early days of practical successes in aviation, and he has by his efforts contributed largely to the attainment of the position now held by the Royal Air Force.

All who appreciate the work he has done will congratulate him on the honour the King has chosen to bestow upon him.

THE RETIREMENT OF SIR RICHARD GLAZEBROOK, C.B., F.R.S.

It is officially announced that Sir Richard Glazebrook, C.B., F.R.S., retires from the Directorship of the National Physical Laboratory, on reaching the age limit on Sept. 18th, and that Professor Joseph Ernest Petavel, D.Sc., F.R.S., has been appointed to succeed to that position.

Sir Richard Glazebrook, who is a scientist of world-wide renown, and a recognised authority upon methods of accurate physical measurement, has, both as Director of the N.P.L. and as a member of the National Advisory Committee on Aeronautics, exercised an important influence upon the progress of the science of aerodynamics in this country.

It is to be held to his credit that the experimental measurements made at the National Physical Laboratory, both in the Aeronautical Department and elsewhere, bear a universal reputation for accuracy and reliability.

Whether the deductions which have been drawn therefrom are equally accurate and reliable is a matter with which the late Director of the N.P.L. has probably had little to do.

In Professor Petavel the N.P.L. has a worthy successor to Sir Richard Glazebrook, and it may safely be expected that under the new Directorship the existing high standard of accuracy will be maintained by the establishment.

THE JACQUES SCHNEIDER INTERNATIONAL SEAPLANE RACE.

The following communiqué has been issued by the Royal Aero Club :—

This race will be held at Bournemouth on Wednesday, Sept. 10th, 1919, and machines representing France, Italy and Great Britain will compete. The course is 200 nautical miles, over a circuit of 20 miles (10 times round) in Bournemouth Bay. The start of the race will take place about 2.30 p.m.

The Royal Aero Club has obtained the loan of the T.S.Y. "Ombra" (350 tons) to accommodate the members on the day of the race. This yacht will be anchored off Bournemouth Pier, and will be the official starting and finishing point, the competitors passing 10 times during the race. Tickets, £2 each, including luncheon and tea on board.

Members are requested to make early application to the Club for tickets.

Motor launches will convey members from the pier to the yacht between 12 noon and 2 p.m. on the day of the race.

Arrangements have also been made for a members' enclosure at the head of the pier, Bournemouth, and tickets admitting to the pier and enclosure may be obtained from the Club.

The following are the competitors :—

GREAT BRITAIN.

Sopwith (450-h.p. Cosmos 'Jupiter"), pilot, H. G. Hawker; Supermarine (450 h.p. Napier "Lion"), pilot, Squad-Comdr. B. D. Hobbs, D.S.O., D.F.C.; Avro (Siddeley-Deasy "Puma"), pilot, Capt. Hammersley; Fairey (450 h.p. Napier "Lion"), pilot, Lieut.-Col. Vincent Nicholl, D.S.O.

(Three competitors from the above are being selected by the Royal Aero Club to represent Great Britain.)

FRANCE

Nieuport (300-h.p. Hispano-Suiza), pilot, M. Malard; Nieuport (300-h.p. Hispano-Suiza), pilot, M. Casale; Spad (300-h.p. Hispano-Suiza), pilot, M. Sadi Lecointe.

ITALY.

Savoia S.13 (250-h.p. Isotta-Fraschini), pilot, Sig. Janello.

OFFICIALS OF THE RACE.

STEWARDS OF THE MEETING (Commissaires Sportifs).—Brig.-Gen. Sir Capel Holden, K.C.B., F.R.S. (Royal Aero Club); Mr. G. B. Cockburn (Royal Aero Club); Lieut.-Col. Alec Ogilvie (Royal Aero Club); M. Paul Rousseau (Aero Club de France).

STARTERS.—Lieut.-Col. F. K. McClean; Lieut.-Col. Spenser D. A. Grey, D.S.O.

TIMEKEEPERS.—Mr. A. V. Ebblewhite and Mr. A. G. Reynolds.

PRESS STEWARD.—Lieut. B. Stevenson.

MARK-BOAT OBSERVERS.—Mr. Howard T. Wright; Lieut.-Col. H. T. Tizard; Squadron Leader T. O'B. Hubbard, M.C., R.A.F.; Major R. H. Mayo; Major R. E. Nicoll.

BRITISH MOTOR-BOAT CLUB PATROL.—Mr. R. H. Cobb; Mr. T. Desnos; Mr. B. S Millard; Col. C. Pierce.

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THE RIFF-R.A.F.

By "THE SNIPE."

Many years ago one remembers talking to an American journalist who had come to London under the impression that British newspapers needed what in those days was called "hustling." He had the idea—common in that country at the time—that British newspapers were dull because they did not contain coloured pictures and did not appear with front pages that looked like posters owing to the magnitude of the type used for Leadings.

When he had become accustomed to the fact that we preferred reading-matter to contents-bills and examples of the draughtsman's lack of art he became a fairly broad-minded critic—of the Yellow Press of his own country.

Regarding the different policies, he said he was most impressed by the fact that in England the Press seemed to be entirely engaged in the work of deriding everything British and in pointing out how much better all things are done in other countries. The American Press, on the contrary, stroked their readers until they purred. They derided the institutions of other nations and pleased their readers by telling them that everything in God's own country was the best. If tales of appalling political corruption had to be told, the newspapers would console the public by saying that for ingenuity and vastness of design the world could show nothing to equal American corruption and political crime.

American thieves were the most brainy, American drunkards the most drunken, and American grafters the graftiest in the universe.

Self-Depreciation.

To some extent the war has opened the eyes of America to the perils of self-adulation, but Britain retains her fondness for self-deprecation. Our newspapers, almost without exception, ooze pessimism. The national sport is the baiting of the public servant, who, because he has an official ring through his nose, is unable to hit back.

All through the war we were slanged by every morning paper, by special editions throughout the day, and by three-halfpenny editions on Sunday. Up to the very moment of the Armistice we were told that we were losing the war; after the war we were told that our enemies would beat us yet, and that if they did not our victory would ruin us for ever and ever, amen. One is getting rather tired of it.

The story of the Flying Services and the R.A.F. is a never-ending serial of abuse. Our critics in the daily Press would lead the public to believe that the greater part of the Force is made up of wild, overpaid officers given to drunken orgies and less respectable crimes, that the airman is an undisciplined lazy Cuthbert who tunnelled his way into the Force by influence in order to escape the trenches, and that every action of the Air Ministry has been inspired by lunatic minds.

Our dirty linen has not been washed in public; it has been flaunted unwashed. If any paltry charge can be trumped up, it is "An Amazing R.A.F. Scandal." If, in the terrible struggle we had to gain the mastery of the air, a little more money was spent than the ignorant Press think necessary, we have accusations of bribery and graft. If a youthful R.A.F. officer makes a slip from virtue, specially trained muck-rakers of the Press expend their iron and gall over him, and we have articles on the immorality of the R.A.F. written by "Our Own Co-respondents," judging by the knowledge displayed regarding such matters.

It is easy to say that there is no smoke without fire; but it is equally true to say that a very small spark may become a big blaze if fanned maliciously.

The campaign of calumny has been carried out so effectively that it seems likely that the Force will be known as the Riff-R.A.F. for ever.

Of course, there have been scandals; there always will be. Of course, there have been muddles; the only people who never make mistakes are those who never do anything. Of course, we are open to criticism because we dared to serve and take the pay of those who succeeded in avoiding service. Of course, we had black muttons among us—some of these ebon rams were damned good fighters.

The Other Side of the Picture.

But in the post-mortem on the war that is now sitting we hear nothing of the other side. Our critics know nothing of the difficulties under which we laboured in the days when all seemed dark. While the outsiders jeered at the "Rabbits" in vast hotels and derided the beauty show of uniformed flappers and called down the wrath of Heaven because they took afternoon tea, the foundations were laid of the final victory in the air.

It is so easy to criticise and so hard to build up a vast organisation in the stress of a world war. It is so easy to raise a cheap laugh over a departmental letter dictated by an overworked amateur official who has had to learn his job at a moment's notice, and which has been typed by an uneducated flapper because no trained typists are available.

Of course, we blundered and muddled. It is so easy to be wise now and to see our mistakes, but most of us blundered in good honest ignorance—not through slackness. The will to win was there.

We worked with tools that were not the best. Our airmen were mostly low-categoried men, throw-outs from the other Services, but the percentage of slackness among them was probably lower than in the Army, though perhaps they did not look so smart when off duty.

One wearies of the "scandals," the fault-finding, and the heart-burnings over blunders that cannot be remedied now. It is all very well to be modest and self-deprecatory, but, hang it all, we might as well remember that, in spite of all the difficulties and muddles, we did reach the stars in the end.

THE NEW R.A.F. TITLES.

It is notified by the Air Ministry that an Order has been promulgated directing that the new titles for officers of the Royal Air Forces are to be brought into use in the Force forthwith.

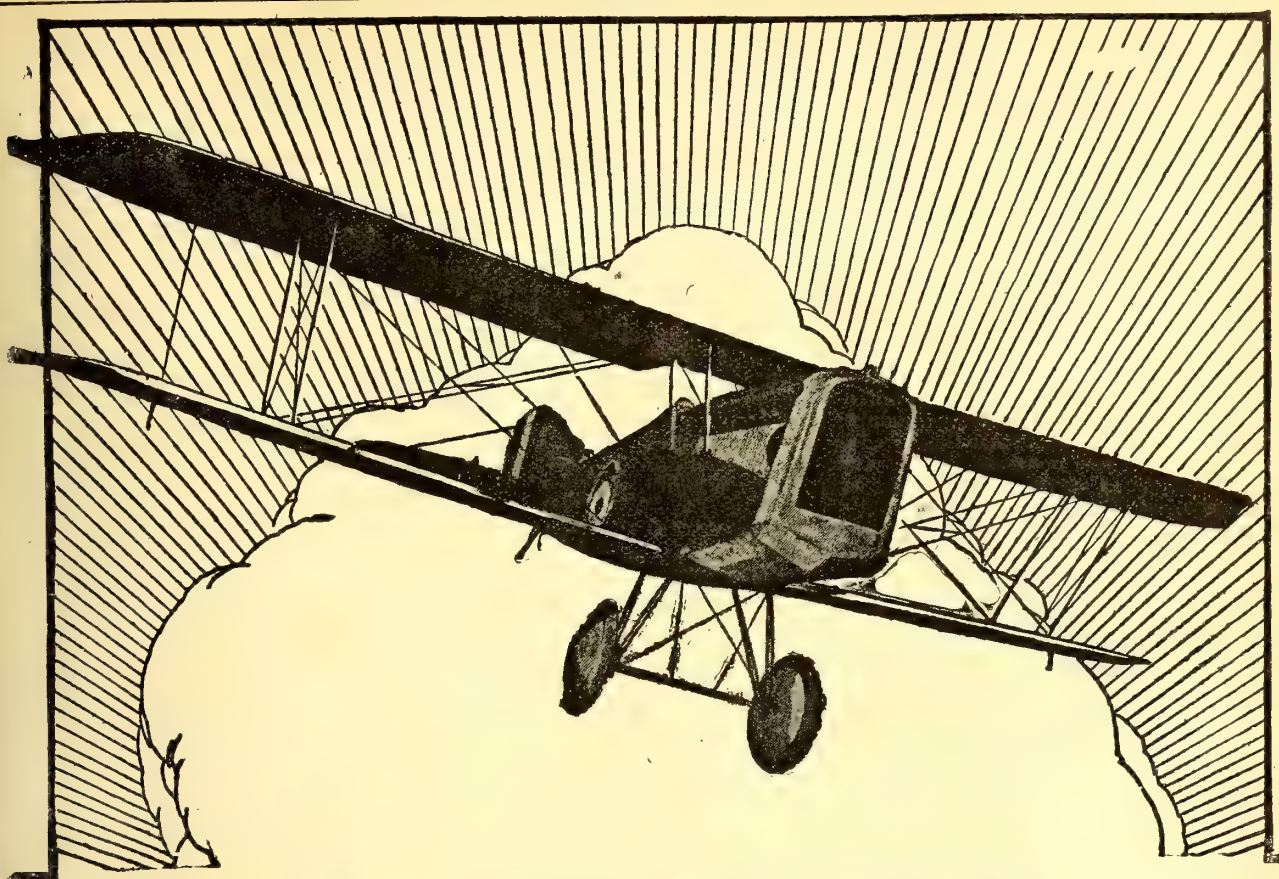
The new titles, which were published on Aug. 4th last, apply to all officers of the R.A.F., whether permanent or temporary, attached to or seconded for service with the R.A.F.

ANOTHER TEA-CUP STORM.

According to information sent to the "Daily Express" by one of its readers:—"At the Eastchurch Aerodrome, near Sheerness, on the occasion of an official inspection last Wednesday, many workers, male and female, earning from 52s. 6d. to 60s. per week, were granted a half-holiday, so that they should not be seen.

"Men who have a job waiting for them are being retained, while men who have nothing to do are being demobilised. Demobilised men who cannot find employment are, of course, entitled to out of work pay, while the retained man costs the Government a considerable sum."

This merely strikes one as another example of the prominence given by the newspapers to the small "scandals," while no attention is given to the great ones.



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The WORLD of AERONAUTICS

NEWS OF THE WEEK FROM ALL QUARTERS

The Schneider Cup Race.

The British eliminating trials for the Schneider Cup race are being held on the afternoon of Wednesday, Sept. 3rd—too late to be reported in this issue of THE AEROPLANE.

The Avro seaplane made its first trial flight on Aug. 29th at Hamble. The tests were successful in that the machine was in excellent trim and showed a good turn of speed. On landing one float was damaged, but clever handling by the pilot, Capt. Hammersley, brought her safely to the beach.

The Fairey competitor has made a number of test flights at Hamble. It is understood that the speed attained was quite appreciably in excess of the design estimates, and that this machine will be a serious competitor even if the sea at Bournemouth on the day of the race is glassy smooth.

No details of the foreign competitors are available at the time of writing—other than those already published. It is, however, gathered that the two Nieuports entered will be, to all intents, of the type used by Lieut. Casale in the height and speed records recently chronicled, fitted with a light float undercarriage. The Spad is believed to be the Spad Herbemont type—illustrated in this paper recently—similarly adapted to the race.

For the Nieuport Company, M. Prévost—whose deeds were famous in pre-war days—and M. Kirsch will be the reserve pilots. It would be interesting to see M. Prévost again take the air in a great race, and his appearance would be popular.

The Savoia—Italy's sole representative—will probably be of the flying-boat type, but no details are yet to hand.

The England to Australia Competition.

There are four entries up to the present for the £10,000 prize offered by the Australian Government for the first successful flight from England to Australia by an Australian. The "Newcastle Chronicle" gives the names of one group of competitors. They are Lieuts. C. P. Rendle and D. R. Williams (pilots), G. H. Potts (engineer), and Capt. Wilkins, M.C. (navigator). All but Lieut. Rendle, who served in the R.A.F., were members of the Aus. F.C.

Capt. Wilkins was a member of Steffensen's Polar Expedition (1914-16), and for two years, at the end of the war, he was an official photographer for the A.I.F. on the Western Front.

They will use a Blackburn "Kangaroo," fitted with 240 h.p. Siddeley-Puma engines. They are taking no spare parts. According to the conditions of entry the journey must be completed in 30 days, and a stop must be made at Singapore.

The route to be taken is as follows:—London, Turin, Crete, Cairo, Karachi, Calcutta, Singapore, Surabaya, Timol and Port Darwin (Australia). This is approximately 10,000 miles by air.

No attempt can be made before Sept. 8th, the date on which the monsoon season in India normally temperates.

A Fatal Accident.

One regrets to record that Brig.-General Charles Lee (late R.A.F.), was killed at Weston-Super-Mare on Monday evening, September 1st. He was flying a machine and had with him two passengers, both of whom were injured. It appears that when at a height of between one and two hundred feet the engine failed, the machine sideslipped, and then nose-dived on the Weston-Super-Mare golf links.

The passengers were Lt. A. J. Andrews, of the 20th London Regiment, and Mr. Roderick Smith. The former is suffering from concussion and abrasions, and the latter from severe facial injuries, but both are progressing favourably.

Brig.-General Lee was at one time at the Air Ministry. He had seen service overseas, and was head of the British Aviation Mission to the United States of America, and did much good propaganda work for the British aircraft industry. Recently he was appointed air transport manager to A. V. Roe and Company.

The British Association at Bournemouth.

At the meeting of the British Association to be held at Bournemouth from Sept. 9th to Sept. 13th there will be discussed, among many other subjects, aviation during the war, aerial routes, aerial photography, and wireless telegraphy. The general meeting will be held in the Winter Gardens Pavilion, commencing with the presidential address by the Hon. Sir Charles Parsons, on "Engineering and the War."

The New R.A.F. Ribbon.

The following letter appeared in the "Times" of Aug. 30th.

Sir,—The changes in the ribbons of the Royal Air Force crosses and medals have come at a time when economy should be the order of the day. I am not aware of the contract prices of the ribbons in question, but it would be interesting to know what the alteration will cost—(1) the Government for the free issue of the new ribbon and the "scrapping" of the old; (2) to firms who possess many hundreds of yards of the old ribbon, which is now useless. The change from horizontal to diagonal bars of colour and white was presumably introduced for simplicity, but the orders as to the wearing of the new ribbons are complicated in the extreme, while both varieties are equally tasteless. The range of colour combinations is infinite. It would have been quite possible to design ribbons of the ordinary sort which, while distinctive, do not resemble the covering of a mattress or the material commonly used for braces. Moreover, the designers of the D.F.C. and the A.F.C. cannot be congratulated upon their taste, for the crosses are unnecessarily large, undignified, and vulgarly decorative. Those responsible for such things, however, do not appear to have much originality, for the new R.A.F. long service medal ribbon, half blue, half red, with white edges, must be suspiciously like the special H.A.C. Territorial ribbon, half blue, half red, with narrow yellow edges. ARIEL.

A Difficult Flight.

The Porte type Gosport F5 flying-boat that was at the E.L.T.A. Exhibition at Amsterdam had a very rough return voyage to England. The flight from Amsterdam to Felixstowe was made against a 50 or 60-miles an hour wind, and at times it was necessary to steer 35 degrees west of the true course. The crossing was, however, made in just under three hours.

When the flying-boat alighted at Felixstowe the sea was so rough that green waves washed over the lower planes and one hour and a half passed before a boat was able to take off the crew, which consisted of Col. R. Hope Vere, A.F.C., the pilot, Mr. H. Volk, Mr. Nicholson, and two others.

The Rolls-Royce Eagle VIII engines ran perfectly throughout. The seaworthiness of the flying-boat was very thoroughly demonstrated, for in spite of the rough sea which submerged the lower planes no damage of any kind was done to the machine.

Alleged Smuggling by Air.

At Trelleborg a case against Dr. Stockhausen and the Countess of Solms-Wildenfels is being heard. They are charged with smuggling valuables into Sweden by aeroplane. Some of the articles belonged to Prince William of Wied.

M. Lidfors, of Stockholm, who is counsel for the accused persons, explained that the Prince of Wied had a permit to export his fortune to Switzerland, but considered Sweden a safer place. The numerous German railway robberies induced him to carry his valuables by aeroplane. M. Lidfors declared that the charge of attempting to deceive the Customs authorities was ludicrous, as the duty only amounted to kr.265 (£14 14s.).

The evidence showed that Dr. Stockhausen and the Countess of Solms-Wildenfels tried to escape, and that they denied before the police that they had any valuables in their knapsacks.

The 14th Wing, R.A.F., Italy.

A dinner has been arranged for officers of the 14th Wing, R.A.F., Italy, at the Imperial Restaurant, Regent's Street, at 7.45 p.m., on Sept. 20th. Any officer of the unit who wishes to attend should forward a cheque for £2 4s. to Officer Commanding, No. 2 (Training) Group, R.A.F., Uxbridge.

No. 40 Squadron, R.A.F.

A dinner is being arranged by 40 Squadron, R.A.F., for Friday, Sept. 26th. Those who wish to attend should communicate before Sept. 19th with Capt. H. C. Todd, R.A.F. Club, 13, Bruton Street, W., or Major the Rev. B. W. Keymer, H.Q. Midland Area, R.A.F., Leamington Spa.

The Paris Aero Salon.

The organiser of the Paris Aero Salon to be held in December is M. Granet, Commissaire-General du 6E Salon Aeronautique, 12, Rue Anatole de la Forges, Paris.

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In addition to Aircraft Radiators the following are some of this year's Gallay Successes.

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This letter constitutes a fine testimonial to Gallay Workmanship and Material.

We supplied these radiators in the ordinary course of business, and had no idea of the strenuous use to which they were to be put, until this report of their faultless performance came to hand.

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Dear Sirs,

You may be interested to know that the Radiators supplied by you were used in the construction of the "SEABIRD", the machine designed and built by this Company for commercial purposes, which recently made a non-stop flight to Madrid, a distance of 900 miles, in 7¾ hours.

This is the first direct flight from London to the Spanish Capital, and with the exception of the Vickers "Vimy" machine which flew the Atlantic, we believe we are correct in stating that our machine is the only one of British design which has completed a non-stop flight to its destination after covering as great a distance.

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The WORLD of AERONAUTICS (continued)

A South Pole Expedition.

The British Imperial Antarctic Expedition will set out in June, 1920, for five years of exploration in the Antarctic. Mr. John L. Cope, who accompanied the Imperial Trans-Antarctic Expedition to the Ross Sea in 1914-17, is leading the expedition. An aeroplane is to be taken, and both it and the ship will be equipped with wireless telegraphy.

After leaving England in June they propose to sail for Wellington (New Zealand), and then proceed to Macquarie Island, where a geological survey is to be made. Wireless and meteorological stations will be established at Scott Island, and headquarters will be made at New Harbour.

The distance of the Pole from the base from which the aeroplane will start is 750 miles. A sledge and extra provisions will be carried on the machine in case it breaks down. Consequently, a minimum of fuel only can be taken.

High mountain ranges have to be crossed, so it is proposed, on the journey to the Pole, to dump half the petrol before they are reached.

It is hoped to use directional wireless from the base, and so get "tail bearings" on the aeroplane.

Aerial navigation is greatly dependent on meteorological forecasts. Antarctic information would help tremendously in making long-range weather charts.

One would think that rather than carry a sledge on the aeroplane another machine might well be taken on the expedition. This could locate the first if it had any trouble and carry petrol and spares to it from the base.

A more sensible way of making a dump of petrol would appear to be to make it on a trip previous to the attempt to reach the Pole. If the sledge were then dispensed with a good quantity might well be carried over the mountains and dumped on the other side.

From Propellers to Watches.

A news-sheet stated recently that "the myriad aircraft factories which turned out fuselage and propeller and aileron during the war have gone back to the manufacture of pianos and watches and perambulators."

The machinery for the manufacturing of propellers, etc., would not appear to be easily adaptable to the production of watches, but the British are an ingenious race.

A Change of Address.

The Technical Supply Branch, Canadian Air Force, is moving from 245, Oxford Street, London, to Ottawa. Letters for the branch should in future be addressed to "The Chairman, Canadian Air Board, Ottawa, Canada," and marked "for attention of O/C. Technical Section."

For the Amateur Aviator.

Writers who had the enormous advantage that ignorance gives to those who trade in fiction were fond of stating that after the war thousands of people would buy aeroplanes for private use and be their own pilots, just as ten of thousands of people own and drive their own cars.

These sanguine prophecies do not seem likely to be realised for some time. Thousands of demobilised pilots have bought cars or motor-cycles with their gratuities, in spite of high prices, but one hears of very few who have bought aeroplanes, although the Air Ministry has been almost ready to give them away.

The fact is, of course, that the machines designed for the war are quite unsuitable for private use owing to the expense of upkeep The enthusiastic amateur requires something that he can keep in tune himself without the assistance of half-a-dozen mechanics. Generally speaking, machines designed during the war were so planned that even the smallest adjustment to the engine was a matter of extreme difficulty. In some cases a machine had to be partially dismantled before any adjustment could be made to the carburetter or magneto. No motorist would tolerate a car so designed that the body had to be removed and the engine taken out of the chassis before the points of the magneto could be adjusted.

For commercial and pleasure purposes in order to save labour it will be necessary for aeroplane designers to give much more attention to "get-at-ability." A few post-war low-powered machines show that some consideration has been given to this point, but there is still much to be done.

An Altitude Record Claimed.

On July 25th, Roland Rohlfs, a Curtiss test pilot, claimed an American altitude record by ascending to a height of 31,100 ft. The machine used was a Curtiss "Wasp" triplane with a 400 h.p. Curtiss engine. Under Government tests it has attained the speed of 160 m.p.h.

An Aerial Photograph of Boulogne taken during the trip of the first machine to fly to Paris on the London-Paris Air Service.

BRITISH RECORD.

The Royal Aero Club has informed D. Napier & Sons, Ltd., that the speed attained by Captain Gathergood when he won the Aerial Derby with a 450 h.p. Napier "Airco" machine on July 21st has been accepted as a British Record for a closed circuit; the speed on that occasion was 129.3 miles per hour.

The magnetos used on the above-mentioned aeroplane were B.T.H. type AC.12s.

The British Thomson-Houston Co., Ltd.,
Lower Ford Street, Coventry, England.
Member of the British gnition Apparatus Association.

B T-H

The WORLD of AERONAUTICS (continued)

Much Pay and No Work.

A Flight Serjeant of the R.A.F. has written to the "Times" as follows :—

" . . . I . . . have earned nothing in the Air Force for months, and have been paid 9s. 3d. a day for it. I have applied on six occasions for demobilisation, and have stated my willingness to forfeit all bounty and pay, quite £50, for an Army discharge. The peace establishment of my present section is one Serjeant; there are now three Flight Serjeants and two Serjeants doing this one-man job. The difference in actual pay is £2 4s. 9d. a day, exclusive of rations, clothing, separation allowances, and accommodation. There are dozens here in a like state. Why we are not demobilised is a mystery. A telegram sent from the Air Ministry on June 3rd, 1919 (Reference A.M.T./950/Demob.) authorised the discharge of N.C.Os. and men enlisting before June, 1916. I enlisted in February, 1916."

Air News.

The "Central Airnews," of 104, High Holborn, W.C.1, is a new venture for the supply of aviation news to the public Press. According to the prospectus :—

"The universal demand for aviation news and articles has led many non-technical editors to accept penny-a-line trash from the pens of office-desk airmen, usually dwelling on the sensational side of flying—such as stunts, crashes, etc. "Central Airnews" was founded to combat this tendency by supplying popularly written yet high-class articles, for the benefit of aviation; and, at the same time, to pay its way by the sale of these articles, news paragraphs, photos, etc."

The venture has one's good wishes.

The Truth.

In an article upon the use of aeroplanes for mail carrying " Truth " says :—

" The aeroplane is a machine that must do its work quickly, and then be put on the scrap-heap. The life of its engine is only about 100 hours, but if in the 10,000 or 12,000 miles it travels in that time it can earn its own cost and a fair profit for its owners it is all to the good of trade and progress to scrap it for something newer and better. A point that Mr. Illingworth and others who think in terms of efficiency would do well to bear in mind is that the aeroplane in flight is, by reason of its vastly superior speed, more efficient than any other vehicle of locomotion, and that is surely worth something in these days."

One agrees with most of the views expressed, but one can assure "Truth" that the life of a modern aero engine is considerably more than 100 hours.

Grumbles.

The new rank titles have not been received with pæans of joy by the R.A.F. It was not to be expected that the changes would be welcomed, for we are all inclined to be conservative. Critics say that the rank titles are an unpleasing mixture of those of the Navy and Army, for example, Marshal is distinctly an Army rank, Commodore Naval, Commander suggests the Navy, and Squadron Leader turns over thoughts to Cavalry.

The junior ranks appear to be most disturbed. Sec. Lieuts. say that Pilot Officer does not sound like a commissioned rank; it suggests Petty Officer or Warrant Officer. Flight Lieutenant is generally considered a poor substitute for Captain, which was a rank that the general public understood.

The prefix "Flight" to the public does not imply a unit; to them it means aviation. It may possibly please a few administrative Captains to bask in the glamour of a title that implies to the populace that they fly, but they are by no means pleased to return to the rank of Lieutenant which they held for dreary years before promotion came

One has not met many Majors who are pleased with the new title of Squadron Leader. Again, this seems a step back. Colonels who become Group Captains are equally unhappy.

In time the R.A.F. may become accustomed to the new rank titles, but it is useless to pretend that they are popular at present. As somone remarked at the R.A.F. Club the other day, " the only decent thing they can do is to give us all a step up to compensate us. At present it seems that we have all been demoted."

No statement has yet been made as to the position of demobilised officers. A very large proportion of them hold letters from the Air Ministry stating that they are permitted to retain the ranks of Colonel, Major or Captain, as the case may be. Most of them value this courtesy, and the apparent retrogressive step is anything but pleasing. A Colonel who has been given the right to retain that honourable rank for life cannot be expected to feel flattered if he is in future to be known as a Group Captain, a title which, for many years to come, will not indicate to the world the rank he held in the war.

Aeroplane versus Motor-Car.

The " Aircraft Journal " of America tells how an aeroplane was used for the purpose of catching a motorist at Los Angeles.

A motor-cycle officer tried to overtake a speed maniac going at 60 miles an hour or thereabout in one of the suburbs of the city. He was forced to stop due to engine trouble, but being near a commercial aviation field and being an air pilot himself, he obtained the use of an aeroplane and went after the offending motorist at the rate of 90 miles an hour. He made a good landing two miles ahead of the motor culprit, and the latter, slewing down, thinking the pilot was in trouble, was coolly informed that he was under arrest. It was the first case in the court records there of an arrest for automobile speeding by aeroplane.

Out of Work.

An officer, late of the R.A.F., who has been seeking employment since he was demobilised last March, was offered recently a job as commercial traveller for a drapery house. He regarded this as an insult. One knows of others, however, who are acting in the right spirit by taking any work that offers a living wage while they are looking for the position to which they think they are entitled. There is no doubt that many of the stories one hears of hard luck are due to the fact that large numbers of young pilots have been spoiled by the high pay and rank they enjoyed in the R.A.F. and are not ready to take positions that they would have accepted gladly before the war. One meets hundreds who idle the time away so long as their gratuities hold out, and then wail about the treatment they receive from an ungrateful country. These are not the type needed to-day for the work of reconstruction, and it is not surprising that when they do come to the end of their ready money they find themselves unable to obtain positions of any sort. There are some cases that are deserving of sympathy, but not these.

A Sports Meeting.

The staff and employees of the Weybridge Works of Vickers, Ltd., held a successful second annual sports meeting at Byfleet on Aug. 23rd, which was organised by Mr. C. Choate.

Although the ground was not an ideal one for the purposes of an athletic meeting, good tracks were prepared, and some 2,000 spectators witnessed keen running and close finishes.

The finish of the final of the 100 Yards Open Handicap was very close, S. Usher (of the Army Gymnastic Staff and Surrey Athletic Club) just beating W. A. Hill (Amateur 100 and 220 Yards Champion) by a foot in 9 4-5 sec.

Prior to the sports an informal luncheon was served in a large marquee erected on the ground.

Included among the company who sat down were Sir Arthur Whitten Brown, K.B.E., Lady Brown, Sir John Alcock, K.B.E., D.S.C., and his fiancée, Capt. Vickers, Capt. Acland (Chief of Vickers Aviation Department), Mr. and Mrs. Raynham, Mr. and Mrs. P. Maxwell-Muller, Capt. Green, Lieut. Wilson, Mr. A. Knight (Works Manager), and Mr. R. K. Pierson (Chief Designer).

There were no speeches, but one might almost say that it was a farewell luncheon to Sir A. Whitten Brown, as he is leaving England on Sept. 20th for America, where he will take part in some special flying.

Perhaps the most attractive feature of the proceedings was the exhibition of the Vickers "Vimy" Transatlantic biplane, which had been thoroughly overhauled. Capt. Sir J. Alcock and Lieut. Sir A. Brown, who were given a great reception, were kept busy accompanying visitors to the machine and explaining the functions of the "joy-stick," etc., to them.

COMING EVENTS.

AUGUST.

Amsterdam Aircraft Exhibition. (Still open.)

SEPTEMBER.

Wednesday, September 3rd.—Henlow Recruiting and Repair Depot, R.A.F. Second annual Sports at the R.A.F. Cricket Ground, Henlow.

Wednesday, September 10th.—Schneider Cup Competition, Bournemouth.

Saturday, Sept. 20th.—14 Wing, R.A.F., Italy. Dinner at the Imperial Restaurant, Regent Street, London.

Friday, Sept. 26th.—40 Squadron, R.A.F. Dinner at place to be announced.

DATES TO BE ANNOUNCED LATER.

Hendon-Paris-Hendon Air Race.

The " Daily Express " £10,000 Prize Competitions.

Hendon-Manchester-Hendon Air Race.

Are Motorists Lazy?

A well-known writer says:

"The A.A. is helping to make them so."

"Speaking as one who has never looked for a salute from A.A. patrols, but who has invariably received it, I have always appreciated their unfailing courtesy and willingness even to go out of their way to assist,

and that is, I think, the experience of most road users, but all the same, I confess to a feeling that in wanting to do so much for the motorist in roadside repairs and tyre changing, the A.A. is quite unconsciously helping to make motorists the laziest people on the road."

The above paragraph, taken from a motoring article in a London daily paper, though acknowledging the efficiency of the Automobile Association's Road Service does not do justice to its comprehensive character.

The khaki-clad A.A. patrol also gives reliable road information, warns members of bad road conditions and indicates alternate routes, renders first aid to man and machine, recovers property dropped on the road, procures replacements, and generally assists members in road difficulties.

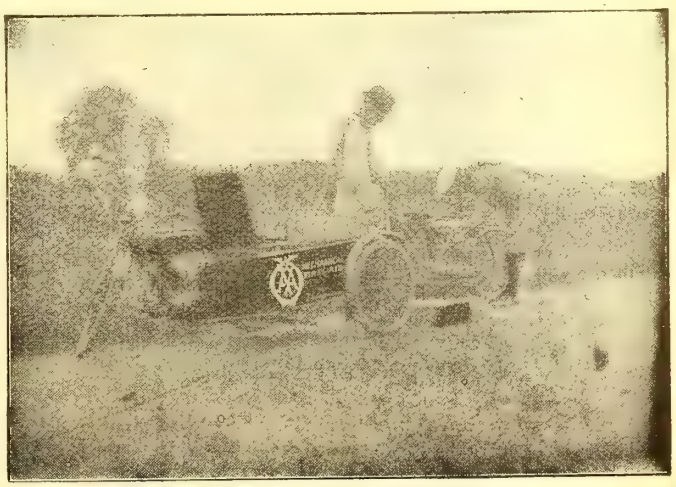
The Roadside Telephone Service—of which the A.A. was the pioneer and remains the sole provider—includes a telephone installation in each patrol's sentry box which is at the service of any member passing.

Officially appointed A.A. Repairers undertake repairs in an efficient manner and provide replacements at reasonable charges whilst A.A. Hotels can be depended on for accommodation really satisfactory to Motorists.

In addition the A.A. supplies members with special routes to any part of the country and provides Free Legal Defence in any police court in the United Kingdom to answer charges under the Motor Car Act or D.O.R.A.

Whether the above privileges tend to make motorists lazy is a debatable point, but there is no denying the fact that they are of great benefit to and much appreciated by members of the Automobile Association.

If you are not a member of the A.A. send a post card to-day to the Secretary, The Automobile Association, 41, Fanum House, Whitcomb Street, London, W.C.2 for a free booklet and other information which will show you how to motor in comfort and safety.



CIVIL AERODROMES.

The following lists of aerodromes are issued by the Air Ministry as an addition to the lists recently published. It may be seen that in the majority of cases the aerodromes referred to below can only be considered as possible emergency landing-grounds. Attention is again drawn to the fact that these lists are purely provisional and subject to alteration or amendment from time to time.

LIST C (2).

Stations Temporarily Retained for Service Purposes.

It should be assumed that no facilities normally exist at these stations for dealing with civil aircraft. The aerodromes, however, may be considered as emergency landing grounds.

Aerodrome.	Nearest railway station and distance in miles.	Nearest town and distance in miles
Beverley	Beverley (1), N.E.R.	Beverley (1)
Boscombe Down	Amesbury (1½), L.S.W.R.	Salisbury (8)
Brooklands	Weybridge (2), L.S.W.R.	Weybridge (2)
Catfirth (s)	Thurso, in Scotland, by boat	Lerwick (9), Shetland Isles
Chattis Hill	Stockbridge (2), L.S.W.R.	Stockbridge (2)
Collinstown	Portmarnock (5), G.N.R.I.	Dublin (6)
Coventry	Coventry (2), L.N.W.R.	Coventry (1)
Crail	Crail (½), N.B.R.	Crail (½)
Cramlington	Cramlington (1), N.E.R.	Newcastle-on-Tyne (7)
Doncaster	Doncaster (1), G.N.R.	Doncaster (1)
Driffield	Driffield (2), G.N.R. and G.E.R.	Driffield (2)
Easton-on-the-Hill	Stamford (3), M.R. and G.N.R.	Peterborough (12)
East Retford	East Retford (3), G.N.R.	Gainsborough (10)
Feltwell	Lakenheath (1½), G.E.R.	Brandon (5½)
Gormanston	Gormanston (1), G.N.R.I.	Drogheda (6)
Gullane	Gullane (1), N.B.R.	North Berwick (4)
Harling Road	Harling Road (¼), G.E.R.	Thetford (6)
Harpswell	Kirton Lindsey (5), G.C.R.	Gainsborough (8)
Helperby	Brafferton (1), N.E.R.	Ripon (8)
Hooton Park	Hooton (2½), L.N.W.R. and G.W.R.	Chester (6)
Killingholme (s)	Harbrough (6), G.C.R. (Siding on Site)	Grimsby (9)
Lake Down	Amesbury (5), L.S.W.R.	Salisbury (7)
Leighterton	Tetbury (6), G.W.R.	Stroud (10)
Lincoln	Lincoln (1), G.N.R. and G.E.R.	Lincoln (1)
London Colney	Radlett (2), M.R.	St. Albans (4)
Lopcombe Corner	Grateley (4), L.S.W.R.	Salisbury (9)
Minchinhampton	Chalford (1), G.W.R.	Stroud (6)
Narborough	Narborough (2½), G.E.R.	Swaffham (5)
Newhaven (s)	Bishopstone (¼), L.B.S.C.R.	Newhaven (2)
Northolt	Northolt Junction (½), G.W.R. and G.C.R.	Uxbridge (1)
Norwich	Norwich Thorpe (1), G.E.R.	Norwich (2)
Penston	Macmeray (1), N.B.R.	Haddington (5)
Port Meadow, Oxford	Oxford (2), G.W.R.	Oxford (1)
Rendcombe	Foss Cross (2½), M.R. and L.S.W.R.	Cirencester (6)
Rochford	Rochford (1), G.E.R.	Southend (5)
Seaton Carew	Seaton Carew (1), N.E.R.	West Hartlepool (6)
Sedgeford	Sedgeford (1), G.E.R.	Hunstanton (5)
Shawbury	Hadnall (3), L.N.W.R.	Shrewsbury (10)
Shoreham	Shoreham (1), L.B.S.C.R.	Shoreham-by-Sea (1)
Shrewsbury	Shrewsbury (1½), G.W.R.	Shrewsbury (1)
Tadcaster	Thorrer (2), N.E.R.	Tadcaster (4)
Ternhill	Ternhill (2), G.W.R.	Market Drayton (5)
Thetford	Thetford (2), G.E.R.	Thetford (2)
Throwley	Charing (4), S.E.C.R.	Faversham (6)
Upper Heyford	Lower Heyford (2), G.W.R.	Bicester (6)
Waddington	Waddington (1½), G.N.R.	Lincoln (5)
Westgate (s)	Westgate (¾), S.E.C.R.	Westgate-on-Sea (¼)
Whitley Abbey	Coventry (2), L.N.W.R.	Coventry (2)
Witney	Witney (2), G.W.R.	Oxford (12)
Wittering	Stamford (3), G.N.R. and M.R.	Peterborough (10)
Yatesbury	Calne (5), G.W.R.	Marlborough (9)

LIST D (a).

Aerodromes Licensed for all but larger types of Aircraft.

Yeovil	Yeovil (1½), G.W.R. and L.S.W.R.	Yeovil (½), Somerset.

LIST D (b).

Aerodromes Licensed as suitable for "Avro 504 K and similar types of aircraft" only. Except in a very few instances accommodation does not exist. The licences have also been issued for limited periods only.

Aerodrome.	Nearest railway station and distance in miles.	Nearest town and distance in miles
Aberystwyth	Aberystwyth (½), G.W.R.	Aberystwyth (½), Cardigan.
Chesterfield	Chesterfield (2), M.R.	Chesterfield (2), Derby.
Conway	Conway (1), L.N.W.R.	Conway (1), Carnarvon.
Derby	Normanton (1½), M.R.	Derby
Herne Bay	Herne Bay (1), S.E.C.R.	Herne Bay (½), Kent.
Nottingham	Nottingham (2), M.R., G.N.R., and G.C.R.	Nottingham
	Situated on Sands Not Available at High Tide.	
Hunstanton	Hunstanton (½), G.E.R.	Hunstanton (½), Norfolk.
Llanelly	Llanelly (1), G.W.R.	Llanelly (½), Carmarthen.
Ramsey, I.O.M.	Ramsey (¼), I.O.M.	Ramsey (½), I.O.M.
Rothesay, Etherick Bay	By boat to mainland	Rothesay (4), Isle of Bute.
Southport	Southport (1), L.Y.R.	Southport (½), Lancs.
Swansea	Swansea (1), G.W.R.	Swansea (½), Glamorgan.
Weston-super-Mare	Weston-super-Mare (½), G.W.R.	Weston-super-Mare (½), Somerset

ROLLS ROYCE

WARNING

Changes to Rolls-Royce Cars

Rolls-Royce Ltd. have recently learned that attempts are being made by certain persons to "bring up to date" pre-war Rolls-Royce chassis by substituting for Rolls-Royce Springs of old type cantilever springs which are not of Rolls-Royce manufacture; also by substituting other radiators and bonnets which are not of Rolls-Royce manufacture. Some of these changes have been brought to the attention of the Company, who have found them to be not only unsatisfactory but possibly dangerous to the users. Owners who are asked to have such changes made to their Rolls-Royce cars, or potential purchasers of Rolls-Royce cars on which such changes have been made or may be suspected, should communicate with Rolls-Royce Ltd., 15, Conduit Street, London, W.1, and the Company will, for a small fee, inspect the chassis in question and inform the applicant what parts, if any, are not supplied by Rolls-Royce, and what the effect of such parts in their opinion is likely to be. Furthermore, any such alterations which interfere with or depart from Rolls-Royce standards will probably put the car out of action for an indefinite period in cases of accident or breakage, as Rolls-Royce new parts cannot be expected to replace foreign broken parts in a "bedevilled" chassis.

ROLLS-ROYCE Ltd., 14 & 15, Conduit Street, London, W.1.

Telegrams: "Rolhead, Reg., London." Telephone: Gerrard 1654, 1655, 1656.

LIST E.

Stations No Longer in Use by the R.A.F.

These stations have been passed to the Government Surplus Property Disposal Board. They will be relinquished as soon as the Government property thereon has been disposed of. In many cases the aerodromes are now under cultivation, but it is probable that the sites still form the best emergency landing grounds in the immediate neighbourhood.

Aerodrome.	Nearest railway station and distance in miles.	Nearest town and distance in miles
ALDEBURGH	Aldeburgh (2), G.E.R.	Aldeburgh (2)
ASHINGTON	Longhirst (1), N.E.R.	Morpeth (5)
ATHLONE	Athlone (2), M.G.W.R.	Athlone (2)
ATWICK	Hornsea (3), G.N.R.	Driffield (10)
AYR	Ayr (1), G. & S.W.R.	Ayr (1)
BACTON (c)	North Walsham (4), G.E.R.	Norwich
BEAULIEU	Brockenhurst (6), L.S.W.R.	Southampton (10)
BEKESBOURNE	Bekesbourne (1), S.E.C.R.	Canterbury (4)
BEMBRIDGE	Bembridge (½), I. of W. Rly.	Ryde (6)
BEMBRIDGE (s)	Bembridge (¼), I. of W. Rly.	Ryde (6)
BURGH CASTLE	Great Yarmouth (2), G.E.R.	Great Yarmouth (2)
BUTLEY	Melton (3), G.E.R.	Woodbridge (5)
CATTERICK	Catterick Bridge (1½), N.E.R.	Richmond (6)
CHICKERELL	Weymouth (1), G.W.R. and L.S.W.R.	Weymouth (1)
CHINGFORD	Ponders End (½), G.E.R.	Chingford (2)
COPMANTHORPE	Copmanthorpe (¼), N.E.R. and G.N.R.	York (5)
COVEHITHE (c)	Southwold (5), G.E.R.	Southwold (5)
EDZELL	Edzell (2), Cal. Rly.	Montrose (9)
ELMSWELL	Elmswell (2), G.E.R.	Bury St. Edmund's (10)
ELSHAM	Elsham (3), G.C.R.	Barton-on-Humber (6)
FAIRLOP	Fairlop (1), G.E.R.	Romford (4), Essex
GOLDHANGER	Maldon (3), G.E.R.	Maldon (3)
GORING-BY-SEA (c)	Goring-by-the-Sea (½), L.B.S.C.R.	Worthing (2)
GREENLAND TOP	Stallingborough (1½), G.N.R.	Grimsby (7)
HADLEIGH	Ipswich (9), G.E.R.	Ipswich (9)
HAINAULT FARM	Goodmayes (1¾), G.E.R.	London (8)
HAMBLE (s)	Netley (3), L.S.W.R.	Southampton (5)
HOLT	Holt (4), N. & G.N.J.R.	Norwich (11)
JOYCE GREEN	Dartford (2), S.E.C.R.	Dartford (2)
KIRTON LINDSEY	Kirton Lindsey (1½), G.C.R.	Gainsborough (12)
LEADENHAM	Leadenham (1), G.W.R.	Grantham (12)
LILBOURNE	Cliftonmill (1½), L.N.W.R.	Rugby (3)
MACHRIHANISH (c)	Campbeltown (2), on Campbeltown and Machrihanish Light Rly., from Campbeltown by Steamers	Campbeltown (2)
MANYWELL HEIGHTS	Bradford (5), G.N.R.	Bradford (5)
MARDEN	Marden (1), S.E.C.R.	Tonbridge (6)
MATTISHALL (c)	East Dereham (5), G.E.R.	East Dereham (5)
NEW HAGGERSTON (c)	New Haggerston (2½), N.E.R.	Berwick-on-Tweed (7)
NEW HOLLAND	New Holland (¼), G.N.R. and G.C.R.	New Holland (¼)
NEWMARKET	Newmarket (1), G.E.R.	Newmarket (1)
NEWLYN (s)	Penzance (2), G.W.R.	Penzance (2)
OMAGH	Omagh (2), G.N.R.I.	Omagh (2)
OWTHORNE	Withernsea (½), G.W.R.	Hull (16)
PADSTOW (c)	Padstow (2), G.W.R.	Bodmin (12)
PENSHURST	Penshurst (1), S.E.C.R.	Tunbridge Wells
PETERHEAD (s)	Peterhead (1), G.N. of S. Rly.	Peterhead (1)
PORTHOLME	Huntingdon (1), G.N.R.	Huntingdon (1)
PRAWLE POINT	Kingsbridge (7), G.W.R.	Plymouth (22)
REDCAR	Redcar (1½), N.E.R.	Middlesbrough (6)
RIPON RACECOURSE	Ripon (2), G.N.R.	Ripon (2)
RUSTINGTON	Angmering (1), L.B.S.C.R.	Littlehampton (2)
SCALE HALL	Lancaster (1), L.N.W.R.	Lancaster (1)
SEAHOUSES	North Sunderland (1), N.E.R.	Alnwick (12)
SOUTHBOURNE (c)	Southbourne Halt (½), Emsworth (2), L.B.S.C.R.	Chichester (6)
STENNESS (s)	To Thurso by boat	Kirkwall (10), Orkney Islands
STOW MARIES	Cold Norton (2), G.E.R.	Maldon (5)
STRATHBEG (s)	Lomax (6), G.N. & S.R.	Peterhead (8)
TYDD ST. MARY (c)	Tydd (2), M.R. and G.W.R.	Long Sutton (3)
TYNEMOUTH	Tynemouth (1), N.E.R.	Newcastle-on-Tyne (8)
TURNBERRY	Turnberry (½), G.S.W.R.	Ayr (14)
UPWOOD (BURY)	Ramsey (2), G.E.R. and G.N.R.	Wyton (6)
USWORTH	East Boldon (1), N.E.R.	Sunderland (6)
WALMER	Walmer (1¼), S.E.C.R.	Walmer (¼)
WEST AYTON	Forge Valley (½), N.E.R.	Scarborough (5)
WESTWARD HO!	Northam, via Bideford (1), L.S.W.R.	Westward Ho (1)
WHITEBURN	Grants House (4), N.B.R.	Duns (8)
WYE	Wye (1), S.E.C.R.	Ashford (4)
WYTON	Huntingdon (5), G.N.R.	Huntingdon (5)

REFERENCES.—(s) Seaplane station. (c) Known to be under cultivation or otherwise unsuitable for landing.

AN AERODROME FOR SALE.

It is announced that the Ford aerodrome near Littlehampton, Sussex, is for sale as an aerodrome. It covers 167 acres, and has accommodation for three squadrons.

The Disposal Board of the Ministry of Munitions states that the buildings are of brick and timber. Water and electric power have been provided, the roads have been macadamised, and there is railway connection. The site is occupied by the Government under the Defence of the Realm Regulations, but can, if necessary, be purchased under, and subject to, the provisions of the Defence of the Realm (Acquisition of Lands) Act, 1916. Further information can be obtained at Charing Cross Buildings, London, W.C.2.

THE SALE OF BRITISH AIRSHIPS.

The Air Ministry announces that in view of the decision of the Government to curtail their airship programme, it has been decided to place certain airships, airship stations, stores, etc., on terms to be agreed, at the disposal of interested parties with a view to the commercial development of this type of aircraft. It is proposed as an initial step to hold a conference in connection with this matter on September 8th, at 3 p.m., in the Lower Hall, Australia House, at which the Under Secretary of State for Air will preside.

Bona fide applications from individuals or firms should be made to the Air Ministry (C.G.C.A.) for permits to be present.

Beardmore

THE WINGS OF COMMERCE will be vitally assisted by BEARDMORE AERO ENGINES

THE BEARDMORE IS NOT MADE FOR EXHIBITION STUNTS BUT FOR EVERY DAY SERVICE

Many leading Aircraft Manufacturers are adopting this famous engine as STANDARD POWER UNIT.

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AeroEngines

C.D.C.

AIRCRAFT FINANCE

Lloyd's and Aviation Methods.

Just now the sceptics are elated. Doubtless they magnify the deficiencies of the present-day aeroplane as an economically sound commercial proposition, as the unsullied enthusiasts exaggerate its capabilities. In both cases one can diagnose mental astigmatism.

Possibly the enthusiast is to be blamed equally as much as the sceptic, if not more so. Any way, it is maintained that commercial aviation is metaphorically trying to jump before it has learned how to walk.

Landing-Grounds Every Ten Miles.

On all long-distance aerial trade routes there should be landing-grounds every ten miles. These fields need not be exclusively devoted to aviation. They need not be owned by the aerial transport company or companies. So long as they are not under crop, but are used for cattle and sheep and physically conform to the requirements of grounding an aeroplane, they would serve the purpose excellently well.

Separated at intervals of ten miles in a defined aerial route, say, between London and Paris, they would be marked so as to be observable from "up above." Therefore, in the event of engine trouble or anything necessitating a forced landing, the pilot would be able to act with precision and without risking his own life and machine, etc., in a precipitate descent on unsuitable ground.

The Cost Would Not Be Large.

The cost would be trivial; in many cases it would not exceed a nominal rental. The effect would be beneficial because pilots, being acquainted with the existence of these reserved landing-grounds, would be more confident. This greater sense of security would obviously stimulate business, and insurance charges would be reduced automatically.

At first sight the idea may seem preposterously cautious; however, it is nothing of the sort. Great advances have been made with aero-engines, but, as everyone must candidly admit, they are not perfect, and frequently go wrong without warning.

The Registration of Navigators.

And there is another aspect of present-day commercial aerial transport that calls for serious consideration. It is the human factor. Quite true, there are regulations governing pilots and navigators; but, if one is to believe certain competent authorities connected with Lloyd's, such regulations are really of no intrinsic value.

Lloyd's—that is to say, those underwriters who specialise in aviation risks—demand a more business-like and scientific scheme regulating aerial navigators. They want something equal to the Board of Trade control over the officials of the mercantile marine. Having regard to the age of the new industry, perhaps they are asking too much. At the same time it must be admitted that the qualifications of a first-class fighting man are not necessarily those needed for an ordinary commercial venture.

A High Level of Intelligence.

What is wanted is a system of registration based on all that is known of the science of aviation. In order to secure the right to navigate a commercial aeroplane, the pilot must prove his competency by examination, as is the case with officers of the mercantile marine.

It is not fair, perhaps, to draw a strict comparison with the mercantile marine system; the aircraft pilot is half an engineer and half a navigator, whereas the two classes are quite distinct in the mercantile marine. This is a point that is overlooked by many people, who fail to recognise that, in order to obtain full qualification, the airman must be no ordinary person, but a bit of a scientist too.

In demanding an up-to-date system Lloyd's is thinking as much of its own interests as of the future of commercial aviation. Of course, as the losses diminish, the premiums on aviation risks must be reduced correspondingly, which is a goal worth striving for.

W. J. Davis.

CURRENT TOPICS.

Whitehead Aircraft, Ltd.

In pursuance of the provisions of the Companies (Consolidation) Act, a meeting of the creditors of the above was held on August 15th at the Cannon Street Hotel, London, E.C. The Chair was occupied by Mr. O. Sunderland, of the Automobile Trades Guardian Association, 15, Eastcheap, E.C.

The Chairman said it would be recollected that the company had passed resolutions in favour of voluntary liquidation and he had been appointed to act as liquidator to represent the interests of the creditors, while Mr. Oldham had been appointed to act with him to watch the interests of the shareholders. Meetings of the creditors had previously been held, at which figures from the last balance sheet of the company were presented. That balance sheet showed assets of £1,041,258, made up as follows: freehold and leasehold land and buildings, plant, machinery, fixtures, motor-cars, lorries, tools, jigs, flying-school equipment and goodwill as acquired from the vendor company with additions to date, less depreciation written off, £634,063; furniture, utensils, improvements, equipment and horses at cost with additions to date less depreciation written off, consumable stores and farm stock as valued by the company's officials £22,188; stock-in-trade and work in progress as valued by the company's officials £242,629; sundry debtors £54,855; amount due in respect of property sold with interest accrued thereon secured by second mortgage debenture £17,456; cash in hand £438; sundry unexpired portions of insurance, etc., £1,554; commission on shares issued £35,625; preliminary expenses £32,451.

On the liabilities side of the balance sheet were the following: share capital issued £518,697, less calls in arrears £1,652, leaving the net amount of issued capital at £517,044; first mortgage debentures and interest accrued thereon £147,015; advances by H.M. Government with interest accrued thereon secured by second mortgage debentures £203,009; cash due to bankers £10,301; sundry creditors £125,312; liquidator of Whitehead Aircraft, Ltd., £6,780; premiums on shares issued £21,310, and balance from profit and loss account £10,382. The authorised share capital of the company was £1,000,000, divided into 300,000 preference shares of £1 each, 650,000 ordinary shares of £1 each, and one million deferred ordinary shares of 1s. each.

Mr. Sunderland recalled the fact that two earlier meetings of the creditors had been held, when a committee was appointed to represent the interests of the creditors. That committee had suggested that the company should go into voluntary liquidation. He, as the chairman of the committee, was nominated as one of the liquidators to represent the interests of the trade creditors. Meetings of the shareholders were subsequently held, under the presidency of Lord Wemyss, when resolutions for the voluntary liquidation were carried by a very large majority. At the confirmatory meeting of the shareholders the resolutions were agreed to with practical unanimity. A petition for the compulsory winding up of the company had been presented, and had been before the Court on three occasions. He thought he could say that there was very little prospect indeed, judging from the remarks of the judge, of the petition succeeding. After the first meeting of the creditors at the First Avenue Hotel, the committee decided that they should get into communication with Mr. Ambrose Taylor, of the Cosmos Consolidated, Ltd., who negotiated for the taking over of the whole of the undertaking of the company at a figure which would allow of the creditors all being paid in full, while arrangements would also be made for the preference and ordinary shareholders in the concern to get something. Mr. Taylor had been given every facility to go down to the works of the company in order to make his own valuation of the assets for the purpose of making his offer. Within two or three days at the latest Mr. Taylor would

London-Paris Air Express

First Week's Record

			Offical Weather Reports.
Monday	Left London ...	12.30	Wind in Channel. Low Clouds with rain. Haze.
	Arr. Paris	2.45	
	Left Paris	12.30	
	Arr. London ...	2.45	
Tuesday	Left London ...	1.15	Forty miles an hour wind in Channel. Low Clouds. Rain.
	Arr. Paris	3.30	
	Left Paris	12.30	
	Arr. London ...	3.20	
Wednesday	Left London ...	12.43	35—40 miles an hour wind. Very gusty. Clouds only 800 feet nigh.
	Arr. Paris	3.10	
	Left Paris	12.30	
	Arr. London ...	3.20	
Thursday	Left London ...	——*	Hundred miles an hour hurricane in Channel.
	Arr. Paris	——*	
	Left Paris	12.30	Continuous heavy rain.
	Arr. London ...	2.20	
Friday	Left London ...	12.30	Rain at times. Low Clouds.
	Arr. Paris	2.45	
	Left Paris	12.30	
	Arr. London ...	3.0	
Saturday	Left London ...	12.30	North-westerly wind. Twenty miles an hour. Patches of low cloud.
	Arr. Paris	2.55	
	Left Paris	12.30	
	Arr. London ...	3.10	

* On Thursday the passengers and goods on this service were diverted to an alternate route because the wind was blowing in gusts at hurricane strength; rain was descending with torrential force, and masses of clouds were within 100 feet of the ground.

The attention of Bankers, Merchants, and firms who have houses both in London and Paris is drawn to the unique facilities afforded by the service, which will permit passengers, urgent documents, or express goods to be transported the 250 miles between London and Paris in an average time of 2¼ hours. The service, which has just been operated daily through a week of most tempestuous weather, has been started in order to demonstrate that, with the use of skilled pilots and fast machines, such an express air service can now be run with sufficient reliability to afford a definite, daily convenience to the business world.

LONDON:
AIRCRAFT TRANSPORT & TRAVEL, LTD.,
27, Buckingham Gate, S.W.1.

PARIS:
COMPAGNIE GÉNÉRALE TRANSAERIENNE,
118, Champs Elysee,

Full particulars regarding Rates and Freights can be obtained from Aircraft Transport & Travel, Ltd., 27, Buckingham Gate, S.W.1., or from American Express Co., Queen Street and Haymarket; Thos. Cook & Son, Ludgate Circus, E.C.; General Transport, Ltd., 52, Crutched Friars; J. Jackson & Sons, 7-8, Charing Cross; Henry Johnson & Sons, 18, Byward Street; Lepaerial Travel, Piccadilly Circus (Criterion corner); Carter Patterson & Co., 6, Maddox Street, W., and 3, Cannon Street, E.C.; and Hernu Peron & Co., 98-100, Queen Victoria Street, E.C.

be making his offer. The latter would undoubtedly be one that would allow of all the creditors being paid in full.

A creditor asked how much was due to creditors at the present time, and Mr. Sunderland said that the amount due to the creditors was in the neighbourhood of £60,000. The liabilities shown in the balance sheet included the issued share capital of the company. The amount due to the debenture holders was £143,000, while £60,000 was owing to the Ministry of Munitions. The assets shown in the balance sheet were in excess of a million sterling.

Mr. A. Houston said he understood that a receiver had been appointed to act on behalf of the debenture holders. He inquired if the receiver was well disposed towards the creditors, and pointed out that if he was not he might have power to wreck any scheme.

Mr. Sunderland said the debenture holders were the Investment Registry, whose claim amounted to more than £140,000, and it was at the suggestion of the committee of the creditors that a receiver was appointed. The committee recommended that that course should be followed in order that the assets might be protected as proceedings had been commenced against the company.

Mr. Houston asked if more than one petition had been presented to the Court, and the chairman said it would be recollected that one of the petitioning creditors had already intimated that he would work with the other creditors in the matter. He suggested that the meeting should agree to an application being made to the Court for the appointment of a Committee of Inspection, and that the committee should also have power to apply for a supervision order. If a supervision order was made that would be a direct answer to any petition that was presented.

Mr. E. H. Hawkins (Messrs. Poppleton, Appleby and Hawkins) said it was not an ordinary meeting of creditors as they were all to be paid in full. He proposed a resolution confirming the voluntary liquidation of the company with Mr. Sunderland and Mr. Oldham as liquidators, and the appointment of a Committee of Inspection consisting of the representatives of the Palmer Tyre Co., Austers, Ltd., Matthews and Yates, Falcon Airscrew Co., and Bruntons and Co. Power was also given for an application being made to the Court for a supervision order.

The resolution was duly seconded and carried unanimously.

The following are creditors:—

	£
Anglo-American Oil Co....	3
Boyer, W., and Sons	14
Barber, E. L.	105
Consolidated Pneumatic Tool Co., Ltd.	5
Canning, W., and Co. ...	7
Ellis, C., and Sons	9
Earle Bourne and Co., Ltd.	57
"Financial World"	43
Forward Sparking Plug Co.	6
Grove Chemical Co., Ltd.	6
Oriental Tube Co., Ltd....	13
Royal Aircraft Factory ...	2654
Triplex Safety Glass Co., Ltd.	3
Westinghouse Cooper Hewitt Co., Ltd.	12
Aircraft Press, Ltd.	72
The British Trade Review	8
Willing and Co., Ltd. ...	3
"Flight"	64
Aeroplane and General Publishing Co.....	99
The Joy-Stick	150
Jackson, E. H., and Co....	78
Scott, T. G., and Son ...	10
Scott, T. G. ("Aeronautical Journal")	6
Vaus and Crampton, Ltd.	3
"Merchant Service Review and Empire Trade Gazette"	32
"Aeronautics"	119
Indian and Eastern Eng.	23
Speke, L. V.....	11
Tinlings, Ltd.	21
Taylor, W.	65
Wasley, R.	7
West Indian Producers ...	25
White, R., and Sons	21
Wright, J.	10
Yeates, A., and Sons	25
Bird, A., and Sons	8
Burrows, W. and J., Ltd.	53
Batger and Co.....	11
Burroughs and Watts, Ltd.	46
Broad and Co.	20
Hopton and Sons	136
British Fire Appliances Co., Ltd.	16
Bristow, G., Ltd.....	14
Benson, J.	4
British Patent Perforated Paper Co.	11
T. W. Breach	48
Brentnall and Cleland ...	17
Blundell, J., and Sons ...	15
Boilerine, Ltd.	7
Brunton and Son	21
Bluebell Polish Co.	3
Beacon Stone Co., Ltd. ...	147
Barimar, Ltd.	17
Brown Lenox and Co., Ltd.	33
Cash Supply Stores.....	71
Cellon, Ltd.	634
Cobbetts Newling and Co., Ltd.....	9
Carborundum Co., Ltd.	17
Collings, F.	4
Cockburn, W.	8
Curtiss and Harvey, Ltd.	20
Cannon, B., and Co , Ltd.	42
Crypto Electrical Co.	8
Commercial India Rubber Manufacturing and Supply Co., Ltd.....	23
Cort, A., and Co.	3
Connolly, J. W. and T., Ltd.	24
Camroux, Q. M., and Co.	111
Cavilla, Chas.	5
Connolly Bros. (Curriers), Ltd.	10
Clark, Forster and Co. ...	19
Cording, C., Ltd.	40
Doulton and Co.	103
Dewrance and Co.	9
Dunhills, Ltd.	21
Dick, W. B., and Co., Ltd.	305
Dawe, C. C., Ltd.	52
Dart Spring Co.	10
Dental Manufacturing Co., Ltd.	17
Dawbarn, A. G.	38
East London Rubber Co.	85
Christie, B. B., and Co....	14
Dankes and Co., Ltd.....	36
Davis, R., and Sons	4
Dennis, E.....	5
Ferguson Holness and Co., Ltd.	126
Howitt, A.	54
Harden and Co.	11
Isleworth Brewery	186
Lyons, J., and Co., Ltd....	16
Purtons	4
Acetylene Equipment Co. Ltd.	12
Ashby, W., and Sons	55
Aston Construction Co., Ltd.	12
Associated Portland Cement Manufacturing (1900), Ltd.	25
Aluminium Corporation Ltd.	101
Acetylene Corporation of Great Britain, Ltd.	42
Albert Wicker Manufacturing Co.	56
Aspinalls Enamel, Ltd. ...	177
Austin, E., and Sons	145
Ariel Motors and General Repairs	8
British Emaillite Co. Ltd.	772
British Oxygen Co., Ltd.	125
Brown Bros., Ltd.	100
British Aluminium Co., Ltd.	4
Baxter and Wray.....	4
Broad, J. M., and Co. ...	87
Berry, F., and Co.	39
Donne and Williams (1909), Ltd.	10
Electric Hose and Rubber Co., Ltd.....	9
"Engineering"	2
Ensor, L.	3
Economic Electric, Ltd....	7
Edge, J.	125
Edison Swan Electric Co., Ltd.	150
Edwards and Son.....	16
Electric and Ordnance Accessories Co., Ltd. ...	7
Evershed and Vignoles, Ltd.	3
Educational Supply Association, Ltd.	6
Fielding and Platt, Ltd.	8
Ford Motor Co., Ltd. ...	6
Ford Motor Co., Ltd.....	4
Froy, Wm., and Sons, Ltd.	11
Falcon Airscrew Co.	1167
Fletcher Russell and Co...	2
French, E. O.	792
The Fairbanks Co.	2
Gridley and Co.	5
Gledhill Brook Time Recorders, Ltd.	2
Glenfield and Kennedy ...	6
Wm. Good and Son	43
Greening, N., and Sons, Ltd.	2
Goldberg, Y.	152
Gasson, H. J.	3
Guilliet and Co.	4
Goodwin, A., and Son, Ltd.	5

(To be continued.)

VOLUNTARY LIQUIDATION.

Nicholson and Lord, Ltd., aeroplane manufacturers, etc., Walsall, Staffordshire.

The creditors herein were called together on Aug. 26th at the Institute of Chartered Accountants, Moorgate Street, E.C. The Chair was occupied by Mr. T. G. Mellors, C.A., of Nottingham, who stated that he had been appointed to act as the liquidator in the voluntary liquidation of the company He added that there were three businesses carried on, and it was extremely difficult to ascertain the liabilities and assets of the different concerns. He had, therefore, included all the assets and liabilities of the three businesses in the statement of affairs. The statement showed unsecured liabilities of £20,577, while there were fully secured creditors for £14,999.

The securities held were estimated to realise £32,830, or an apparent surplus of £17,830. In addition, there were contingent liabilities of £155,000, but, at the moment, it was impossible to estimate what portion would rank for dividend. The assets were estimated to realise £34,752, from which had to be deducted £602 for preferential claims, leaving net assets of £34,149, or a surplus as regarded the unsecured creditors of £13,572.

The issued share capital of the company was £60,000, and as regarded the contributories there was a deficiency of £46,427. The principal secured creditors were Messrs. John Dawson and Co. (Newcastle), Ltd., who claimed £12,000 in respect of certain bills and cash advanced. Lieut.-Gen. Sir Arthur Sloggett was also a secured creditor for £2,000, for money lent. The contingent liabilities were in connection with large orders which had been placed in this country and America for the supply of goods, some portion of which had been delivered. During the year ended June, 1916, a profit was made of over £700, but in the following 12 months there was a loss of about £4,000. Messrs. John Dawson and Co. (Newcastle), Ltd., had financed the business.

A proposal seemed to have been made for the present concern, John Dawson and Co. (Newcastle), Ltd., and some other concerns to be amalgamated into one large company, but that had not taken place. The company of Nicholson and Lord, Ltd., was only registered on April 30th of the present year, and the agreement for the sale of the business to the company was dated May 14th, 1919. The consideration for the transfer of the business to the company was £60,000, which was discharged by the issue of shares, and the company agreed to discharge the liabilities and take over the assets. The creditors decided that an application should be made to the Court for the appointment of Mr. G. G. Poppleton, of Messrs. Poppleton, Appleby and Hawkins, 4, Charterhouse Square, E.C., and Birmingham, and Mr. A. C Vincent, of 13, Queen Street, E.C., to act as joint liquidators in the winding-up of the company with Mr. Mellors. A committee of three of the principal creditors was also nominated.

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THE WEEKLY COMMENTARY.

In a leading article Captain Sayers discusses some possibilities of the man-powered aeroplane, and suggests a new sport which may lead to considerable additions to the present knowledge of atmospheric conditions.

The machines built and projected by the Nieuport and General Aircraft Co. are dealt with in this week's instalment of "Modern British Aeroplanes."

The article upon the work of the American "Altitude Laboratory" is continued. The result of a series of tests on a Hispano-Suiza engine under conditions which correspond to altitudes of up to 30,000 ft. are given. These results are of very great value, and should enable aeroplane designers to estimate, with greater confidence than heretofore, the performance of projected machines at high elevations.

A note and some illustrations, by "Anglo-Dane," give interesting information as to the use of aircraft for civil purposes in Germany, and to the methods adopted to convert war-type machines to that purpose. These methods, it is interesting to note, differ in no way from those practised in this country.

A PROMISING FIELD FOR EXPERIMENT.

By Capt. W. H. SAYERS, late R.A.F.

The daily news-sheets have lately given a considerable amount of space to the feat of the French racing cyclist Poulain, who has succeeded in making a flight of 12 metres upon a flying bicycle.

The idea of the man-propelled flying machine is of great antiquity—there can be little doubt that even prehistoric inventors have come to happy ends in attempts at man-propelled flight—and since the advent of the aeroplane many and wondrous attempts have been made to solve the problem.

So far, most of these have been the work of uninformed enthusiasts carried away by the idea that the secret of flight was to be discovered with the aid of some new mechanism, and the subject has received little consideration from practical aeronautical engineers.

A Question of Speed and Power.

It is well worth while devoting a little time to an elementary investigation of what is and what is not possible. The whole problem is essentially one of power, weight, and speed.

An efficient modern aerofoil may have a ratio of lift to drag of 20 to 1 at its most efficient altitude.

An efficient modern aeroplane complete might reach a gliding angle of nearly 1 in 10.

Allowing for the fact that any aviette, or man-powered aeroplane, must be a slow-speed machine, and that at low speeds, owing to the effect of what are commonly known as "scale corrections," the ratio of lift to drag becomes lower, and that, on the other hand, the man-motor will not require either air or water cooling, and need not, therefore, be burdened with the head-resistance of radiators or their equivalent, it may safely be assumed that an aviette can be built with a gliding angle of at least 1 in 8.

Thus the thrust which must be exerted to maintain level flight under the conditions of minimum resistance is ⅛ of the total weight of the machine and the man.

Therefore the useful power required to maintain flight is equal to $\frac{W \times V}{8}$ ft.-lb. per sec., where W is the total weight and V is the speed of flight in feet per second.

This is at the rate of 0.023 h.p. per 100 lbs. of total weight per foot per second air speed.

The total horse-power which a man can exert is a very variable quantity. Under certain conditions, as running up a flight of stairs, a man may exert nearly 1½ h.p. for a short time. Some short-distance sprint cyclists can undoubtedly exceed this output considerably for 20 sec. or so.

No man can continuously exert 1 h.p. for any long time. Possibly some road-racing cyclists in the best of their form might maintain that power for half an hour or so, but very few men could go on working at any rate over ½ h.p. for an hour. Some very crude experiments made by the writer before the war, on a pedal-cycle turned into a dynamometer, indicated that to get the maximum power output from the cycle-pedalling movement required a very accurate gear adjustment, and that this adjustment varied greatly with the individual and with the conditions.

This is in accord with cycling experience, and the gear which will enable a man to give the maximum continuous output will not allow of his developing his greatest possible output during a few seconds.

If one assume that a man may give ½ h.p. for some appreciable time, and that a man-driven airscrew may develop 60 per cent. efficiency, the product of the total weight which he can support in the air and of the speed at which it is supported will be $\frac{1 \times 550 \times 60 \times 8}{2 \times 100} = 1{,}320$ at a gliding angle of 1 in 8.

The Possibilities.

That is, he might just support 1,300 lb. at 1 ft. per sec., or 650 lb. at 2 ft. per sec., or 130 lb. at 10 ft. per sec.

Even 10 ft. per sec.—about 7 miles per hour—is too

slow an air speed to be practicable. With a gliding angle of 1 in 8 it would not be possible to support much more than 1 lb. for every 4 sq. ft. of wing surface at this speed. As the permissible total weight at that speed is less than that of the average man, flight under these conditions seems impracticable.

Taking, however, the case of an athlete in good condition, capable of exerting, say, 1½ h.p. for a minute or so and 1 h.p. for half an hour, he would be able to keep a 200 lb. machine in level flight at 13 ft. per sec. for an appreciable time, and get a machine of the same weight to just fly at 20 ft. per sec. for a short time.

Now, at 20 ft. per min., the postulated gliding angle of 1 in 8 could probably be reached with a load of 1 lb. per sq. ft., or a machine of 200 sq. ft. and 200 lb. loaded weight; and if a 200 sq. ft. machine can be built for a total weight of 50 lb., a 150 lb. man might be just able to fly on it at 20 ft. per sec. for a few minutes.

It is not impossible to build a 200 sq. ft. glider for a total weight of 50 lb., even including a pedal gear and airscrew. Such a machine would not have the factor of safety demanded from the constructors of modern war machines, but then it will scarcely need it.

The figures which have been given are, of course, very rough estimates of what is possible—they are rather conservative if anything—and they show that, given careful design, it should be possible for a man to maintain himself in the air, for a short time and at a low air speed, by his own exertion. At the first glance this would seem to indicate that there is little use in pursuing the subject, except purely from a sporting point of view.

This, however, is not an entirely correct interpretation.

Soaring.

Most people who are in any way interested in aeronautics have heard of soaring flight. Many of them—even amongst those resident in this country—have seen the phenomenon and have watched birds holding their position, and even rising to a very considerable height—one sufficient to allow of a glide of several miles before landing—under favourable conditions, particularly in fairly hilly country.

It is also fairly well known that soaring flights have been made by man-carrying gliders, and that the accumulated evidence of experience with gliders, power-driven aeroplanes, and of that obtained from the observation of birds, show that soaring flight is undubitably—in the majority of cases—a phenomenon associated with rising currents of air.

Soaring flight of this type can only occur when the rate of ascent of the air current is equal to or greater than the minimum speed of descent of the aircraft.

The speed of descent of an aeroplane which has a gliding angle of 1 in 10 at a speed of 60 m.p.h. (88 ft. per sec.) is 8.8 ft. per sec., and at that speed and gliding angle it cannot soar in an up current of less vertical velocity than 8.8 ft. per sec. Up currents with this velocity are scarce in this climate, except as momentary occurrences, and soaring flight in such an aeroplane is therefore impracticable.

A man-powered aeroplane with a gliding angle of 1 in 8, at 20 ft. per sec., could soar in any up current whose vertical velocity exceeded 2½ ft. per sec.

There are grounds for believing that upward currents of fair extent and reasonable steadiness of about this velocity are not uncommon in England, and that soaring flight in such a machine would be quite possible under the conditions in which birds are found to soar with fair regularity.

Attempts to soar in a non-powered glider have never been conspicuously successful. Generally the evidence points to suitable air conditions occurring only over ground unsuitable for taking off and landing on with a glider.

On the other hand, there are many places in this country, and many more in some others, where it would be quite possible to take off on the top of fairly high ground and reach a landing ground in a valley below upon any reasonably controllable and fairly low speed glider, and where it would be possible, if one were able to fly level, or nearly level, after taking off, for half a mile or so, to reach positions where birds are known to soar without going out of gliding range of the landing ground.

Thus just that capacity which the aviette promises would be of immense help in investigating the possibilities of soaring on very lightly loaded aircraft, and such an investigation might lead to really useful results.

Any really successful solution of the soaring-flight problem has obvious possibilities from the sporting point of view, and even this aspect promises a very fair return for the expenses of experimentation.

Under certain conditions there might be a commercial value attached to this form of locomotion, but, over and above these possibilities, an aeroplane capable of soaring would be an extremely useful instrument for exploring the air and investigating the very complex local disturbances which occur therein.

A New Sport.

In its early stages "soar-hunting" will probably be a fairly dangerous pastime, but in the present state of aeronautical engineering, and with the enormous number of skilled pilots who are seeking for an outlet for their abilities, it should be possible to carry out a large amount of experimental work in this direction at a risk much smaller than that which attended the efforts at power flight of ten years ago.

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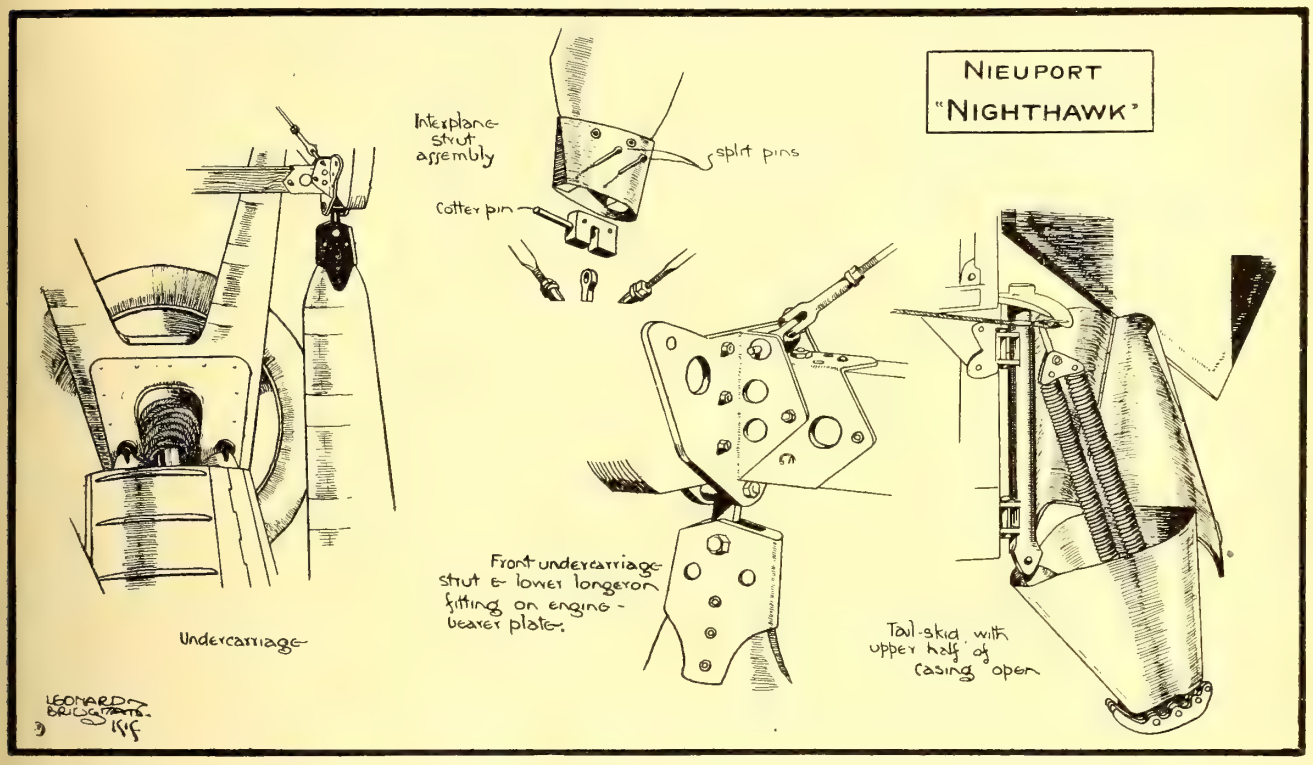
XIII.—The Nieuport and General Aircraft Co., Ltd.



The Nieuport and General Aircraft Co., Ltd., was founded some time prior to the outbreak of the late war mainly to build Nieuport designs in this country.

During the earlier part of the war the company came under the management of Major Heckstall Smith, who had been Assistant Superintendent of the Royal Aircraft Factory and Farnborough, and it has since then acquired from that establishment most of the more competent of the early technical staff thereof.

Of the products designed by the Nieuport Company since this occurred the Nieuport "Nighthawk" is the best known, but a number of other designs of the same origin are well worthy of attention.

THE NIEUPORT "NIGHTHAWK."

The Nieuport "Nighthawk" was designed in October, 1918, by the (British) Nieuport and General Aircraft Co., Ltd., to meet the requirements of the first R.A.F. Type 1 specification for the 1919 programme and was officially accepted from six other competitive designs. It was naturally intended primarily as a fighting scout, and as such was equipped with two fixed Vickers guns firing through the propeller, but owing to the cessation of hostilities it can now be supplied as a commercial or fast mail carrier, the space which would ordinarily have been taken up by ammunition boxes and chutes, in front of the pilot, being replaced by a compartment capable of holding a dead weight load of from 180 to 200 lb.

In general design the machine is a single-seater biplane fitted with a 320-h.p. A.B.C. "Dragonfly" engine.

The fuselage is built up in the customary manner of four one-piece longerons, cross strutted, and wire-braced throughout, fitting at the front end into special box fittings on the 11-ply engine bearer-plate and terminating at the rear at the rudder post. The fuselage is streamlined throughout its length by means of formers and bearers, over which the fabric is placed.

The engine is bolted direct to the engine bearer plate and as an additional precaution four tubular stays are fitted, running from the front edge of the crankcase to a fitting on the front of the engine bearer plate corresponding to the longeron fitting on the opposite side of the plate.

The pilot's seat is situated under the trailing edge of the upper plane, and on either side of the fuselage on the streamline are carried the two main petrol tanks capable of holding 17 gallons each which are held in place by steel bands. An additional tank is carried on the centre section which holds 6 gallons, making a total of 40 gallons or sufficient fuel for a flight of 3 hours at 20,000 feet.

Above the fuselage in the streamlining are carried the two fixed Vickers guns under which are the fibre ammunition boxes and chutes.

On the left-hand side of the pilot's cockpit is situated the tail plane operating gear, which consists of a continuous cable running over three pulleys, one on the left-hand side of the fuselage in the pilot's cockpit, and the other two on threaded spindles on two upright members immediately in front of the leading edge of the tail plane. Attached to the leading edge of the tail plane are two internally-threaded collars working on the spindles, which give vertical motion to the leading edge of the tail plane on forward and backward action of a vertical lever which is anchored to the cable in the pilot's cockpit.

The elevators are fixed to a single tube running through the fuselage and have a central operating lever, the hinges consisting of four steel bands running round the tube.

The rudder is balanced and there is fin area both above and below the fuselage. The tail skid is similar to the type employed in the SE5 and SE5a and is illustrated by a sketch.

The main planes possess no outstanding constructional features, being built up in the usual manner. Small transparent panels are inserted in the plane covering over all aileron pulleys, thereby facilitating inspection.

Two sets of interplane struts are fitted on each side of the fuselage. Ailerons are fitted to the upper and lower planes and are operated in the usual manner. The wing bracing throughout is of Rafwire, all flying wires as well as the landing wires in the inner bay being duplicated.

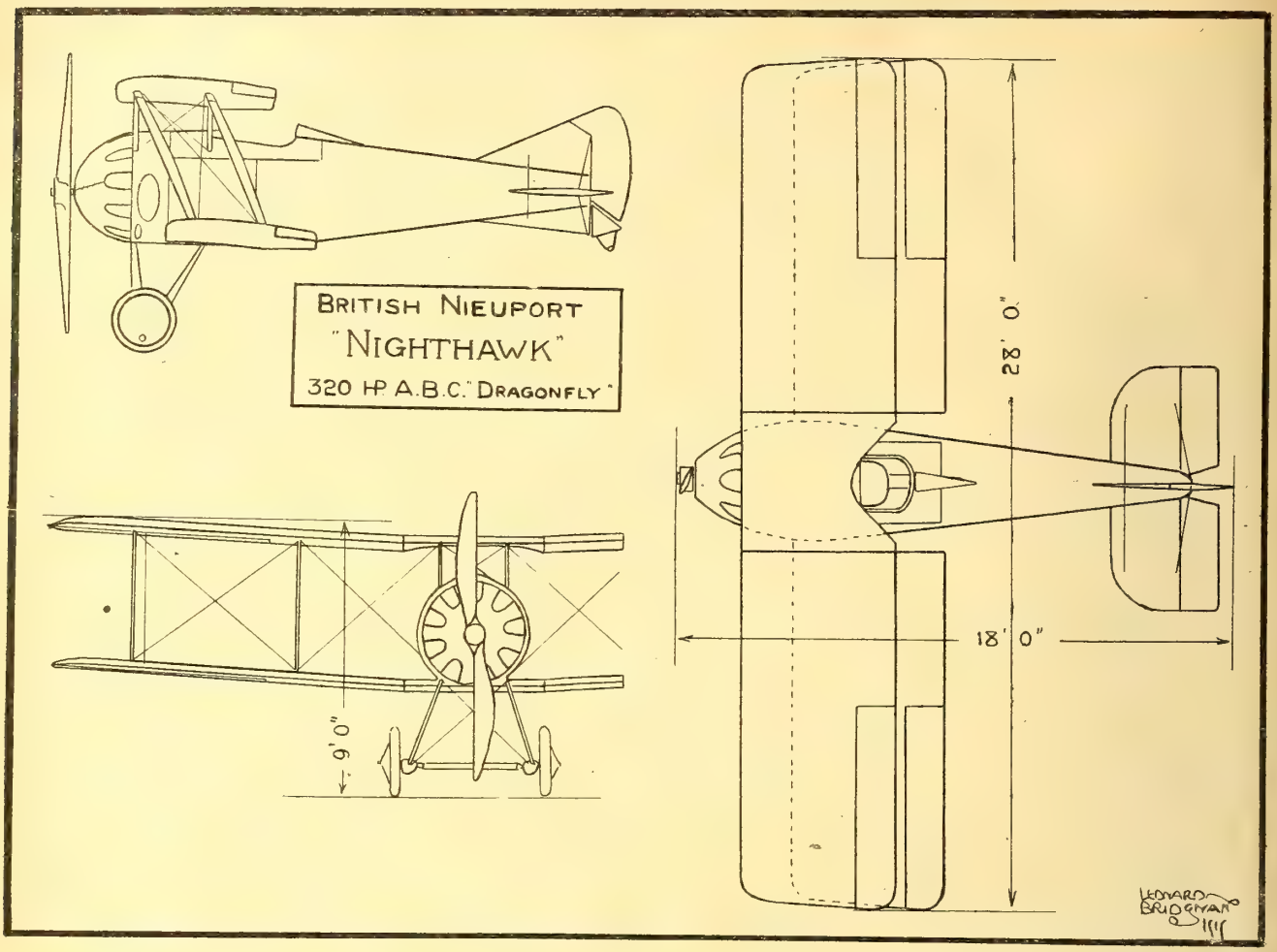
The undercarriage is of the usual Vee type, the Vees being braced at the apex by two cross struts, the axle being slung between on rubber shock-absorbers. The axle and cross-struts are enclosed in streamline fairing.

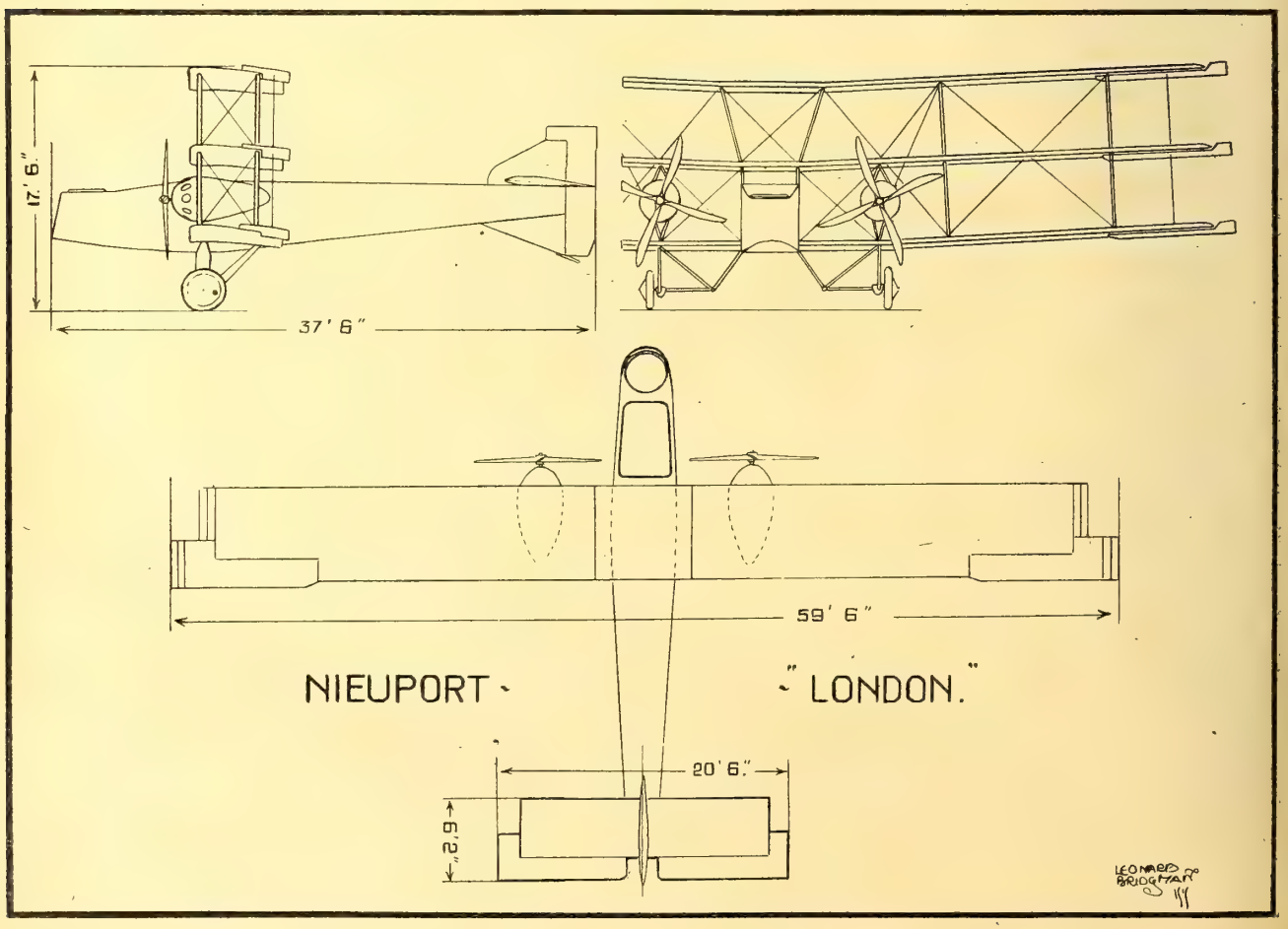
A two-seater edition of the "Nighthawk" is also being produced, the passenger being situated in front of the pilot. It can either be supplied as a dual-control very advanced training machine or purely as a passenger carrier with one set of controls.

It was one of these machines, one believes, that, converted to a single-seater by having the passenger seat covered in, put up such a creditable performance in the last Aerial Derby.

SPECIFICATION (2-seater).

Type of machine	British Nieuport 2-seater biplane
Name or type No. of machine	2-seater "Nighthawk"
Purpose for which intended	Training or Commercial
Span	28 ft.
Gap	4 ft. 6 in.
Overall length	18 ft.
Maximum height	9 ft.
Chord	5 ft. 3 in.
Total surface of wings	276 sq. ft.
Span of tail	9 ft.
Total area of tail	28 sq. ft.
Area of elevators	10 sq. ft.
Area of rudder	5.3 sq. ft.
Area of fin	5.2 sq. ft.
Area of each aileron and total area	9.3 sq. ft.—37.2 sq. ft.


BRITISH NIEUPORT
"NIGHTHAWK"
320 HP A.B.C. "DRAGONFLY"
9' 0"
28' 0"
18' 0"
LEONARD BRIDGMAN


12' 6"
37' 6"
59' 6"
20' 6"
6' 2"
NIEUPORT "LONDON."
LEONARD BRIDGMAN

VICKERS LIMITED

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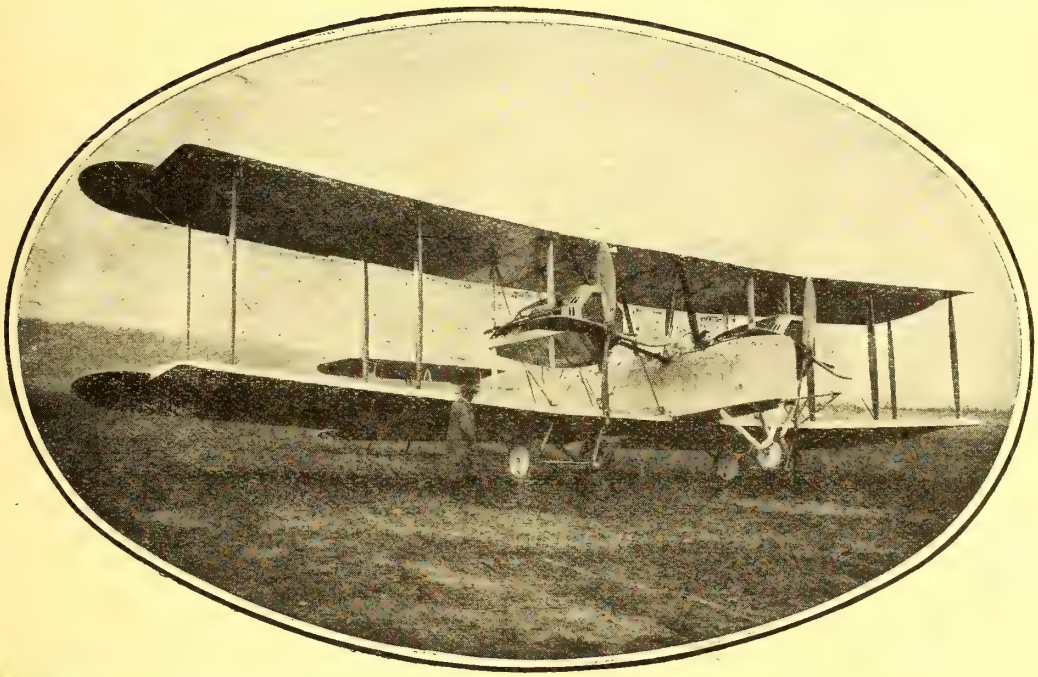
"VICKERS - VIMY - ROLLS"



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KNIGHTSBRIDGE, S.W.3.

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Vickerfyta, Knights, London.
Telephone :
Kensington 6520 (4 lines).

Engine type and h.p. .....230-h.p. A.B.C. "Dragonfly"
Airscrew, diameter and pitch and revs. .....9 ft. 6 in.
Weight of machine empty .....2180 lb.
Load per sq. ft. .....8.05 lb.
Weight per h.p. .....6.8 lb.
Tank capacity in hours .....3 hours at 20,000 ft.
Tank capacity in gallons .....40 gals.
PERFORMANCE—
Speed at 10,000 ft. .....138 m.p.h.
Climb—
To 20,000 ft. .....20 min.
Disposable load apart from fuel .....360 lb.

THE BRITISH NIEUPORT B.N.1.

The B.N.1 was a fast single-seater scout designed in March, 1918. In general constructional details it follows very closely the "Nighthawk," the fuselage and tail unit being almost identical, with the exception that it is adapted to take the 230-h.p. B.R.2 engine, which necessitates a different engine bearer plate and also a different cowling. A large conical spinner is fitted to the airscrew boss. The planes are of equal span, but the upper has a greater chord than the bottom plane. Two single streamline struts, which are splayed out at the top and bottom to fittings on the front and rear spars of both planes, are carried on each side of the fuselage and are braced in the usual manner from the spar fittings. The undercarriage is the "Nighthawk" type already described. The armament consists of two fixed Vickers guns firing through the propeller, and one pivoted Lewis gun on the top plane within easy reach of the pilot.

SPECIFICATION.

Type of machine .....British Nieuport single-seater tractor biplane
Name of machine B.N.1
Purpose for which intended .....Single-seater fighting scout
Span .....28 ft.
Gap .....4 ft. 3 in.
Length .....18 ft. 6 in.
Height .....9 ft.
Chord .....6 ft. (top) 4 ft. 2 in. (bottom)
Total surface of wings .....260 sq. ft.
Total area of tail .....28 sq. ft.
Area of elevators .....10 sq. ft.
Area of rudder .....5 sq. ft.
Area of fins .....5.2 sq. ft.
Area of each aileron and total area
10 sq. ft. (top) 5 sq. ft. (bottom)—30 sq. ft. total
Engine type and h.p. 230-h.p. B.R.2
Airscrew diameter .....9 ft. 3 in.
Weight of machine .....2030 lb.
Load per sq. ft. .....7.8 lb.
Tank capacity in hours .....3 hr. at 15,000 ft.
Tank capacity in gallons .....36 gals.
PERFORMANCE—
Speed at 15,000 ft. .....127 m.p.h.
Climb—
To 15,000 ft. .....16 min.
Maximum height .....26,000 ft.
Useful load .....410 lb.

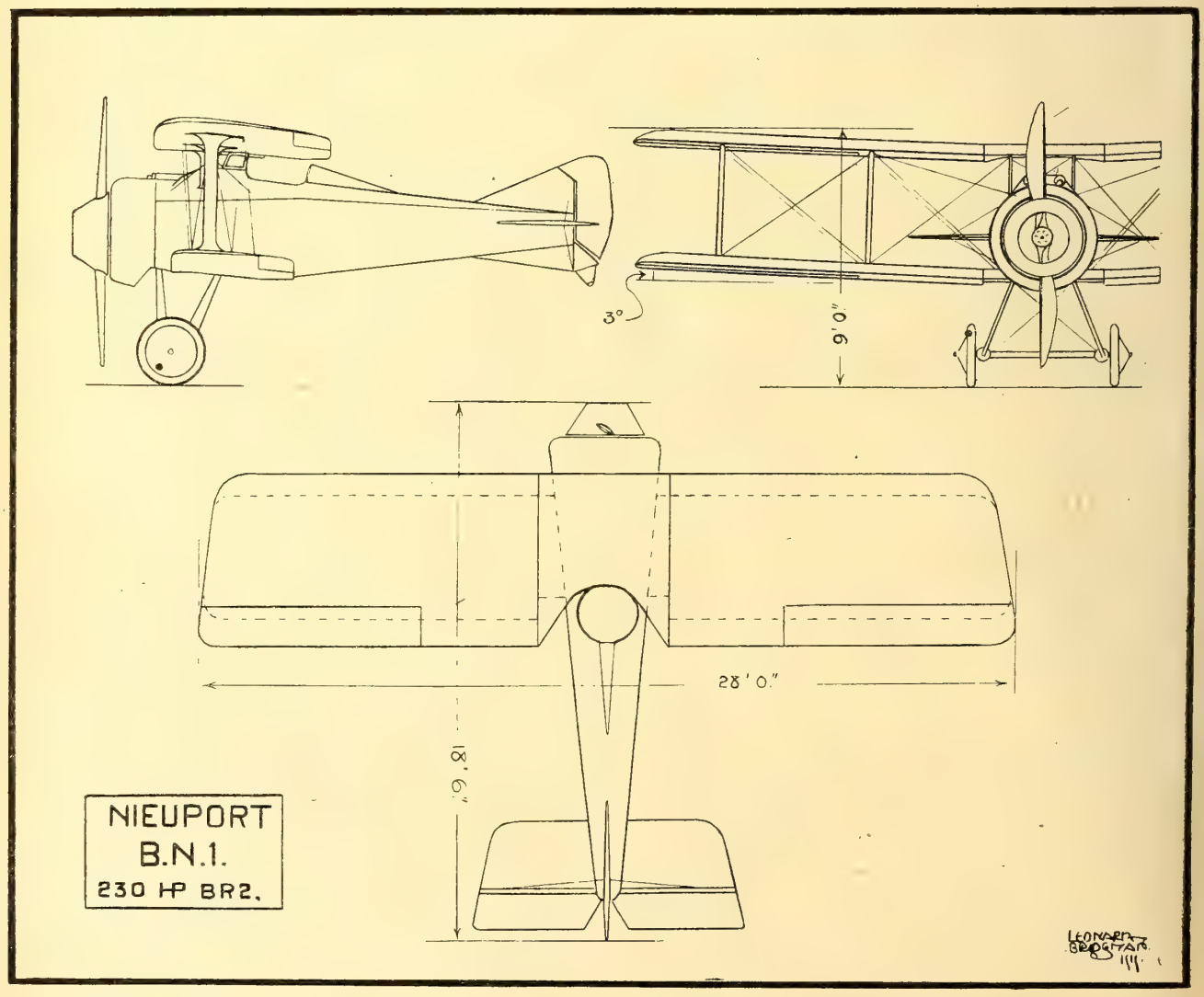
THE NIEUPORT "LONDON."

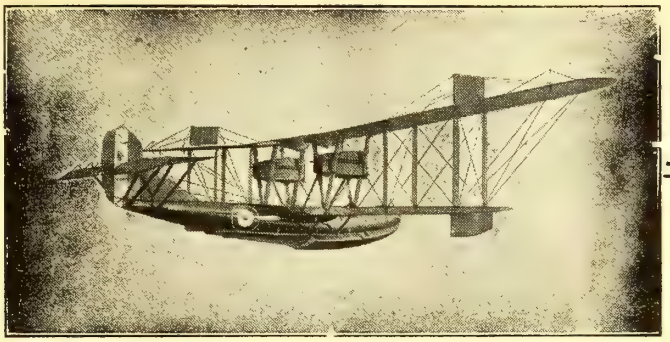
The Nieuport "London" was designed this year as a quick production night-bomber, and, as such, has the minimum number of metal fittings, and parts are made as simply as possible. The machine is also to be produced as a passenger-carrying or commercial machine, and in lieu of the war load consisting of a crew of four, one Lewis gun and nine 250-lb. bombs, accommodation will be allowed for one pilot and 13 passengers, or a useful load of 2,685 lb. of mails or goods.

The specification given is that of the commercial edition.

SPECIFICATION.

Type of machine .....Twin-engined tractor triplane
Name or type No. of machine .....Nieuport 12-seater triplane
Purpose for which intended .....Commercial, etc.
Span .....60 ft. 8 in.
Gap .....5 ft. 10 in.
Overall length .....39 ft. 6 in.
Maximum height .....17 ft. 6 in.
Chord .....6 ft. 8 in.
Total surface of wings .....1,100 sq. ft.





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Span of tail	20 ft. 6 in.
Total area of tail	64 sq. ft.
Area of elevators	40 sq. ft.
Area of rudder	20 sq. ft.
Area of fin	30 sq. ft.
Area of each aileron and total area	20 sq. ft.—120 sq. ft.
Engine type and h.p.	Two 320-h.p. A.B.C. "Dragonfly"
Weight of machine empty	8530 lb.
Load per sq. ft.	7.75 lb.
Weight per h.p.	13.55 lb.
Tank capacity in hours	4 hr. at 10,000 ft.
Tank capacity in gallons	175 gals.
Performance—	
Speed low down	100 m.p.h.
Climb—	
To 10,000 ft.	30 min.
Disposable load apart from fuel	2,685 lb.

In addition to these machines, and purely as a post-war development, the firm have designed and are to construct the machines hereafter described.

THE BRITISH NIEUPORT SINGLE-SEATER BIPLANE.

This machine is a small fast single-seater biplane suitable for police and customs work or sporting purposes.

It has been designed with a view to simplicity in erection and maintenance and to this end the whole machine has been built to jig as a non-adjustable but rigid structure so that the machine merely fits together like a jig-saw puzzle, the parts being held in place by pins. There is no external wire bracing, the principal loads being taken whilst in flight by two inclined struts running from the wings' roots where they join the fuselage to the top of the interplane struts. A two-seater side-by-side edition of the machines is also being brought out which has the same characteristics and mode of assembly. Both machines are fitted with the new 100-h.p. Cosmos "Lucifer" engine.

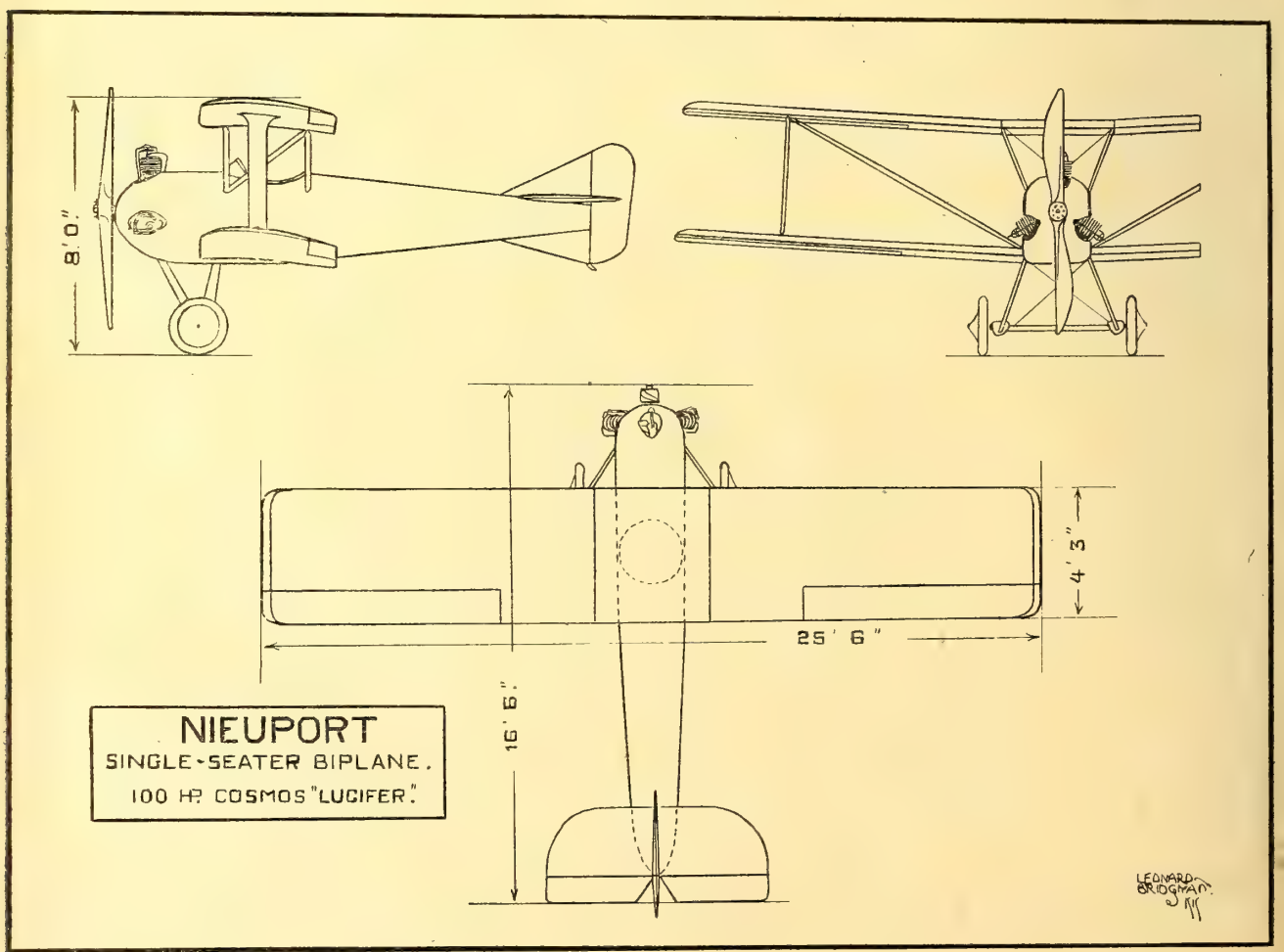
SPECIFICATION.

Type	Single-seater tractor biplane
Purpose for which intended	Sporting, etc.
Span	25 ft. 6 in.
Gap	4 ft.
Length	16 ft. 6 in.
Height	8 ft.
Chord	4 ft. 3 in.
Total surface of wings	200 sq. ft.
Total area of tail	24 sq. ft.
Area of elevators	9 sq. ft.
Area of rudder	4 sq. ft.
Area of fins	3.6 sq. ft.
Area of each aileron and total area	5 sq. ft.—20 sq. ft.
Engine type and h.p.	100-h.p. Cosmos "Lucifer"
Weight per sq. ft.	5.25 lb.
Weight per h.p.	10.5 lb.
Tank capacity in gallons	20 gals.
Tank capacity in hours	3 hr.
Performance—	
Speed	100 m.p.h.
Climb—	
To 10,000 ft.	13 min.
Ceiling	20,000 ft.
Useful load	205 lb.

THE NIEUPORT TWO SEATER.

SPECIFICATION.

Type of machine	Two-seater tractor biplane
Purpose for which intended	Sporting, commercial, etc.
Span	26 ft.
Gap	4 ft. 3 in.
Length	18 ft.
Height	7 ft. 9 in.
Chord	4 ft. 6 in.
Total surface of wings	220 sq. ft.
Total area of tail	21 sq. ft.
Area of elevators	10 sq. ft.
Area of rudder	6 sq. ft.
Area of fin	42 sq. ft.
Area of each aileron and total area	5 sq. ft.—20 sq. ft.
Engine type and h.p.	100-h.p. Cosmos "Lucifer"
Weight of machine	1,230 lb.
Load per sq. ft.	5.6 lb.
Load per h.p.	12.3 lb.
Tank capacity in hours	3 hr.
Tank capacity in gallons	20 gals.
Performance—	
Speed	90 m.p.h.
Climb—	
To 10,000 ft.	20 min.
Maximum height	18,000 ft.
Useful load	383 lb.



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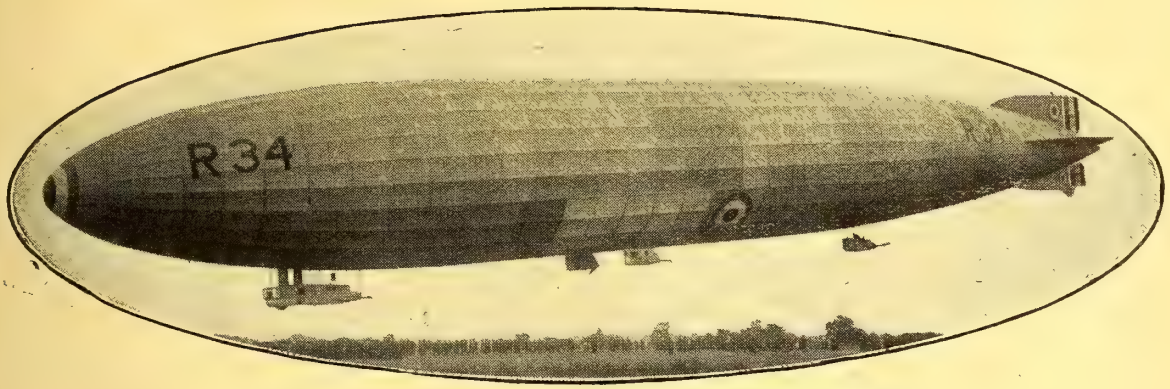

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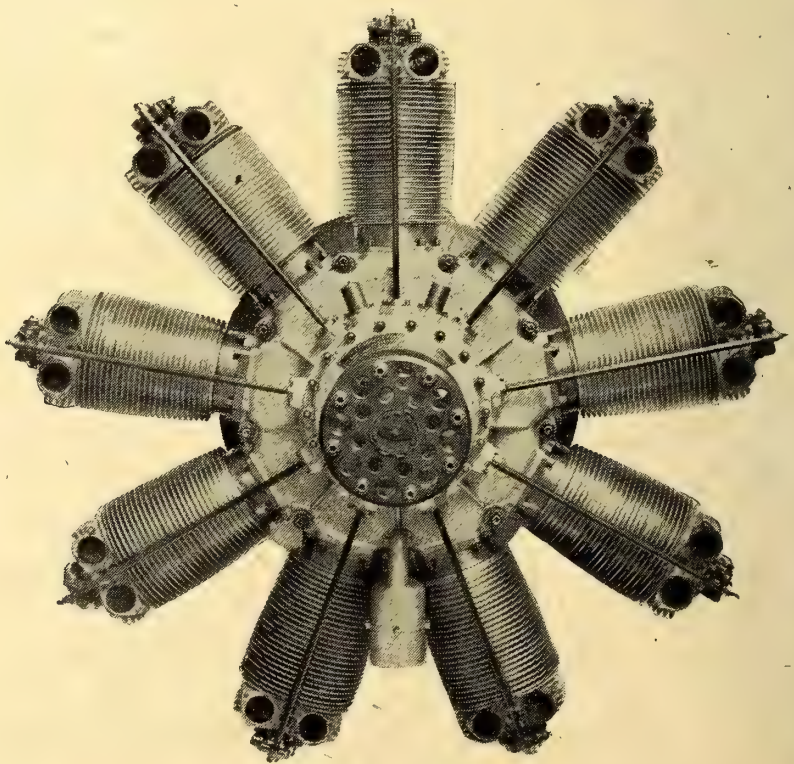

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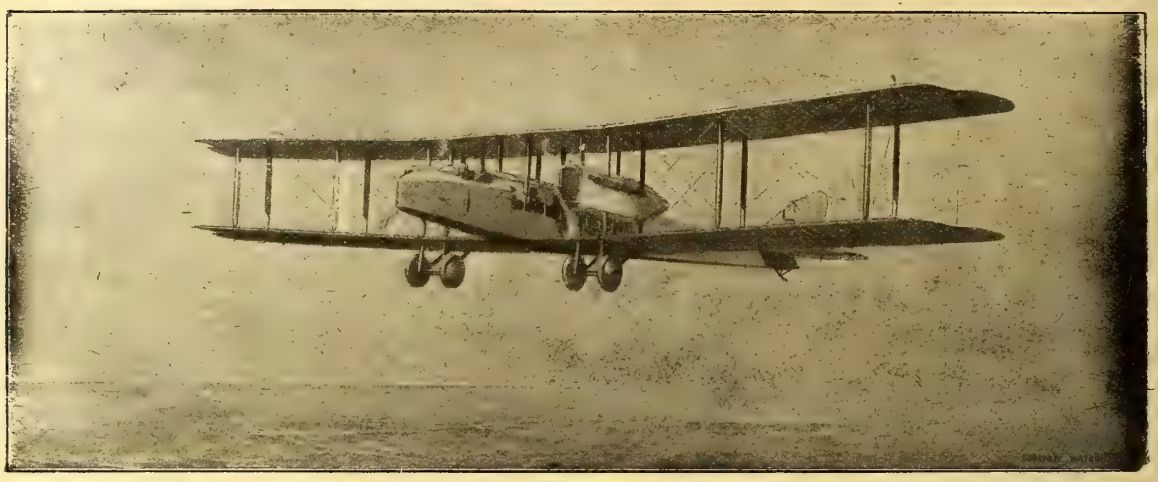

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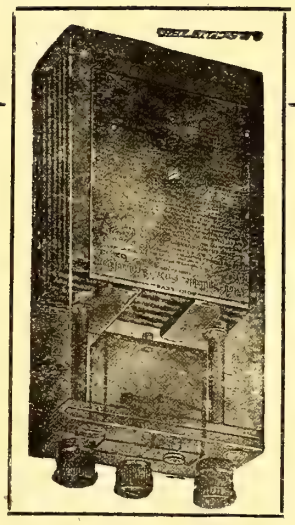

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Johnson & Phillips, Ltd., Charlton, London, S.E.7 "Juno, London." Central 2207; London Wall 1564.

The Rotax Motor Accessories Co., Ltd., Victoria Road, Willesden Junction, N.W.10. "Rotanalite, 'Phone, London. Willesden 2486.

Electric Cables—

E. Kalker and Co., Coventry. "Kalker, Coventry." Coventry 242.

Johnson & Phillips, Ltd., Charlton, London, S.E.7. "Juno, London." Central 2207; London Wall 1564.

Electric Lighting and Power—

Johnson & Phillips, Ltd, Charlton, London, S.E.7. "Juno, London." Central 2207; London Wall 1564.

Mann, Egerton & Co., Ltd., 117, Cleveland Street, London, W. "Installing, Euston Road." Museum 70 (4 lines).

Electro Platers and Metal Polishers' Engineers—

W. Canning & Co., 123-137, Great Hampton Street, Birmingham. "Materians, Birmingham" Birmingham 3022 Central (3 lines)

Fireproof Petrol Tanks—

The Aircraft Improvements Co., Mornington Works, Arlington Road, Camden Town, N.W.1.

Flare Lights—

Imperial Light, Ltd., 123, Victoria Street, London, S.W.1. "Edibrac, 'Phone, London." Victoria 3540 (3 lines).

Flexible Shafts—

Herbert Terry & Sons, Ltd., Redditch. "Springs, Redditch." Redditch 61

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Fluxes—
Imperial Light, Ltd., 123, Victoria Street, London, S.W.1. "Edibrac, 'Phone, London." Victoria 3540 (3 lines).
The Auto Controller Co. (Fluxite), Vienna Road, Bermondsey, Eng.

Flying Boat Builders—
Gosport Aircraft Co., Gosport. "Flight, Gosport." Gosport 217.

Galvanising—
Boulton & Paul, Ltd., Rose Lane, Norwich. "Aviation, Norwich." Norwich 851.

Gauges—
J. A. Prestwich & Co., Northumberland Park, Tottenham, N.17.

Gears—
Moss Gear Co., Ltd., Thomas Street, Aston, Birmingham. "Mosgear Birmingham." East 407.

Glue—
Cannon, B., & Co., Ltd., Lincoln. London Office, 110, Cannon Street, E.C.4. "Beecolin, Cannon, London." City 1206.
Improved Liquid Glues Co., Ltd., Gt. Hermitage Street, E. (Croid.) "Excroiden, 'Phone, London." Avenue 4611-2.
Meridine Co., 8, Arthur Street, E.C. Bank 5873.

Goggles—
Triplex Safety Glass Co., Ltd., 1, Albemarle Street, Piccadilly, W.1. "Shatterlys, Piccy, London" Regent 1340

Heating and Ventilating—
Chas. P. Kinnell and Co., Ltd., 65 & 65A, Southwark Street, London, S.E.1. "Kinnell, London." Hop 372 (2 lines).
The Thames Bank (Blackfriars) Iron Co., Ltd., Upper Ground Street, London, S.E.1. "Hot Water. Friars, London." Hop 763.

Instruments—
British Wright Co., Ltd., 33, Chancery Lane, W.C.2. Holborn 1308.

Instruments (Scientific, Altimeters, etc.)—
Short & Mason, Ltd., Macdonald Road, Walthamstow, E.17. "Aneroid, Phone, London." Walthamstow 180.

Insurance—
Aviation Insurance Association, 1, Royal Exchange Avenue, E.C.3. London Wall 9944.
Bray, Gibb & Co., Ltd., 166, Piccadilly, W.1.
Captain A. Newman (late R.A.F.), 20, Bucklersbury, E.C.4. City 4855
Harold Townend, Ltd., 13-14, Abchurch Lane, King William Street, E.C.4. "Carinsur, London." Central 156 (2 lines).
Percy Wingfield, 22, Newgate Street, E.C.1. City 4672.

Leather Cloth—
New Pegamoid, Ltd., 134, Queen Victoria Street, London. "Pegamoid, Cent., London." City 9704 (2 lines).

Lubricating Oil Refiners and Merchants—
W. B. Dick & Co., Ltd., 90, Fenchurch Street, E.C.3 Telegrams, Dicotto Fen, London. Avenue 7854 (2 lines.)

Magneto Driving Pieces—
Herbert Terry & Sons, Ltd., Redditch. "Springs, Redditch." Redditch 61.

Magnetos—
The British Lighting & Ignition Co., Ltd., 204, Tottenham Court Road, W.1. "Vicksmag, Phone, London." Museum 430.
The British Thomson-Houston Co., Ltd., Lower Ford Street, Coventry. "Asteroidal, Coventry." Coventry 278.

Metal Casement Manufacturers—
Henry Hope & Sons, Ltd., 55, Lionel Street, Birmingham. "Conservatory, Birmingham." Central 999 (2 lines).

Metal Manufacturers—
Clifford, Chas., & Sons, Ltd., Birmingham. "Clifford, Birmingham." Central 42-43. Avenue 1452.

Metals in General—
Samuel Mercer & Co., 198, Upper Thames Street, E.C.4. "Reconciled, Cannon, London." City 6342.

Metal Parts and Fittings—
Accles & Pollock, Ltd. Oldbury, Birmingham. "Accles, Oldbury." Oldbury 111 (4 lines)
Arnott & Harrison, Ltd., Hythe Road, Willesden Junction. Willesden 2207.
Bayliss, Jones, & Bayliss, Ltd., Wolverhampton. (Bolts and Nuts.) "Bayliss, Wolverhampton." Wolverhampton 1041.
Blackburn Aeroplane & Motor Co., Ltd., Olympia, Leeds. "Propellors, Leeds." Roundhay 345 (3 lines).
Brown Bros., Ltd., Gt. Eastern St., E.C.1.
Mann, Egerton & Co., Ltd., 177, Cleveland Street, London, W.1 "Installing, Ensroad, London." Museum 70.
Rubery Owen & Co., Darlaston, South Staffs.
Sankey, Joseph, & Sons, Ltd., Wellington, Shropshire. "Sankey, Wellington, Salop." Wellington 66.
The Selsdon Aero & Engineering Co., Ltd., 1, Albemarle Street, Piccadilly, W.1. "Selaero, Phone, London." Regent 1181.
Thompson Bros., Ltd., Bradley, Bilston. "Thompson Bros., Bilston." Bilston 10.

Metric Bolts—
Cashmore Bros., Hildreth Street, Balham, S.W. Battersea 415.
Rubery Owen & Co., Darlaston, South Staffs.

Miscellaneous—
Anderson, D., & Son, Ltd. (Roofs), Belfast. "Anderson, Belfast." Belfast 4033-4034-4035
Brown Bros., Ltd., Great Eastern Street, E.C.1 "Imbrowned, Rathroad, London." London Wall 6300.
Herbert Frood Co., Ltd., Chapel-en-le-Frith. "Frodobrake, Birmingham." Central 793
MacLennan, J., & Co., 30, Newgate Street, E.C.1., and at Glasgow. Tapes, Cords, and Threads. City 3115.

Motor Cars—
Arrol Johnston, Ltd., Dumfries. "Mocar, Dumfries." Dumfries 281-282.
Mann, Egerton & Co., Ltd. 379/381, Euston Road, London, N.W.1. "Manegecar, Ensroad, London Museum 70.
Standard Motor Car Co., Coventry. "Flywheel, Coventry." Coventry 530 (4 lines).

Nameplates and Labels—
The Clegg Metal Engraving Co., Ltd., Worthing. "Clegg, Worthing."

Observation Panels—
Triplex Safety Glass Co., Ltd., 1, Albemarle Street, Piccadilly, W.1. "Shatterlys, Piccy, London." Regent 1340.

Oils—
C. C. Wakefield & Co., Ltd., Wakefield House, Cheapside, E.C.2. "Cheery, Cent, London" Central 11305 & 13466.

Parachutes—
E. R. Calthrop's Aerial Patents, Ltd., Eldon Street House, Eldon Street, London, E.C. "Savemalivo, Ave, London." London Wall 3266-3267.
C. G. Spencer & Sons, Ltd. (See under "Balloons").

Piston Rings—
The Standard Piston Ring and Engineering Co., Ltd., Don Road, Sheffield. "Ocean, Sheffield" Sheffield 2149

Presswork—
Rubery Owen & Co., Darlaston, South Staffs.
Terry, Herbert, & Sons, Ltd., Redditch. "Springs, Redditch." Redditch 61.

Propellers—
The Aircraft Improvements Co., Mornington Works, Arlington Road, Camden Town, N.W.1.
Blackburn Aeroplane & Motor Co., Ltd., Olympia, Leeds. "Propellors, Leeds." Roundhay 345 (3 lines).

Propellers (continued).
Boulton & Paul Ltd., Rose Lane, Norwich. "Aviation, Norwich." Norwich 851.
Ebora Propeller Co., 11 & 12, Surbiton Park Terrace, Kingston-on-Thames "Ebora, Kingston." Kingston 672.
Integral Propeller Co., Ltd., "Aviprop, Hyde, London." Hendon 9. Kingsbury 104
Lang Propeller, Ltd., Weybridge. "Aerosticks, Weybridge." Weybridge 520-521.
Oddy, W. D., & Co., Leeds. "Airscrews, Leeds." Leeds 20547-8.
Westland Aircraft, Yeovil. "Aircraft, Yeovil." Yeovil 129.

Pyrometers—
The Foster Instrument Co., Letchworth, Herts. "Foster Instruments, Letchworth." Letchworth 26.

Rawhide Hammers—
Ira Stephens, Whitelands Leather Works, Ashton under-Lyne. "Stephens, 709, Ashton." Ashton 709.

Rigging for Aircraft—
Cradock, Geo., & Co., Ltd., Wakefield, England. "Cradock, Wakefield." Wakefield 466.

Rubber Tubing & Accessories—
Hancock, James Lyne, Ltd., 266, Goswell Road, London, E.C.1 "Masticator, Isling, London." City 3811 & 3812.

Safety Belts—
C. H. Holmes & Son, 38, Albert Street, Manchester. "Semloh, Manchester." City 4432.

Screw-driving Machines—
Russell Bros. (Redditch), Ltd., Littleworth, Redditch. "Inventors, Redditch." Redditch 74.

Seaplane Manufacturers—
Blackburn Aeroplane & Motor Co., Ltd., Olympia, Leeds. "Propellors, Leeds." Roundhay 345 (3 lines).
Phœnix Dynamo Manufacturing Co., Ltd., Thornbury, Bradford. "Dynamo, Bradford." Bradford 3700 (7 lines).
Short Bros., Rochester. "Seaplanes, Rochester." Chatham 627.
Supermarine Aviation Works, Ltd., Southampton. "Supermarin, Southampton." Woolston 37.

Searchlights & Landing Lights
Brown Bros., Ltd., Great Eastern St., E.C.1.
Imperial Light, Ltd., 123, Victoria Street, London, S.W.1. "Edibrac, Phone, London" 3540 Victoria (3 lines).

Shock Absorbers—
Luke Turner & Co., Deacon Street, Leicester Leicester 967.
Tubbs, Lewis & Co., Ltd., 29 & 30, Noble Street, E.C.2. "Elastics, London." City 22.

Sheet Metal Pressings—
Accles & Pollock, Ltd., Oldbury, Birmingham. "Accles, Oldbury." Oldbury 111 (4 lines)
Blackburn Aeroplane & Motor Co., Ltd., Olympia, Leeds. "Propellors, Leeds." Roundhay 345 (3 lines)
Rubery Owen & Co., Darlaston, South Staffs.

Sheet Metal Work—
The Acetylene Corporation of Great Britain, Ltd., 49, Victoria Street, S.W.1. "Flamma, Vic, London." Vic 4830
Rubery Owen & Co., Darlaston, South
The Selsdon Aero & Engineering Co., Ltd., 1, Albemarle Street, Piccadilly, W.1. "Selaero, Phone, London." Regent 1181
Imperial Light, Ltd., 123, Victoria Street, London, S.W.1. "Edibrac, Phone, London." Victoria 3540 (3 lines).

Solder Manufacturers—
Samuel Mercer & Co., 198, Upper Thames Street, E.C.4. "Reconciled, Cannon, London." City 6342.

Sparking Plugs—
Brown Bros., Ltd., Great Eastern St., E.C.1
Lodge Sparking Plug Co., Ltd., Rugby. "Igniter, Rugby." Rugby 235.
The Robinhood Engineering Works, Ltd., Newlands, Putney Vale, S.W.15. Makers of KLG Plugs. "Kaelgee, Phone, London." Putney 2132-3.

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Accumulators—

The Chloride Electrical Storage Co., Ltd, Clifton Junction, near Manchester. "Chloridic, Pendlebury" Central Manchester, 1628 Pendleton, 11.

Acetylene Welding Plant—

Acetylene Corporation of Great Britain, Ltd, The, 49, Victoria Street, Westminster, S.W.1. "Flamma, Vic, London" Vic 4830.

Imperial Light, Ltd, 123, Victoria Street, London, S.W.1. "Edibrac, 'Phone London" 3540 Victoria (3 lines).

Aeroplane Manufacturers—

Aircraft Manufacturing Co., Ltd, Hendon. "Airmanship, Hyde, London" Kingsbury 220.

Armstrong, Sir W., Whitworth & Co., Ltd., Newcastle-on-Tyne "Armstrong Aviation, Newcastle-on-Tyne" Gosforth 500

Blackburn Aeroplane & Motor Co, Ltd, Olympia, Leeds "Propellors, Leeds" Roundhay 345 (5 lines).

Boulton & Paul, Ltd, Rose Lane, Norwich. "Aviation, Norwich" Norwich 851.

British Aerial Transport Co, Ltd Head Office: 38, Conduit Street, London, W.1 "Batigram Reg London" Mayfair 637, 638.

Works: Hythe Road, Willesden, London, N.W.10 "Aerbrirans, Phone, London" Willesden, 2272, 2273

British & Colonial Aeroplane Co, Ltd (The Bristol Co.), Filton, Bristol "Aviation, Bristol" Bristol 3906

Central Aircraft Co, High Road, Kilburn, N.W.6 "Aviduction, Phone, London." Hampstead 4403 and 4424.

Dawson, John, & Co, Ltd, Newcastle-on-Tyne. "Dependable, Newcastle-on-Tyne" Central 2064 (2 lines).

Eastbourne Aviation Co, Ltd. Eastbourne "Aircraft, Eastbourne" Eastbourne 1170.

Gosport Aircraft Co, Gosport "Flight Gosport" Gosport 217.

Grahame-White Company, Ltd, London Aerodrome, Hendon "Volplane, Hyde, London" Kingsbury 120. London Office, 12, Regent Street, S.W.1 Regent 2084.

Handley Page, Ltd, 110, Cricklewood Lane, N.W.2 "Hydrophid, Crickle, London" Hampstead 7420

Hooper & Co, Ltd, 54, St James St, Piccadilly, London, S.W "Sociable, St James, London." Regent 912

Mann, Egerton & Co, Ltd., Norwich. "Motors, Norwich" Norwich 582 (4 lines).

Martinsyde, Ltd, Brooklands, Byfleet, "Martinsyde, Weybridge" Woking 331; Byfleet 171.

"Nieuport" & General Aircraft Co, Cricklewood, London, N.W.2 "Nieuscout, Crickle, London" Willesden 2455

Phœnix Dynamo Manufacturing Co, Ltd., Thornbury, Bradford "Dynamo, Bradford" Bradford 3700 (4 lines)

Roe, A. V., & Co, Ltd., Manchester. "Triplane, Manchester" City 8530-8531, Manchester

Saunders, S. E., Ltd, East Cowes, I.O.W. "Consuta, East Cowes" Cowes 193.

Short Bros, Rochester, Eastchurch and Whitehall House, S.W. "Tested, Phone, London" Regent 372

The Siddeley Deasy Motor Car Co, Ltd, Coventry Coventry 954 "Deasy, Coventry"

Sopwith Aviation Co., Ltd, Kingston-on-Thames "Sopwith, Kingston" Kingston 1988 (5 lines).

The Supermarine Aviation Works, Ltd., Southampton "Supermarin" Woolston 37 (2 lines).

Vickers, Ltd, Imperial Court, Basil Street, Knightsbridge, S.W.3 "Vickerfyta, Knights, London" Kensington 6010

Waring & Gillow, Ltd, Hammersmith "Warisen, Ox, London" Museum 5000.

Westland Aircraft, Yeovil "Aircraft, Yeovil" Yeovil 129

White, J. Samuel, & Co., Ltd, East Cowes "White, East Cowes" Cowes 3

Airships—

Airships, Ltd., High Street, Merton Wimbledon 1314

Short Bros, Rochester, Eastchurch, and Whitehall House, S.W "Tested, 'Phone, London" Regent 372

C. G. Spencer and Sons, Ltd (See under "Balloons")

Aluminium Castings (Sand and Die)

Coan, R. W., 210, Goswell Road, London, E.C.1 "Krankasco, Isling, London" City 3540

Balloons—

C. G. Spencer and Sons, Ltd., 50A, Highbury Grove, N.5. "Aeronaut, London." Dalston 1893

Bent Timber Parts—

Hopton & Sons, George Street, Euston Square, London, N.W.1 "Hoptons, Eusquare, London" Museum 400
Also at Market Harborough, Leicestershire "Hoptons, Market Harborough" Market Harborough 15

Bearings (Etonia Cast Phosphor Bronze)

Brown Bros, Ltd, Gt Eastern St, E.C.1

Yorkshire Engineering Supplies, Ltd., Wortley, Leeds. "Yes, Leeds" Central 3927

Blowpipes (Oxy-Acetylene)—

Acetylene Corporation of Great Britain, Ltd, The, 49, Victoria Street, Westminster, S.W.1 "Flamma, Vic, London." Vic. 4830

Imperial Light, Ltd, 123, Victoria Street, London, S.W.1. "Edibrac, 'Phone, London" Vic 3540 (3 lines).

Bolts—

Mitchell Wedgewood & Co., Campbell Works, Stoke Newington, London, N 16 Dalston 2500 (2 lines).

Books (Aero Engines)—

Dykes' Auto Encyclopedia, Gillam, 149, Strand, W.C.2

Buildings—

Boulton & Paul Ltd Rose Lane, Norwich "Aviation, Norwich." Norwich 851

Rubery Owen & Co, Darlaston, South Staffs

Cable Coverings and Cable Controls—

The Bowden Brake Co, Ltd, Tyseley, Birmingham. "Bowden, Acock's Green" Acock's Green 193 & 104

Bowden Wire, Ltd, Willesden Junction, "Bowirelim Harles, London" Willesden 2400 (3 lines).

Herbert Terry & Sons, Ltd, Redditch "Springs, Redditch" Redditch 61

Carburettors—

Hobson, H. M., Ltd., 29, Vauxhall Bridge Road S.W.1 Victoria 4670

Casein—

Nieuwhof, Surie & Co., Ltd., 5, Lloyds Avenue, London E.C.3 "Suricodon, Fen, London" Avenue 34 and 35

Clothing—

Burberry's, Ltd, Haymarket, S.W.1 Regent 2165

Dunhill's Ltd., Euston Road, N.W.1 "Dunsend, London" North 3405-6

Component Parts—

Accles & Pollock, Ltd Oldbury, Birmingham "Accles, Oldbury." Oldbury 111 (4 lines).

Brown Bros, Ltd, Gt Eastern St., E.C.1.

Central Aircraft Co, High Road, Kilburn, N.W.6 "Aviduction, Phone, London." Hampstead 4403 & 4404

Thompson Bros (Bilston), Ltd., Bradley, Bilston, England. "Thompson Bros., Bilston" Bilston 10

Cords, Tapes, and Threads—

MacLennan, J., & Co, 30, Newgate Street, E.C.1 And at Glasgow City 3115.

Dopes—

Titanine, Ltd, 175, Piccadilly, W.1 "Tetrafree, Piccy, London" Gerrard 2312

British Cellulose Co, 8, Waterloo Place, S.W.1 "Cellulate, London" Regent 4015

The British Emaillite Co, Ltd, 70, Regent Street, S.W.1. "Ridleypren, Piccy, London" Gerrard 280

Cellon, Ltd, 22, Cork Street, London, W.1 "Ajawb, Reg, London" Gerrard 440.

Robt Ingham Clark & Co, Ltd, West Ham Abbey, E.15 "Oleotine, Strat, London" East 955

Engines and Parts—

Allen W. H. & Co. Ltd, Bedford "Pump Bedford" Bedford No. 1

Arrol-Johnston, Ltd, Dumfries "Mocar Dumfries" Dumfries 281-282

Beardmore Aero Eng, Ltd, 112, Great Portland Street, W.1 "Beardmore, London" Gerrard 233

The Cosmos Engineering Co, Ltd, Fishponds, Bristol

Dudbridge Iron Works, Ltd (Salmson), 87, Victoria Street, London, S.W.1 "Aeroflight, Vic, London" Vic 7026

Gordon Watney & Co, Ltd, Weybridge. "Mercédès, Weybridge" Weybridge 350 (7 lines)

Green Engine Co, Ltd, Twickenham Richmond 1203

Gwynnes, Ltd, Hammersmith, W "Gwynne, Hammersmith" Hammersmith 1910.

Napier & Son, D., Ltd, 14, New Burlington Street, London, W., and at Acton, W "Nitrifier, London" Gerrard 8620

Rolls-Royce, Ltd, 14 and 15, Conduit Street, W.1 "Rolhead, London" Gerrard 1054-5-6

The Siddeley-Deasy Motor Car Co, Ltd, Coventry. Coventry 651 "Deasy, Coventry"

Sunbeam Motor Car Co, Ltd, Wolverhampton "Moorfield, Wolverhampton" Wolverhampton 985.

The Gnôme & Le Rhône Engine Co, Ltd, 27, Buckingham Gate, S.W.1 "Elevenfold, London" Walthamstow 611 (2 lines).

Walton Motors, Ltd, Walton-on-Thames. "Motors, Walton-on-Thames" Walton-on-Thames 220

Electrical Accessories—

Belling & Co, Montague Road, Upper Edmonton, N.18 "Belling, Edmonton" Tottenham 1984

Brown Bros., Ltd, Gt Eastern St, E.C.1

Gent & Co, Ltd, Faraday Works, Leicester. "Lodestone, Leicester" National 151 (two lines)

Johnson & Phillips, Ltd, Charlton, London, S.E.7 "Juno, London" Central 2207; London Wall 1561

The Rotax Motor Accessories Co, Ltd, Victoria Road, Willesden Junction, N.W.10 "Rodynalite, 'Phone, London" Willesden 2480

Electric Cables—

E. Kalker and Co, Coventry "Kalker, Coventry" Coventry 248

Johnson & Phillips, Ltd., Charlton, London, S.E.7. "Juno, London" Central 2207; London Wall 1561

Electric Lighting and Power—

Johnson & Phillips, Ltd, Charlton, London, S.E.7 "Juno, London" Central 2207; London Wall 1561

Mann, Egerton & Co., Ltd., 117, Cleveland Street, London, W "Installing, Euston road." Museum 70 (4 lines)

Electro Platers and Metal Polishers' Engineers—

W. Canning & Co., 133-137, Great Hampton Street, Birmingham. "Materials, Birmingham" Birmingham 3022 Central (3 lines)

Fireproof Petrol Tanks—

The Aircraft Improvements Co, Mornington Works, Arlington Road, Camden Town, N.W.1

Flare Lights—

Imperial Light, Ltd, 123, Victoria Street, London, S.W.1 "Edibrac, 'Phone, London" Victoria 3540 (3 lines)

Flexible Shafts—

Herbert Terry & Sons, Ltd, Redditch "Springs, Redditch" Redditch 61

Fluxes—

Imperial Light, Ltd, 123, Victoria Street, London, S.W.1 "Edibrac, 'Phone, London" Victoria 3540 (3 lines)

The Auto Controller Co (Fluxite), Vienna Road, Bermondsey, Eng

Flying Boat Builders—

Gosport Aircraft Co., Gosport. "Flight, Gosport" Gosport 217

Galvanising—

Boulton & Paul, Ltd, Rose Lane, Norwich "Aviation, Norwich" Norwich 851

Gauges—

J. A. Prestwich & Co., Northumberland Park, Tottenham, N.17

Gears—

Moss Gear Co, Ltd, Thomas Street, Aston, Birmingham "Mosgear Birmingham" East 407

Glue—

Cannot, B., & Co, Ltd, Lincoln. London Office, 110, Cannon Street, E.C.4. "Peccolin, Cannon, London" City 1206

Improved Liquid Glues Co, Ltd, Gt Hermitage Street, E. (Croid) "Excroiden, 'Phone, London" Avenue 4011-2

Mendine Co., 8, Arthur Street, E.C. Bank 5873

Goggles—

Triplex Safety Glass Co., Ltd., 1, Albemarle Street, Piccadilly, W.1 "Shatterlys, Piccy, London" Regent 1340

Heating and Ventilating—

Chas P. Kinnell and Co, Ltd, 65 & 65A, Southwark Street, London, S.E.1. "Kinnell, London" Hop 372 (2 lines).

The Thames Bank (Blackfriars) Iron Co, Ltd, Upper Ground Street, London, S.E.1 "Hot Water. Friars, London." Hop 703

Instruments—

British Wright Co, Ltd, 33, Chancery Lane, W.C.2. Holborn 1308.

Instruments (Scientific, Altimeters, etc.)—

Short & Mason, Ltd, Macdonald Road, Walthamstow, E.17. "Aneroid, Phone, London" Walthamstow 180

Insurance—

Aviation Insurance Association, 1, Royal Exchange Avenue, E.C.3. London Wall 6944.

Bray, Gibb & Co, Ltd., 166, Piccadilly, W.1

Captain A. Newman (late R.A.F.), 20, Bucklersbury, E.C.4 City 1855

Harold Townend, Ltd, 13-14, Abchurch Lane, King William Street, E.C.4. "Carinsur, London" Central 156 (2 lines).

Percy Wingfield, 22, Newgate Street, E.C.1 City, 4672

Leather Cloth—

New Pegamoid, Ltd, 134, Queen Victoria Street, London "Pegamoid, Cent, London" City 9704 (2 lines).

Lubricating Oil Refiners and Merchants—

W. B. Dick & Co, Ltd, 90, Fenchurch Street, E.C., Telegrams, Dicotto Fen, London Avenue 7851 (2 lines.)

Magneto Driving Pieces—

Herbert Terry & Sons, Ltd, Redditch. "Springs, Redditch" Redditch 61.

Magnetos—

The British Lighting & Ignition Co, Ltd., 204, Tottenham Court Road, W.1. "Vicksmag, Phone, London" Museum 430

The British Thomson-Houston Co, Ltd, Lower Ford Street, Coventry "Asteroidal, Coventry" Coventry 278.

Metal Casement Manufacturers—

Henry Hope & Sons, Ltd, 55, Lionel Street, Birmingham "Conservatory, Birmingham" Central 699 (2 lines).

Metal Manufacturers—

Clifford, Chas., & Sons, Ltd, Birmingham. "Clifford, Birmingham." Central 42-43. Avenue 1452

Metals in General—

Samuel Mercer & Co, 108, Upper Thames Street, E.C.4 "Reconciled, Cannon, London" City 6342

Metal Parts and Fittings—

Accles & Pollock, Ltd Oldbury, Birmingham "Accles, Oldbury" Oldbury 111 (4 lines)

Arnott & Harrison, Ltd, Hythe Road, Willesden Junction Willesden 2207.

Bayliss, Jones, & Bayliss, Ltd, Wolverhampton (Bolts and Nuts) "Bayliss, Wolverhampton" Wolverhampton 1031

Blackburn Aeroplane & Motor Co, Ltd, Olympia, Leeds "Propellors, Leeds" Roundhay 345 (5 lines)

Brown Bros, Ltd, Gt Eastern St, E.C.1

Mann, Egerton & Co, Ltd, 177, Cleveland Street, London, W.1 "Installing, Eusroad, London" Museum 70

Rubery Owen & Co, Darlaston, South Staffs

Sankey, Joseph, & Sons, Ltd, Wellington, Shropshire "Sankey, Wellington, Salop" Wellington 66

The Selsdon Aero & Engineering Co, Ltd, 1, Albemarle Street, Piccadilly, W.1 "Selaero, Phone, London" Regent 1181

Thompson Bros, Ltd, Bradley, Bilston "Thompson Bros, Bilston" Bilston 10

Metric Bolts—

Cashmore Bros, Hildreth Street, Balham, S.W. Battersea 415

Rubery Owen & Co, Darlaston, South Staffs

Miscellaneous—

Anderson, D., & Son, Ltd. (Roofs), Belfast. "Anderson, Belfast." Belfast 4033-4034-4035

Brown Bros., Ltd., Great Eastern Street, E.C.1 "Imbrowned, Bethroad, London" London Wall 6300.

Herbert Frood Co, Ltd, Chapel-en-le-Frith "Frodobrake, Birmingham" Central 793

MacLennan, J., & Co., 30, Newgate Street, E.C.1., and at Glasgow. Tapes, Cords, and Threads. City 3115.

Motor Cars—

Arrol Johnston, Ltd, Dumfries "Mocar, Dumfries." Dumfries 281-282

Mann, Egerton & Co., Ltd, 379/381, Euston Road, London. N.W.1 "Manegecar, Eusroad, London" Museum 70

Standard Motor Car Co, Coventry "Flywheel, Coventry" Coventry 530 (4 lines)

Nameplates and Labels—

The Clegg Metal Engraving Co, Ltd., Worthing. "Clegg, Worthing."

Observation Panels—

Triplex Safety Glass Co., Ltd., 1, Albemarle Street, Piccadilly, W.1 "Shatterlys, Piccy London" Regent 1340.

Oils—

C. C. Wakefield & Co., Ltd, Wakefield House, Cheapside, E.C.2. "Cheery, Cent, London" Central 11305 & 13466.

Parachutes—

E. R. Calthrop's Aerial Patents, Ltd, Eldon Street House, Eldon Street, London, E.C "Savemalivo, Ave, London." London Wall 3206-3207.

C. G. Spencer & Sons, Ltd (See under "Balloons")

Piston Rings—

The Standard Piston Ring and Engineering Co, Ltd, Don Road, Sheffield. "Ocean, Sheffield" Sheffield 2149

Presswork—

Rubery Owen & Co, Darlaston, South Staffs.

Terry, Herbert, & Sons, Ltd, Redditch. "Springs, Redditch." Redditch 61.

Propellers—

The Aircraft Improvements Co., Mornington Works, Arlington Road, Camden Town, N.W.1

Blackburn Aeroplane & Motor Co, Ltd, Olympia, Leeds "Propellors, Leeds" Roundhay 345 (5 lines).

Propellers (continued).

Boulton & Paul Ltd, Rose Lane, Norwich, "Aviation, Norwich" Norwich 851.

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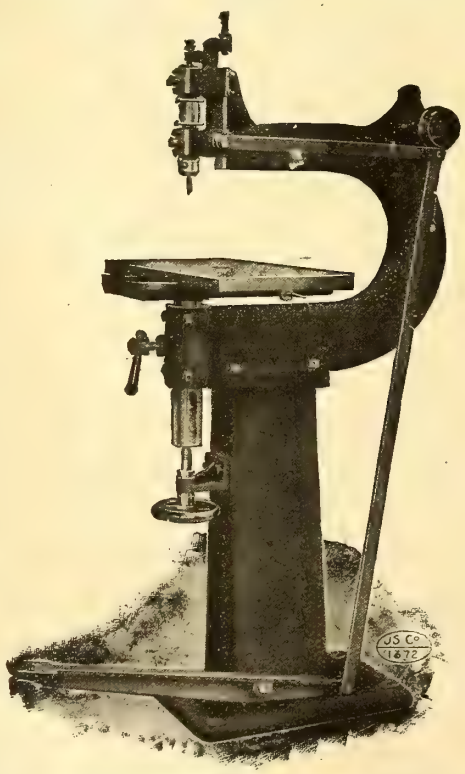

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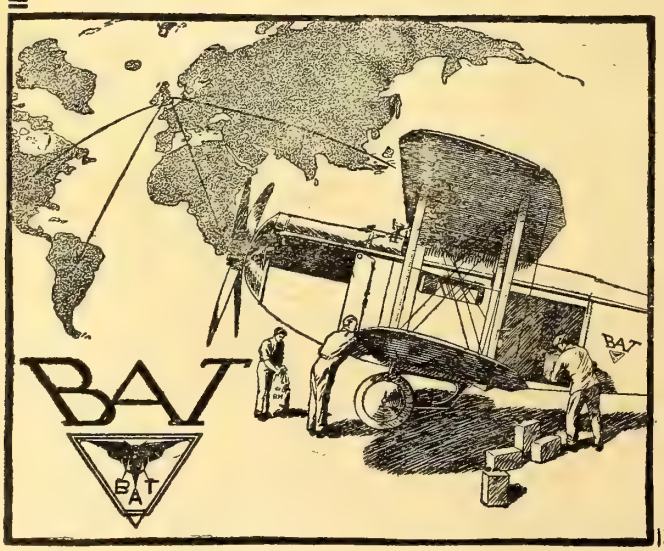

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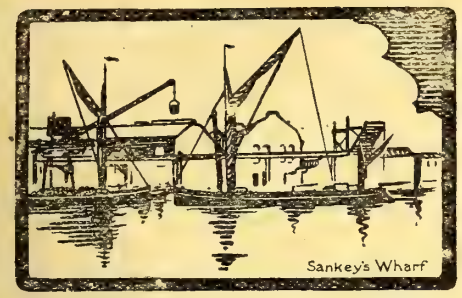

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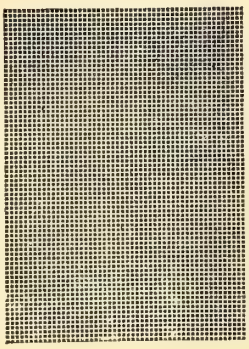

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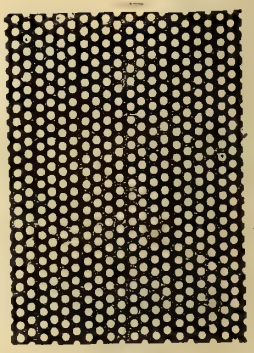

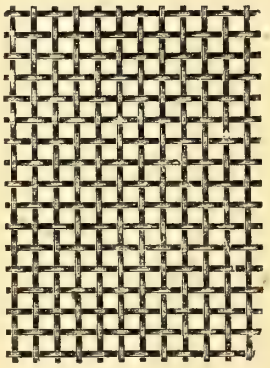

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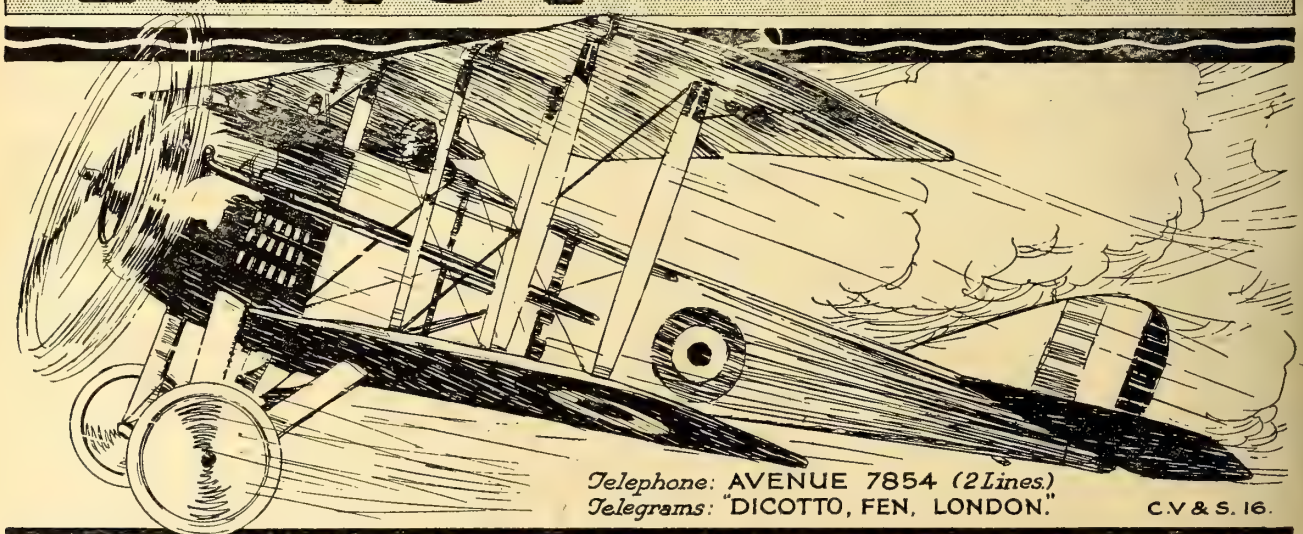

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As different grades of fuel affect engine-power and performances only to a very slight extent, the satisfactory solution of this problem required the highest possible accuracy in obtaining complete data on engine performance, as previously outlined. Thus, a practice was established by which all the measurements of power, speed, fuel consumption, barometric pressure, air and water flow, temperature, and pressure, provided for by the apparatus, are customarily made, no matter what is the immediate purpose of the test in hand. The result is, in addition to the data directly desired, an accumulation of valuable supplementary data on engine performance, much of which has not yet been analysed

Observations have been made to determine specifically the following relations :—

1. Horse-power-altitude relation for engines at normal speed.
2. Horse-power-speed relation at a range of altitudes up to 20,000 feet.
3. Horse-power-compression ratio for normal speed, using compression ratios of 4.7, 5.3, and 6.2 to 1 at a range of altitudes up to 30,000 feet.
4. Horse-power-inlet air temperature at a range of speeds and altitudes.
5. Effect of variation of intake pressure on horse-power at a range of altitudes, to simulate the effect of supercharging equipment.
6. Effect of exhaust back pressure on horse-power, over a limited range of pressures.
7. Mechanical losses at various speeds, altitudes, and engine temperatures.
8. Metering characteristics of a number of different types of carburetters, with and without altitude compensation or control, for the full range of speeds and altitudes.
9. Optimum mixture ratios for maximum power over the range of speeds and altitudes, with several different carburetters.
10. The performance of a number of automatic and hand-operated altitude compensation devices for different carburetters.
11. The total heat distribution for all speeds and air densities at full throttle.
12. The performance of special fuels; "Hector," a combination of cyclo-hexane and benzol; 'Alco-gas," a combination of alcohol, benzol, gasoline, and other, at a compression ratio of 7.2 to 1.

Other relations have been investigated from time to time. Moreover, the detailed records taken for each test include much information bearing on other characteristics of engine performance, such as, for instance, the behaviour of spark plugs and ignition systems under conditions of low air pressure and temperature.

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This building will contain two altitude chambers upon similar lines to the one described. In testing a single large engine at high altitudes the doors between the two chambers may be left open, which permits the use of the two vacuum pumps and banks of cooling coils, thus greatly increasing the capacity of the plant.

In connection with one of the chambers two 300 horse-power electric dynamometers, and with the other one 400 horse-power dynamometer will be used. The foundations of the dynamometers are provided with extension bed-plates at the ends opposite the chambers, on which to mount engines for test purposes when it is not necessary to conduct the test at other than ground conditions.

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Of the experiments carried out in the Altitude Laboratory before described, the subject of the first report yet published—No. 7—is the variation of engine horse-power with altitude, and with varying compression ratios.

The series of tests upon which this report is based were made upon an 8-cylinder 150 h.p. Hispano-Suiza engine built by the Wright-Martin Aircraft Corporation. For the purposes of these tests this engine was furnished with three sets of pistons, giving compression ratios of 4.7 (low), 5.3 (high), and 6.2 (extra high) respectively.

The engine was run throughout on a single grade of fuel (Grade X), and with a Claudel carburetter adjusted by hand to give maximum power under each set of conditions.

All tests were made at an approximately uniform speed, and all results were corrected to a standard speed of 1,500 r.p.m.

In the earlier tests the horse-powers were corrected to O°C., while in the later ones they were corrected to standard temperatures for given barometric pressures, that is to say, to the standard temperature, which, in conjunction with the barometric pressure, correspands to a given altitude in the standard—or average—atmosphere.

Thus, these later tests were carried out under conditions simulating those of certain definite "standard" altitudes.

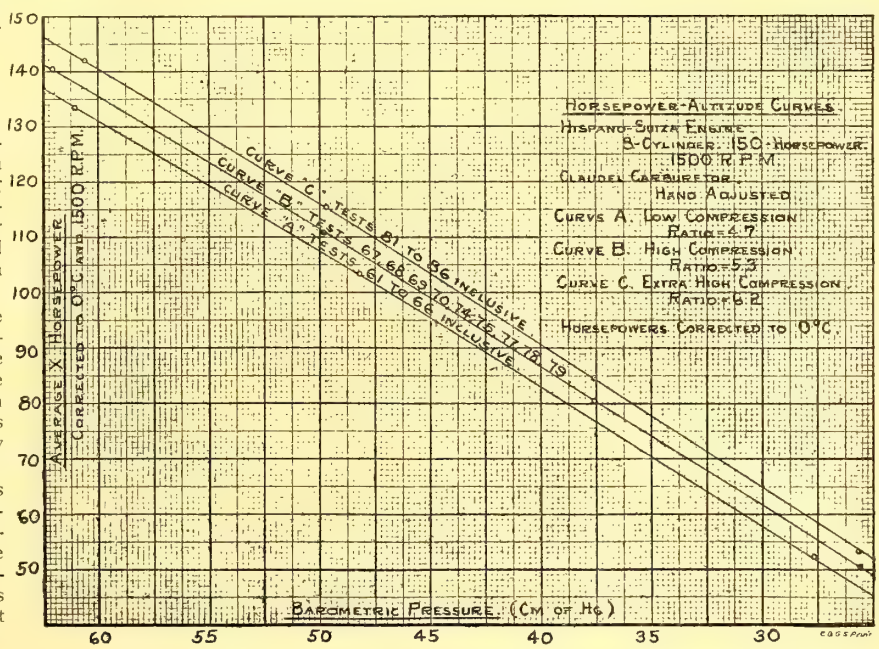


Fig. 1.

Actually four such "standard" altitudes were simulated in these later tests—as shown in the following table:—

Barometric pressure in centimetres of Mercury.	Temperatures in Degrees Cent.	Approx mate altitud in feet
62.1	10.1	5,500
49.8	— 0.1	11,500
37.6	—15.1	19,200
25.6	—36.6	29,600

The figures for altitude are computed from the formula

$$H = 62{,}900 \log_{10} \frac{76}{P.}$$

obtained from the Smithsonian Meteorological Tables for 1907, page, 100, in which H is the altitude in feet, and P is the atmospheric pressure in centimetres of mercury.

This formula is slightly different from certain expressions in use in this country, but the differences are relatively unimportant.

The general result of these tests is exhibited in the curves shown herewith.

Fig. 1 gives the effective h.p. of the particular engine with low, high and extra high compression ratios corrected to a temperature of O.°C. plotted against barometric pressure in cms. of mercury.

Fig. 2 shows (Curve B) the experimentally determined temperature correction to be applied in order to reduce the developed h.p. at any actually observed temperature to the h.p. which would be developed at O.°C. Upon the grounds of elementary theory the h.p. developed by an internal combustion engine under varying atmospheric conditions should be directly proportional to the air density, which is in its turn (a) directly proportional to the barometric pressure, and (b) in inverse proportion to the absolute temperature.

The temperature correction factor (Fo in the figure) should thus be $Fo = \frac{273+t}{273}$ where t is the observed temperature (Cent.).

This theoretical factor is plotted on Fig. 2 (Curve A) and will be seen to diverge considerably from the experimental results.

These show that Fo in practice follows the equation

$$Fo = \frac{529+t}{529}$$

and that the developed h.p. rises at a slower rate with increase in temperature than does the air density.

Fig. 3 gives the ratio of the horse-power of the engine fitted with A, low compression, B, high compression, and C, extra high compression pistons, at various standard altitudes to the horse-power developed at standard sea level and at 1,500 r.p.m. with the high compression (ratio 5.3 to 1) pistons.

The curves of Fig. 4 illustrate the variation in horse-power with compression ratio at different altitudes.

The horse-power developed with the 5.3 or "high" compression ratio, at the different altitudes, was taken as 100 per cent., and the other two compression ratios were plotted as percentages of this curve. As will be seen upon examination, the gain in horse-power due to "extra-high" over "high" compression amounts to

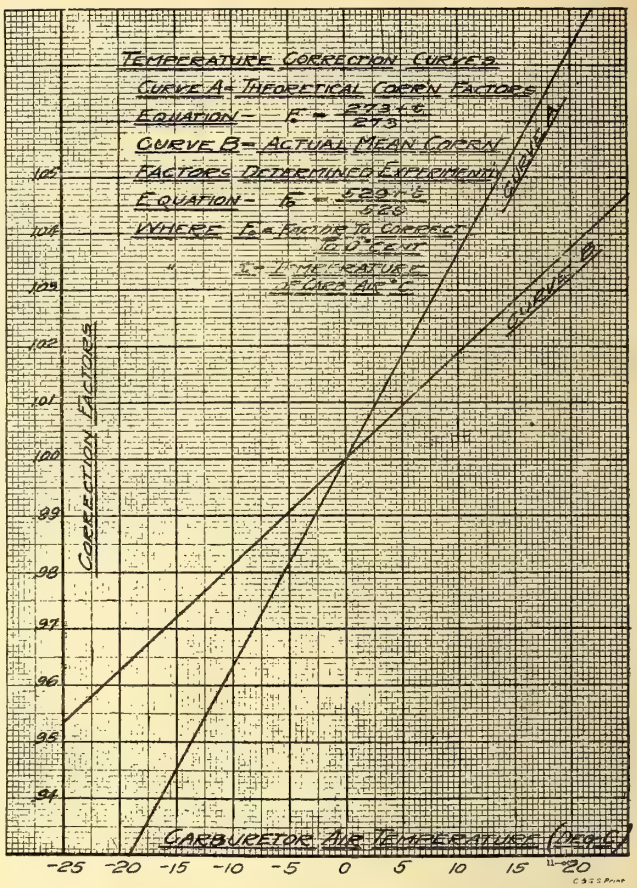


Fig. 2.

but 2.8 per cent. at 5,000 feet, while it increases to nearly 5.8 per cent. at 30,000 feet. Likewise, the decrease in horse-power due to "low" compression, while only 3.3 per cent. at 5,000 feet, amounts to about 7.3 per cent. at 30,000 feet.

It is evident, therefore, that the value of high compression is more apparent at high than at low altitudes.

It should be pointed out that any comparison of absolute horse-power for the different compression ratios may be misleading as the engine conditions, such as fit of piston and rings, condition of valves, etc., were not the same in each case. However, the manner in which the horse-power varies with barometric pressure in each case may be taken as characteristic for the given combination of engine, carburetter, and fuel with a given compression ratio.

The rate at which the engine h.p. of an aeroplane decreases with height is an important factor in the estimate of the limiting height which an aeroplane can reach and in predicting the rate of climb possible at high altitudes. It has been usual to assume that the h.p. variation was directly as the air density, i.e., directly as:—

$$\frac{PH \times 273+to}{Po \quad 273+tH}$$

where

PH = Barometric pressure at height H
Po = Barometric pressure at sea level
tH = Temperature (Cent.) at height H
to = Temperature (Cent.) at sea level.

and to then introduce some factor, based on experience or guesswork to allow for the known inaccuracies—such as the fact that some portion of the mechanical losses in the engine were independent of the air density, and that with very low temperature of fuel and air there were considerable heat losses in warming these up to combustion temperatures.

The result of these tests is to give a definite expression for the variation in h.p. with alteration in barometer and temperature of one particular type of engine—which is probably fairly accurate for the generality of water-cooled engines.

This expression would be:—

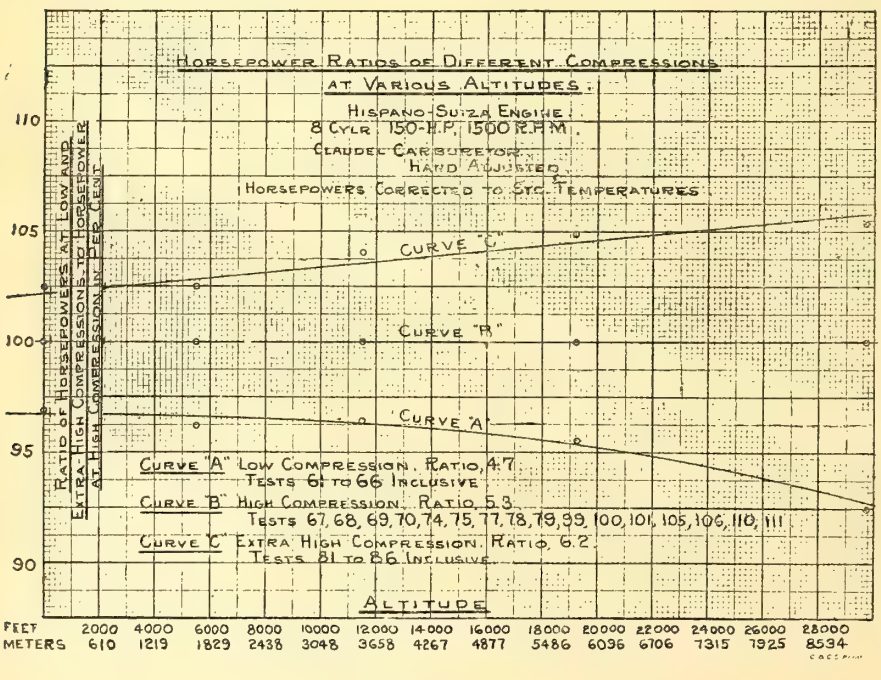
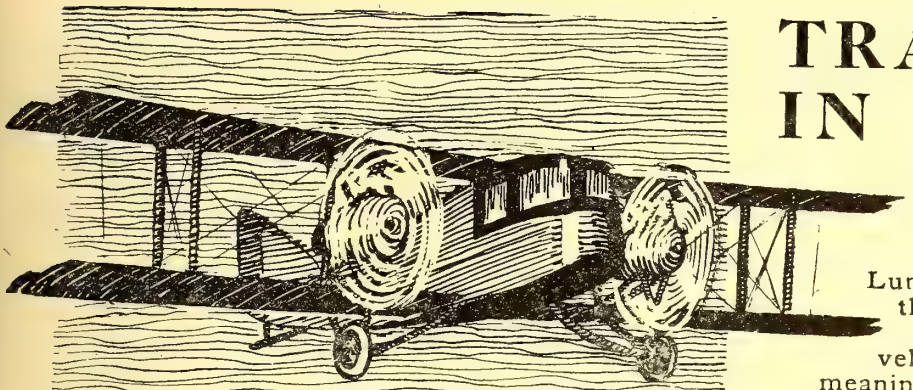


Fig. 3.



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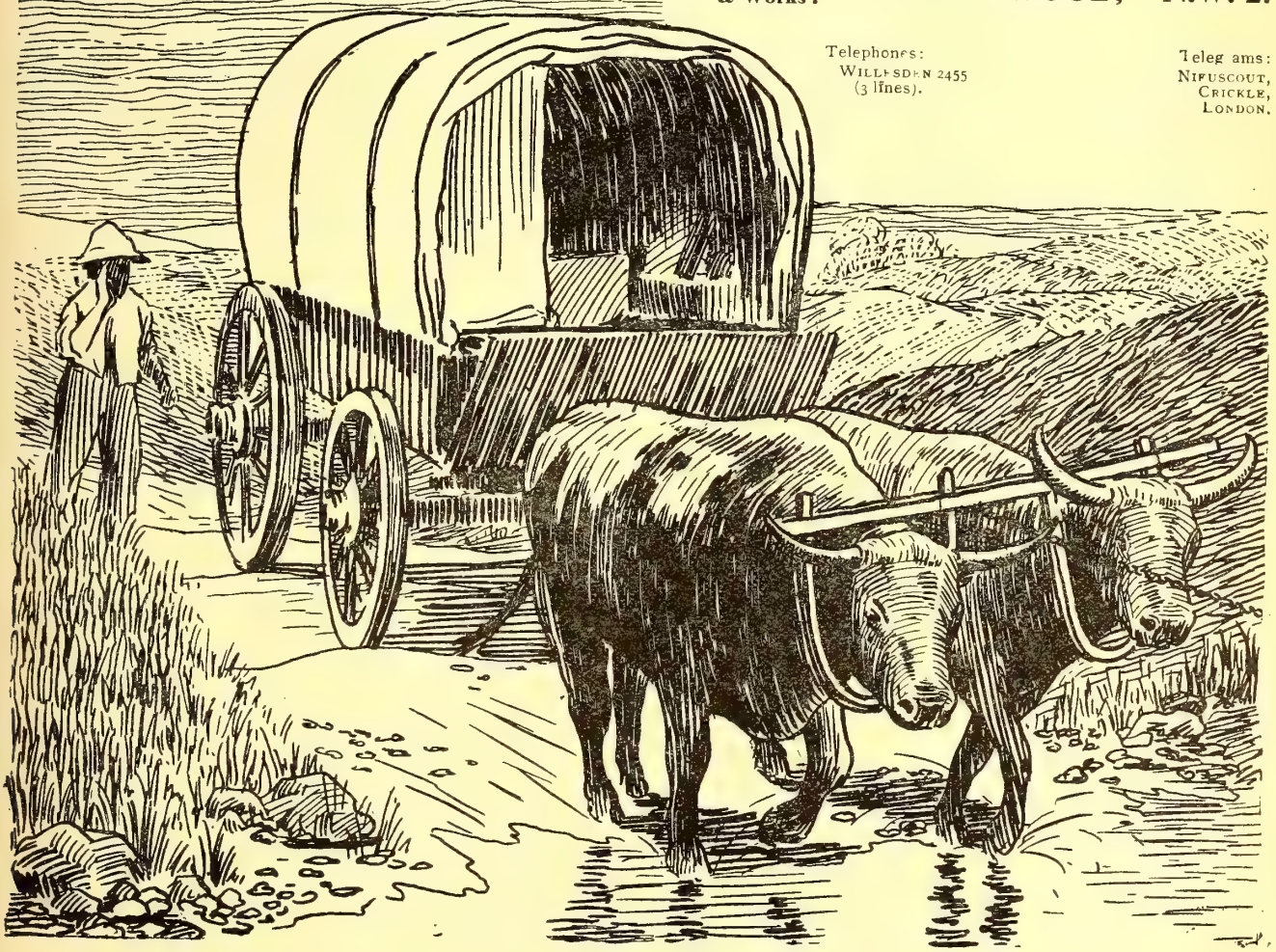


H.P. varies as

$$\frac{P_H}{P_O} \times \frac{529+t_O}{529+t_H}$$

It may be assumed that this expression will be considerably modified with engines of radically different types, and that, in particular, the rotary type of air-cooled engine will conform more nearly to the theoretical direct variation with the density than is shown by this equation.

A further series of tests carried out on the same engine and upon a 180-h.p. Hispano-Suiza of the same make with three different carburetters showed some slight variation in the effect of temperature with the carburetter used, but generally agreed very closely with the temperature correction factors given in Report No. 7, which is mentioned above. The results of this later set of tests constitute the subject of a separate Report (No. 8), which, however, leads to nothing further than to a confirmation of the deduction made above.

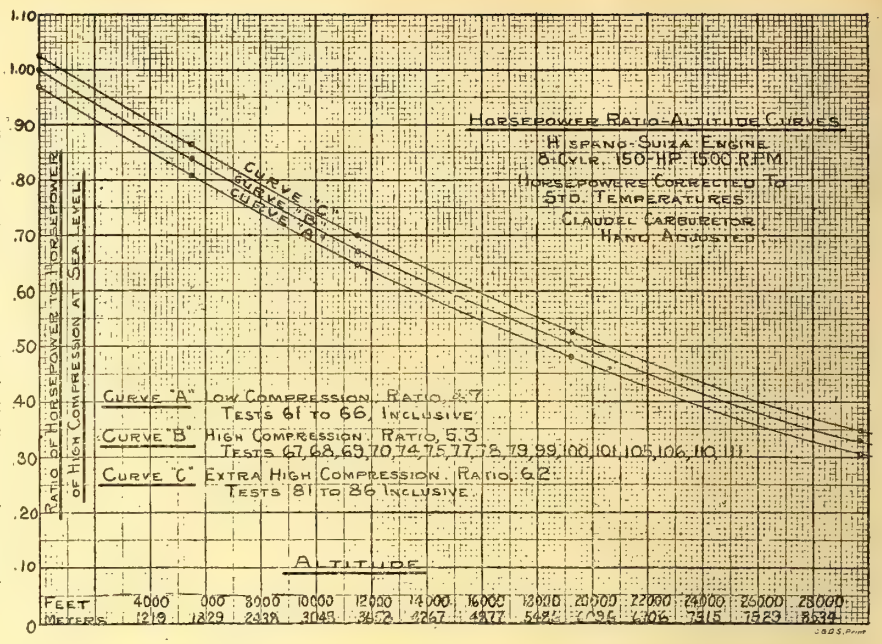


Fig. 4.

GERMAN COMMERCIAL AFTER-WAR AIRCRAFT.

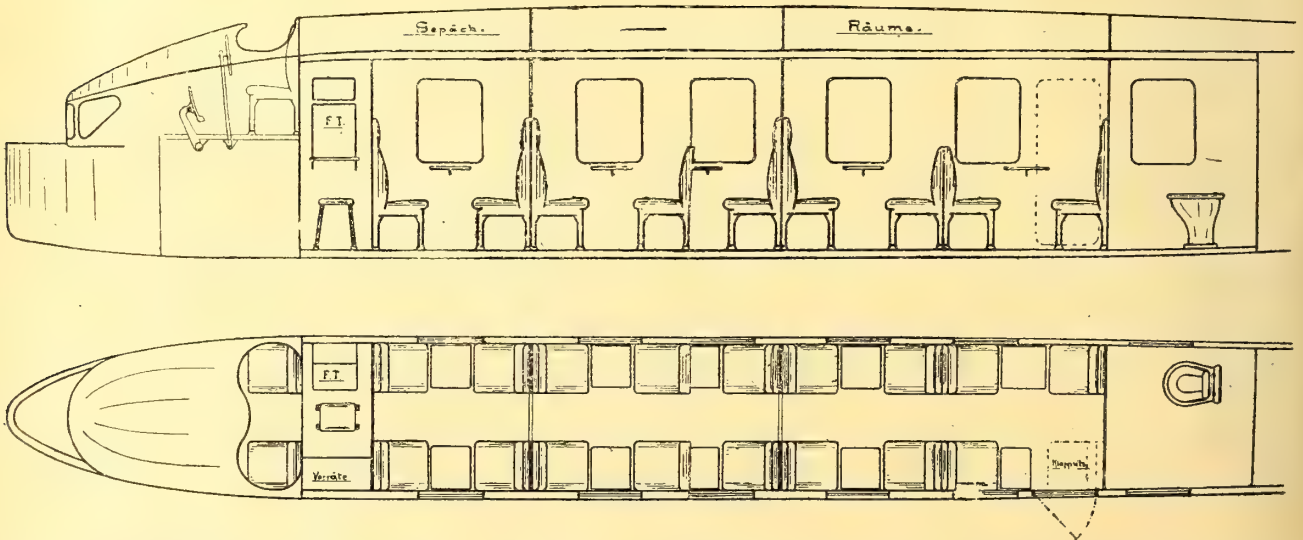
The end of the war has given Germany a good opportunity for developing civil and commercial aviation, as a start did not have to be made with joy-riding. Owing to the total breakdown of the railways more than other things, aircraft have come to the fore as the speediest, the most certain, if not the safest means of transportation. The cost of aerial travelling cannot be helped for those who, perforce, have to travel, but most people are not travelling at all, owing to the present railway troubles. Should the re-establishment of the railways to something like normal conditions not bring the cost down to the earthbound regions soon, which does not seem possible, as the railroad inefficiency is owing to lack of materials, and as the locomotive output is less than ever, thanks to strikes, then aircraft may have chances of developing into pure commercial types, in spite of the otherwise sad financial situation.

At present G and C class aeroplanes are chiefly used, i.e., the twin-engined A.E.G. five-seaters, made by the German Air Shipping Co., and their modern two-seaters, made by the Sablatnig and Rumpler works. These are the three foremost enterprises, and have Government licence for passengers, mail and parcel aerial service.

So far, services appear to have been successful, which means that delays have not been caused by technical or meteorological factors, but by strikes and the lack of petrol resulting from them. Thus the Deutsche Luftrederei has for some time only been able to maintain the main lines between Berlin and Weimar, and although it has acquired the former naval sheds at Aabenraa in Sleswig, it has been held up by fuel troubles. The Sablatnig Co. hopes to inaugurate a service from Sleswig to Copenhagen, though so far it has not the sanction of the Danish Government.

As they are the persons chiefly forced to travel these days the artists, actors and actresses are the best pioneers and advertisers of the various commercial aviation firms.

The Sablatnig enterprise employs its night-flying N model with good manœuvring capabilities. It is equipped with a 230 h.p. Benz engine, and has the front observer's cockpit transformed into an enclosed narrow cabin for four passengers, which makes the machine appear rather nose-heavy in landing. Various other aircraft works have adopted the Airco two-passenger limousine fashion fuselage for their modern light two-seater (C.L. class) biplanes, by raising the rear observer's cockpit. The



The Passenger Cabin of an Aviatic-built Staaken Giant of the R3 type. This diagram shows a general resemblance to British practice.

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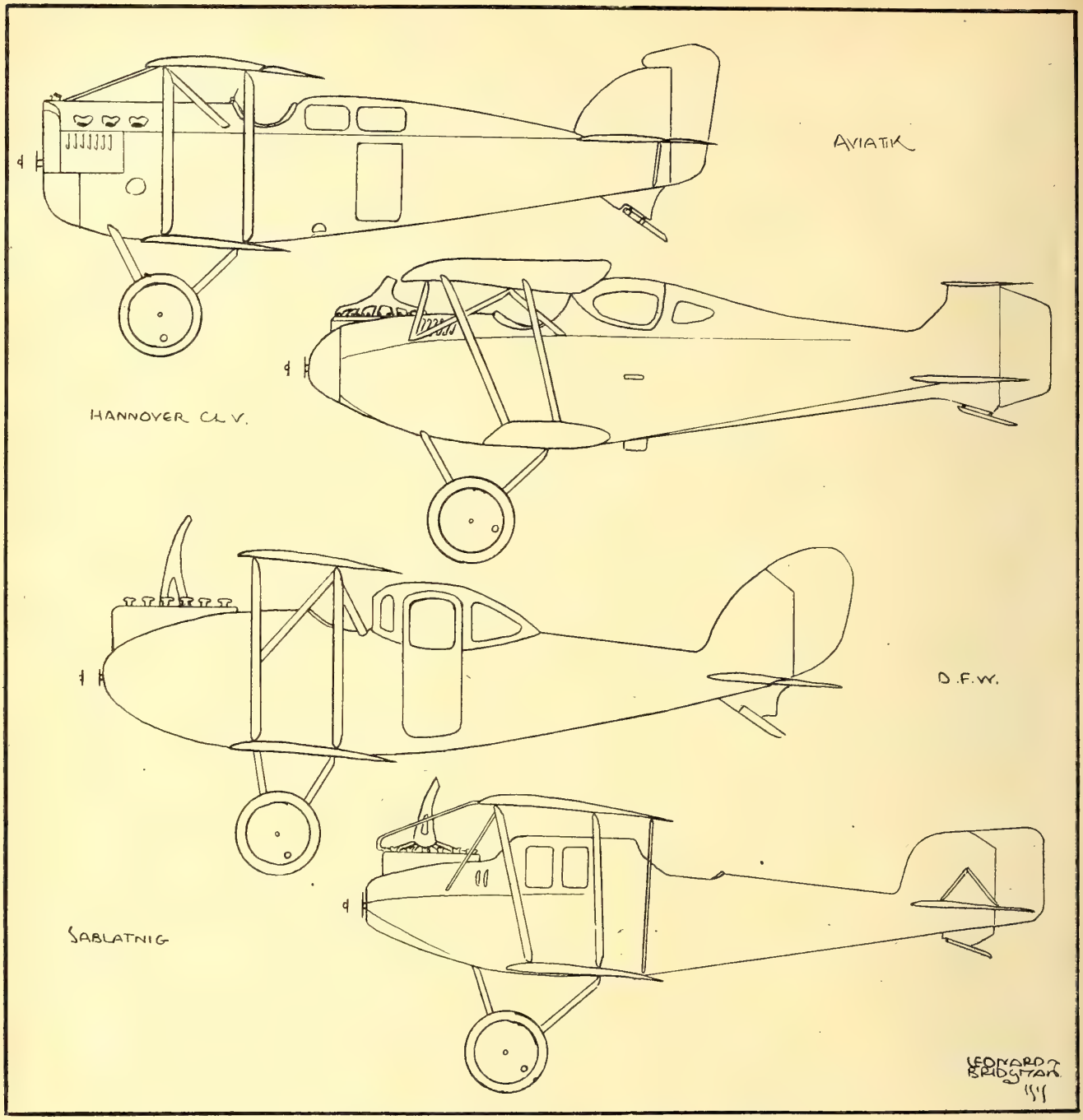

Outline Drawings of German Passenger Machines.

D.F.W. works in Leipzig and the Hannoversche Waggonfabrik have done this.

Most other passenger-flying has been done with the Staaken giant type, which is now a combined tractor and pusher biplane with four engines in two interplane power-eggs. A regular week-end trip service, similar to the Farman-Goliath Paris-Brussels one, is run between Berlin and the seaside resort Swinemünde, and affords the wearied inhabitants of the capital some possibilities of fresh air. Both Staaken aeroplanes and seaplanes are employed with the fuselage nose made into a passenger cabin. One Staaken aircraft has with full passenger load crossed Mount Brocken.

Among the licensed builders of this well-employed type is the Aviatik (works, now situated at Leipzig-Heiterblick. They manufacture for commercial, mail and passenger service a R.III model, with four 250 h.p. six-cyl. Benz motors. The main dimensions are: Span, 43½ metres; maximum length, 22½ m.; maximum height, 6½ m.; empty, weight, 9 tons; fuel and crew, 1,800 kg.; useful load, 1,800 kg.; total weight, 12,600 kg. The crew comprise: One captain, two pilots, two engineers, and one steward. The fuel capacity suffices for a 7 hours' flight, or a distance of 875 km. The speed is 125 kilometres per hour at an altitude of 7,500 ft., the climb being 10,500 ft. in 100 min.; 12,000 ft. is the ceiling. A part view of the aircraft showing well the arrangement of the passenger cabin and pilot's position is given.—Anglo-Dane.

THE WIRELESS SOCIETY.

The committee of the Wireless Society of London met recently under the presidency of Mr. Alan A. Campbell-Swinton, F.R.S., with a view to an early resumption of activities. The hon. secretary, Mr. R. H. Klein, having resigned and having been elected an acting vice-president, Mr. Leslie McMichael, of 30, West End Lane, West Hampstead, N.W.6, has been elected hon. secretary, and to him all communications should be addressed. Intending new members and those who were members at the outbreak of war who have changed their addresses are requested to communicate with the hon. secretary.

The Society is open to all those interested in the study and furtherance of wireless telegraphy, amateur or professional.

The Society is at present in communication with the Post Office on the subject of licences.

The finding of new club rooms is engaging the attention of the committee and it is hoped to secure premises where the wireless equipment of the Society can be installed and used.

A general meeting will be held in a few weeks' time, of which due notice will appear in the Press and will be sent to members and those who intend becoming members.

The Society's activities should make an appeal to the considerable number of readers of The Aeroplane who are interested in the application of wireless telegraphy and telephony to aeronautical needs.

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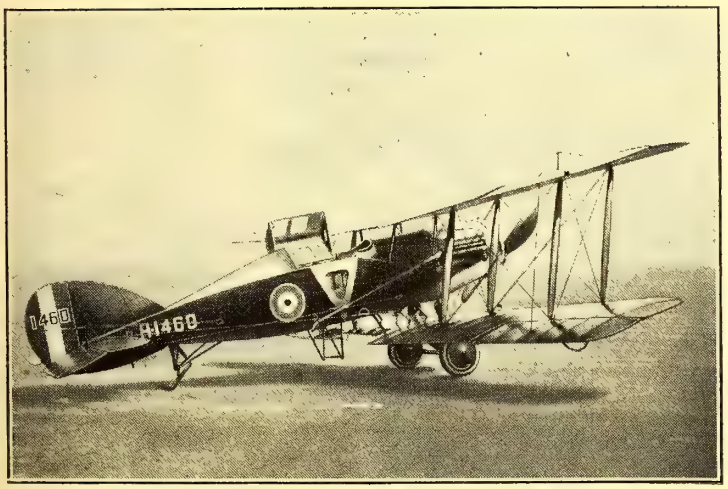

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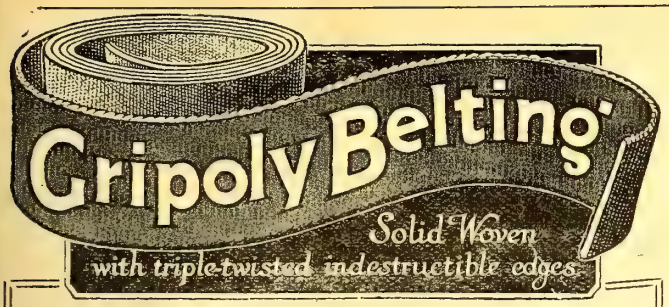

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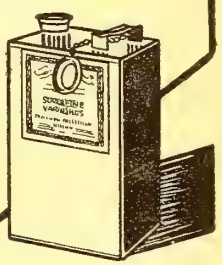

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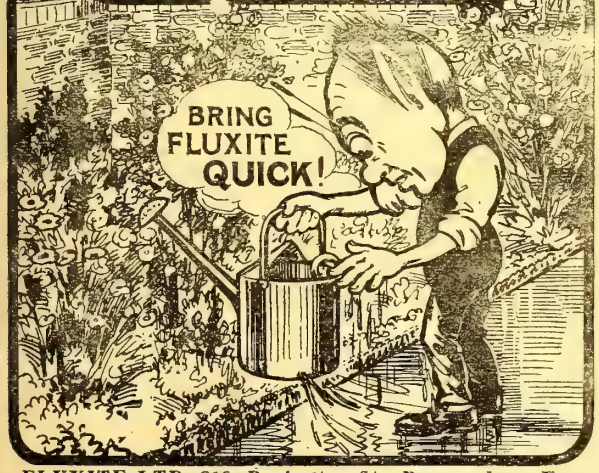

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ARE AIRCRAFT ESSENTIAL?

By "MEDWAY."

A writer in the "Times," dealing at some length with the Government's policy in respect of commercial aviation, puts forward a half-hearted apology for our national neglect to put our backs into the job of getting the cream of the world's business in this new line. He remarks, "Strictly speaking, aircraft cannot be regarded as a necessity except in war. At present they are a luxury—at least in the sense that, if the choice in the last resort was between coal and an aeroplane, no wise man would choose the aeroplane."

Admittedly, the originator of this great thought does not seem to set much store by it himself, because the main trend of his argument is sufficiently reasonable and progressive. At the same time, it is to be supposed that, if he had regarded the remark quoted as being hopelessly inane, he would have refrained from making it. By working along his line of reasoning, one can reduce essentials to an absurd minimum. If the choice in the last resort was between coal and air, no wise man would choose the coal, partly because he would have to postpone any hopes of warmth until his arrival in the next world, and partly because the coal would not burn if the air were not existent. Similarly, of course, if we had no coal, we could not make any aeroplanes, or, for that matter, any other engineering products. The aeroplane, in fact, is part of the result of our having coal, but is not the whole result. Euclid has quite correctly informed us that the part is less than the whole.

We cannot very well complain of the contention that coal is more essential than aeroplanes, but one can fairly complain of the deduction therefrom that aeroplanes are not truly essential.

Regarded as a Luxury.

Our friend says that aeroplanes are at present a luxury. I suppose that just the same thing was thought in other days about the railway locomotive or the steamship. One might, perhaps, argue that no modern methods of transport are essential. We must admit that there was a time when people got on without them. Nothing that we manufacture can conceivably be altogether essential in its very early stages. It only becomes completely essential when it has so far established itself that competitive methods have been knocked out and there would be nothing to take its place if it were removed. The fact is that almost nothing is absolutely essential to the human race, with the exception of air, food, water, and heat.

This does not mean that everything else can be properly called a luxury. What is or is not a luxury depends mainly upon environment. What would be a luxury to a savage might be a commonplace necessity to a civilised man.

Perhaps we may define a luxury as something which we could do without and yet suffer no inconvenience whatever. The question is how long we must do without it in order to establish the case. I venture to suggest that, if we in this country did without aeroplanes for the next ten years, we should have dropped hopelessly out of our position as a great nation, not only on the score of our military feebleness, but because we should be entirely beaten in commerce, just as we should have been already had we refused to adopt railways, steamships, telephones, and so on.

A Game of Hide-and-Seek.

It is the business of the Government to look not 10 minutes but 10 years ahead. It is not the business of the Government to take unnecessary risks, such that, if things go wrong, the results are fatal, but rather to ensure in advance against anything of the kind by careful but adequate expenditure of public funds. We are told time and again that the Department of Civil Aviation lacks an adequate staff. This may be a good enough excuse for deficiencies on the part of the Department, but, after all, it merely shuffles the responsibility from one place to another. The average Government official spends his life playing a sort of hide-and-seek with the public. The public discovers that things are going wrong and complains. The official cannot deny that they are going wrong, but points out that the blame must rest on some other Department or Departments unidentified. Generally the poor old Treasury is the scapegoat, but I have an idea that when other Departments ask the Treasury for money they very often put their

The De Havilland 4R Biplane (450 h.p. Napier "Lion") which won the Aerial Derby. The machine is here seen leaving Hendon.

requests in such a form that a refusal goes without saying, and that this is done intentionally and is all part of the game.

Getting back to the question of luxuries, it seems to me that luxury consists very often in doing without modern improvements. To my mind, life in an office before the days of telephones, telegrams, or railway trains, must have been mainly a life of luxury and ease. There was seldom any immediate reason for doing anything at any particular moment. As long as it was done within a week or two it was all right. One's train of thought was not constantly upset by incoming telephone calls or one's temper by futile endeavours to ring up other people. Every step in the speeding-up progress makes life more worrying and the nerve-strain of business more acute.

The Curse of Luxury.

At the present moment we have hardly sacrificed any of the luxury that consists of doing without commercial aeronautics. When the new form of transport has developed it will only constitute another reason why we are obliged to think and act quickly and to be always on the spot.

I think that many people have at one time or another shared with the writer the feeling of relief that comes over one when a business letter is despatched, say, to Australia, and we realise that three months will elapse before the next move has to be made. The quicker our postal facilities, the more rapidly must we be ready to make our moves. Business is rather like a game of chess. You must look ahead, consider what the other fellow will reply and what you will reply afterwards. Given time, it should be possible to play the game without making many bad mistakes, but even the biggest experts would be in trouble if required to play chess with a five-second limit for each move, especially if, like the business man, they had about thirty different games going on at the same time.

So far as I am concerned, I should be only too glad to dispense with all modern accelerating systems, provided my competitors were compelled to do the same. To me they are not luxuries, but painful necessities, and this is the category into which I put commercial aeronautics from the business man's standpoint. The trouble is that, by doing without a thing ourselves, we cannot compel our competitors to follow suit. They will inevitably take the opportunity of getting in ahead of us. This is what will happen if we delude ourselves with the idea that aircraft are a luxury, and that, therefore, there is some kind of excuse to be put up if we make the fatal mistake of neglecting any means by which we can make ourselves the premier nation in aircraft production and in commercial aeronautics.

AIR SUPREMACY.

During the ages England has maintained her greatness and security by her sea supremacy. Without this sea supremacy in the present war victory would never have been possible for us and our Allies; the least that could have happened would have been that all the Powers of the Entente would have starved both for rations and munitions of war. In all probability this country would have been successfully invaded by the enemy, and our armies isolated in France.

The Hun realised that although he could not land troops on our shores in large numbers, because of our sea supremacy, he could cause great demoralisation throughout the country by air raids, more particularly in large towns where munitions of war were being produced.

The Hun, therefore, made frantic efforts to gain and maintain air supremacy; but he failed. And we beat him both at home and overseas in the air, just as we beat him on the sea; in fact, we gained supremacy of the air. We became again, that is to say, an island people, inaccessible to the enemy, and we were enabled by sea and air supremacy to concentrate all our energy at home on backing the armies in the field.

If we had failed to gain this air supremacy, the ever-increasing intensity of enemy air raids must eventually have so paralysed our home industries as to have rendered it impossible for us to win or even continue the war. It was the failure of the U-boats and the super-Gothas which marked the turning point in the war and we began to win; we were not, in other words, to be starved by piracy or demoralised by wholesale air raids into surrender.

The air supremacy which we have gained and maintained during this war we must keep; whatever platitudes people may talk concerning disarmament are very nice in theory, but it must not be forgotten that although might is not necessarily right, the strong man is more able to maintain order than the weak.

We need not denude ourselves of our strength in order to be just and peaceful. However just the weak man's cause, he cannot avoid war being thrust upon him, but with a combination of justice and strength any nation is in a position to prevent war.

If on August 4th, 1914, the Hun had known that this country would enter the war and succeed in raising the fine armies which have been raised, there would have been no war; the Hun took advantage of what he erroneously supposed to be our national weakness.

The geographical position of this country makes us safe from invasion so long as we maintain our sea and air supremacy; as soon as we give up either or both of these factors of national safety we increase the possibility of war in the world by laying ourselves open to invasion by either or both of these means.

We owe it, therefore, to future generations to maintain this supremacy, both for the preservation of this country and its independence, and for prevention of wars in the world.

Navies, armies, and air fleets must be made weapons of the law, and not a means of war. Piracy disappeared from the seas with the appearance of strong, well-trained and organised sea fleets. Criminal slaughter from the air will be made impossible for all time by the maintenance of strong, well-trained air fleets.

Disarmament will not bring about the end of war any more than the abolition of the police force would bring about the end of crime in society. There is always a criminal bully somewhere, seeking for a disarmed fool to rob. Let the fool arm himself and he will be able to prevent the bully from breaking the peace.

The Air Force should be maintained in peace time for mail-carrying and commercial purposes; it should be so organised that, if war be thrust upon us, it can be immediately converted into a means of giving us such air supremacy as will cut that war down to the shortest possible duration.

Nothing is gained by cutting down without reason the expense of maintaining the Navy, Army, and Air Force, which are for the explicit purpose of securing us against wars, and not waging unprovoked wars. War is the most expensive of all things both in life and property.

We will totally disarm when all the world has done so. Our geographical position in the world compels us to be the last nation to disarm.

Aerial navigation has annihilated time and space. In the next war we shall be as vulnerable from China as we have been in this war from Germany—if unarmed.

When the remotest races in the world have joined the League of Nations, and shown their good faith by disarmament, then is the time for us to disarm, and not before.—V. S.

AERONAUTICAL INTELLIGENCE.

The first (statutory) ordinary general meeting of the Aeronautical Intelligence Bureau was held at the registered offices, 30, Bedford Row, London, W.C.1, on Aug. 11th.

The aims and objects of the Bureau (although this was only incorporated on June 13th, 1919), are obviously becoming known far afield, which is shown by the applications for admission to membership received from Continental firms. Negotiations are being made for linking up with a sister organisation in the U.S.A. which, if brought to a satisfactory conclusion, will amplify the Bureau's commercial records of the firms interested in aeronautics in the States.

The accession of Mr. A. P. Newall, of the Woodside Engineering Co., Ltd., to the Council of Management makes that body completely representative of six of the principal sections of the trade. The experimental stage having been passed and the value of the organisation being amply proved, Mr. P. P. Nicholl has entered into a prolonged agreement to continue his work as secretary and manager.

A REMOVAL.

The Blackburn Aeroplane and Motor Co., Ltd., of Olympia, Leeds, are removing their aeroplane factory to Brough, near Hull, where there is an aerodrome. It is also intended to enlarge their works at Brough. The old works at Olympia will be used for the manufacture of motor-cars, etc.

"Machines must be capable of being started from the Cockpit or Cabin without undue muscular exertion on the part of the pilot."

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CIVIL AERIAL TRANSPORT NOTES.

GREAT BRITAIN.

LONDON-PARIS AIR SERVICES.

The air service to Paris maintained by Aircraft Transport and Travel, Ltd., during the week ending Aug. 30th ran from Le Bourget to Hounslow every day, and from Hounslow to Le Bourget every day except Thursday.

In the middle of the week the weather rendered flying nearly impossible. On Thursday, Aug. 28th, there was a hundred miles an hour hurricane over the Channel according to the official weather report.

Under these conditions Lieut. H. Shaw (late R.A.F.) flew an Airco D.H.4a from Paris to London and did the journey 25 minutes under the scheduled time. A number of parcels and two passengers were carried. The C.G.C.A. (Major-Gen. Sir F. H. Sykes) has conveyed his congratulations to the company in respect of this flight, which he considers a very meritorious performance.

Parcels containing various goods have been carried on every trip. Towards the end of the week business men awoke to the fact that the service would be maintained despite the weather, and much space has been booked in advance for passengers and goods.

It is hoped that the arrangements between the British and French Post Offices will soon permit the carrying of express letters by air. It is understood that the fee will be 2s. 6d. This will include the Post Office charges for express collection and delivery by motor-cycle and special messenger. By the speeding up of land connections it is expected that a letter posted in London during the morning will reach its recipient in Paris during the early afternoon.

Details of the flights made to and from Paris are given in the following table :—

Date.	Type.	Left Hounslow	Arr. Paris	Left Paris	Arr. Hounslow	Pass	Weather
Aug. 25th	D.H 4a.	9.10 a.m.	11.40 a.m.	12 40 p.m.	2.45 p.m.	1	Wind and haze
	D.H.16.	12.30 p.m.	2 45 p.m.			4	
,, 26th	D.H.4a.	1 5 p.m.	3.20 p.m.			2	40 m.p.h. wind
	D.H 16.			12.30 p.m.	3.39 p m.	4	
,, 27th	D.H.9.	12 43 p.m.	3 10 p.m.			1	Do. and 800ft. clouds
	D H.4a.			12.30 p.m.	3.20 p.m.	2	
,, 28th	D.H 4a.			12.30 p.m.	2.20 p.m.	2	100 m.p.h. wind
,, 29th	D.H.4a.	9.0 a m.	11.15 a.m.			2	Low clouds, rain, gusty
	D.H.16.	12.30 p.m.	3.0 p.m.			4	
	D.H.9.	12.30 p m.	2.45 p.m.			2	
	D.H.9.			12 30 p.m.	3.0 p.m.	2	
,, 30th	D.H.4a.	12.30 p m.	2.55 p.m.			2	20 m.p.h. N.W. wind
	D.H.9.			12.30 p.m.	3.10 p.m.	2	
	D.H 4a.			12.40 p.m.	3.20 p.m.	2	

On August 27th, Lady Muriel Paget flew from Paris in the D.H.4a. She was the first woman passenger to cross the Channel since the inauguration of the service.

On August 29th the D.H.16, which flew to Paris, carried four passengers : Sir Sydney Lee, Bt., Mr. and Mrs. Leonard Aldridge, and Mr. A. H. Davies. Mrs. Aldridge was the first woman passenger to fly from London to Paris since the Governments have allowed flying between the two countries.

Carter Paterson and Co., Ltd., and the American Express Co. are agents for the collection and delivery of express parcels and goods for the London-Paris Air Service, run by Aircraft Transport and Travel, Ltd.

With the service starting from Hounslow at 12.30 p.m., parcels will be accepted at Carter Paterson's City office, 3, Cannon Street, up to 10.30 a.m. They will be accepted at Maddox Street, Regent Street, up to 9.45 a.m.

The American Express Co. will also accept parcels in London at their offices in Queen Street, City, and Haymarket at times corresponding to those above. Parcels will also be accepted by the Paris branch of this firm.

The Handley Page machine, carrying 11 journalists, which left Cricklewood for Paris at 8.30 a.m. on Aug. 25th, reached Hounslow at 9.30 a.m., and arrived at Le Bourget aerodrome at 1.5 p.m.

Owing to Customs delays and the weather conditions, it did not leave Paris until 1 p.m. on the next day, Aug. 26th. It then crossed the Channel, and, on account of the gale blowing, landed at Lympne at 3.30 p.m.

On Aug. 27th it left Lympne at 4.40 p.m., and arrived at Cricklewood at 5.35 p.m.

Handley Page, Ltd., arranged to start their alternate day service to Paris on Tuesday, Sept. 2nd. A machine will leave Cricklewood at 12 noon on Tuesdays, Thursdays, and Saturdays, and will return from Le Bourget on the alternate days.

As no agreement has yet been made between the English and Belgian Governments, the London-Brussels service did not start on Monday, Sept. 1st. Arrangements are being made for it to start on Monday, Sept. 8th. On this service flights to Brussels will be made on Mondays, Wednesdays, and Fridays, with return journeys on the alternate days. All these services will start from the aerodromes at noon.

THE "DAILY NEWS" FREE FLIGHTS.

The last of the free flights was given on Saturday, August 30th. Since the scheme was started in the beginning of June at Cricklewood, over 2,500 passengers have been given flights.

These flights have given some idea of what flying is like to many people. Although the "Daily News" has done a great deal to popularise flying, in most cases the type of person who has been given a flight has not had any power to do anything to help on civil aviation.

AVRO NORTHERN STATIONS.

There were 17 machines at work on all stations; 246 flights were made, and 546 passengers carried during the week ending August 30th.

THE GREAT NORTHERN AERIAL SYNDICATE.

The Great Northern Aerial Syndicate of Liverpool has planned three routes for their Transatlantic airships to follow :—

(1) Liverpool to York, Hull, Copenhagen, Stockholm, Petrograd, Tomsk, Pekin, San Francisco, New York, Queenstown, and Dublin.

(2) Liverpool to London, Paris, Cairo, Colombo, Perth and Melbourne or Sydney.

(3) Liverpool to Cardiff, Lisbon, Sierra Leone, Cape Town, and Buenos Ayres.

The cost of travel is estimated to be only 4d. a mile. The passage from Liverpool to New York is expected to take two and a half days, and Australia may be reached in seven days.

The proposal is to land large airships from New York at Liverpool, and transfer the passengers for other places to smaller craft.

Negotiations have been completed for the lease of landing grounds at different parts, one being at Kingston-on-Thames.

ABERYSTWYTH.

An Avro aeroplane carrying two passengers, and piloted by Lieut. David (late R.A.F.), crashed near the landing ground at Aberystwyth on August 28th.

The passengers were not injured, but the pilot was taken to the infirmary suffering from injuries to the head and limbs.

BIRMINGHAM.

Vast crowds flocked to the Billesley Aerodrome, King's Heath, on August 19th-24th, and 30th-31st, to witness the passenger flying exhibition held there by Vickers Ltd.

Many passengers have been carried in the three-seater Avros. On Saturday, August 23rd, 600 passengers were taken up, and on the next day this number was doubled.

BLACKPOOL.

Owing to four days of continuous rain, sometimes accompanied by storms of hurricane violence, there was not much flying in the north last week. An extraordinary storm sprung up one night about 12 o'clock, increasing in violence till the wind reached a speed of between 65 and 85 miles an hour.

The Avros pegged down on the sand at Blackpool, Southport, and Rhyl suffered considerable damage, the machines, complete with sandbags and pegging-down gear, being carried away and partially wrecked. In one case the machines was lifted up over a fence and carried 50 yards away. One of the night watchmen at Blackpool saved a machine by hanging on to it from 3 a.m. till assistance came at 6 a.m.

This storm was most interesting from a meteorological point of view. The air station in Anglesey, which sends daily reports to the Avro aerodrome in Lancashire, received, and, of course, sent, no warning of the storm, which was only felt in N.W. Ireland, and then burst in full fury on the Lancashire coast, apparently abating considerably as it travelled inland.

Despite the damage to the machines at Blackpool flying took place as usual when the storm had passed. Many messages of regret were received as to the company's bad luck.

BRIGHTON.

Sixty-one passengers were carried in 33 flights in Avro machines during the week ending Aug. 30th. Two cross-country flights were made—one to Bexhill and the other to Birmingham. The weather only allowed three days' flying during the week.

Telephones:
Gosport 217.
Southampton 1861.
London: Gerrard 5716.

Telegrams:
"Flight, Gosport."
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GOSPORT AIRCRAFT Co.

DESIGNERS AND BUILDERS OF

FLYING BOATS

FOR

OCEANIC AND OTHER ROUTES

An F 5 Type FLYING BOAT as constructed by the Gosport Aircraft Co. is now on exhibition at the Dutch Aero Show, Amsterdam. (By kind permission of the Air Ministry.)

A Gosport Design Dual Control Two-seater FLYING BOAT is also being exhibited.

Both these Flying Boats were flown by the Gosport Aircraft Company's Pilots direct to Amsterdam from their Southampton Works.

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WORKS: GOSPORT & SOUTHAMPTON.

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ISLE OF WIGHT.

There was only one day's flying during the week, and the Avro stations were closed on Aug. 28th as the season was over. Twelve passengers were carried in seven flights.

LONDON.

CRICKLEWOOD.—One is informed by Handley Page, Ltd., that the week-end London-Bournemouth service has been discontinued. The contract expired on Aug. 18th.

Although a few people were carried on these trips, the service was not advertised enough to make it a success. The journeys were very delightful, but the fare was not warranted by the very small saving of time over the railway.

A Handley Page will leave for Spain in a few days, whence it is going on a special mission.

The following numbers of passengers were carried by Handley Page, Limited, during the stated weeks ending :—Aug. 16th, 127; Aug. 23rd, 123, including the Maharajah and Maharanee of Cooch Behar and their two children; Aug. 30th, 130.

On Sunday, the 17th ult., 650 members of the Indian Army visited the works of Handley Page, Ltd., and 60 native officers were given short flights. Two parachute descents were made to the great delight of the troops.

HOUNSLOW.—On August 28th, General Sir W. S. Brancker, K.C.B., A.F.C., flew from Amsterdam to Hounslow in an Airco D.H.10, piloted by Capt. Gathergood. A very rough crossing was experienced. The journey took 3 hours 35 mins.

Ninety-one passengers were taken up in Avro machines during the week ending Aug. 30th, and two cross-country flights were made—one to Newmarket and return and the other to Swansea and return.

NOTTINGHAM AND DERBY.

Sites at Nottingham and Derby have been licensed, and flying weeks will be arranged at these towns by some of the Blackpool and Southport Avro pilots. A popular flight should be the journey between these two Midland towns and return.

SCARBOROUGH.

The North Sea Aerial Navigation Co., Ltd., of Olympia, Leeds, are going to start services from Scarborough to Middlesbrough, Stockton, and Darlington (single fare £5), to Hull (£5 15s.), and to Harrogate (£7 10s.). All these journeys can be completed within the hour.

Three-seater machines will be used. The Company are prepared to quote prices for any journey. Applications should be sent to the agents, Messrs. Rowntree and Sons, 33, Westborough, Scarborough.

Sixty-five passengers have been carried recently by the Company at Scarborough in nine days, notwithstanding the indifferent weather conditions.

The racecourse is constantly crowded with people who wish to see the flying.

An arrangement has been made with the "Daily News" to give 75 free flights.

SWANSEA.

During the week ending Aug. 30th 60 flights were made and 109 passengers were taken up in Avro machines.

WARRINGTON.

According to the "Warrington Examiner," Mr. H. W. Griffin, the Hon. Sec. of the Infirmary Fund, has arranged with the Golden Eagle Aviation Co., Ltd., that they shall visit Warrington to give exhibition flying, and to take up passengers at a guinea a flight. Half the proceeds are to be given to the Infirmary Fund. Mr. Griffin hopes to fix the flying week for the end of September.

WREXHAM.

At the request of the local authorities the Air Ministry recently sent a representative to Wrexham in connection with the proposed establishment of a landing-ground there. The racecourse is the only suitable site in the locality, and before it can be licensed the surface will have to be improved.

ETTRICK BAY, SCOTLAND.

Aerial Photos, Ltd., of Edinburgh, have had a busy week, their machines being commissioned by the "Bulletin" newspaper for a week at Ettrick Bay. The meeting was arranged by Capt. Bond Andrews. His staff of pilots are Capt. Simpson and Lt. Rendle Woodcock, both late R.A.F.

Provost McMillan opened the proceedings. Successful coupon-holders of the "Bulletin" were taken up by the score, and flying went on daily until Wednesday night, August 27th, when a gale of extreme violence which swept over Scotland and the north of England destroyed the machines.

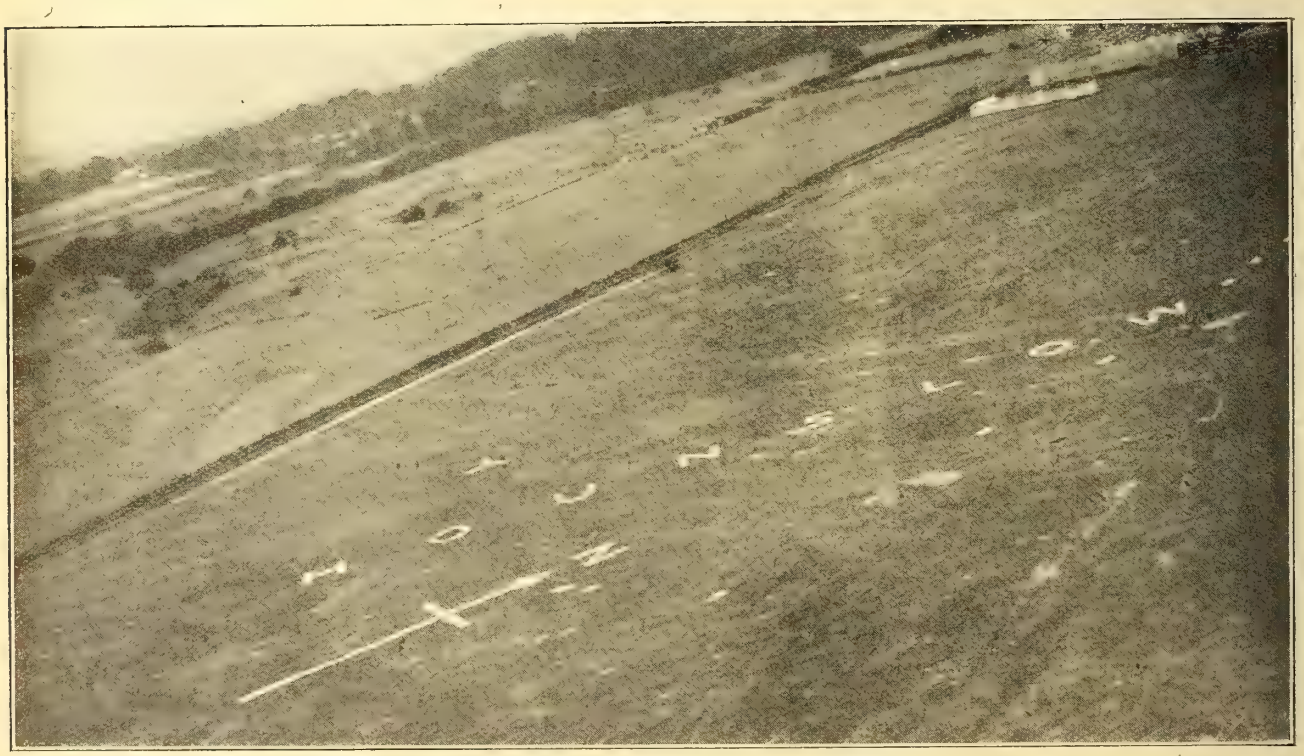
In spite of being sand-bagged down, these machines were lifted into the air and overturned 20 yards away. This naturally concluded the flying for the remainder of the week.

IRELAND.

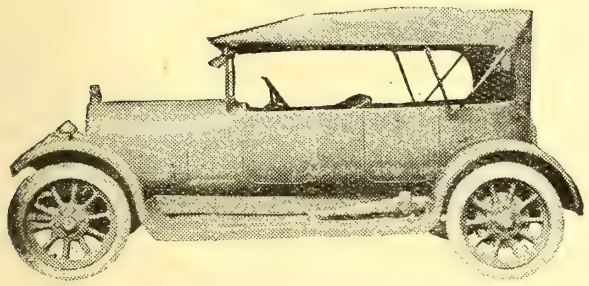
The Great Northern Aerial Syndicate, Ltd. (Liverpool), have written a letter to the Queenstown Urban District Council stating that they have practically decided to establish a base for their Transatlantic airship service at Queenstown. It is stated that these airships will have accommodation for 150 passengers. Smaller airships to carry 50 persons will be used to take the American passengers to Dublin, Liverpool, Manchester, York, Hull, Norway and Denmark.

CANADA.

The Labrador Forest Surveying Expedition was referred to at some length in the issue of THE AEROPLANE, dated Aug. 20th. The expedition has now returned to Montreal. They discovered vast reserves of pulpwood lands, which previously were believed to be of little value.



HOUNSLOW AERODROME.—A photograph taken from D.H.16, piloted by Major Cyril Paterson, M.C., D.F.C. The first machine to fly from London to Paris on the London-Paris Air Service.

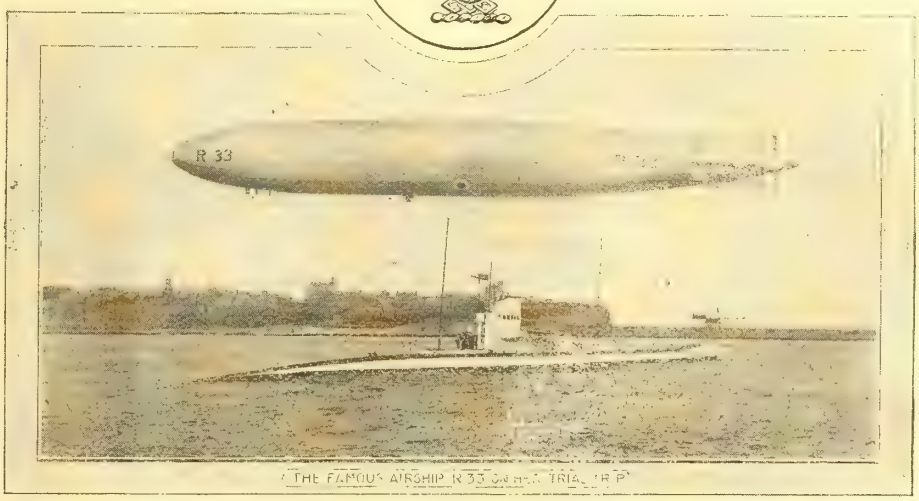


H.R.H. THE PRINCE

of Wales has paid a much appreciated compliment to the new "Victory" Arrol-Johnston Car by purchasing the first model delivered to the public. The car supplied to H.R.H. was standard from all points of view, and differed in no way from the stock type as sold to the ordinary purchaser.

Catalogues from Arrol-Johnston, Ltd., Dumfries, or from London Agents, Messrs. Leverett, Thorp & Kearton, Ltd., 122, New Bond Street, W.1.

TRADE MARK



THE FAMOUS AIRSHIP R 33 ON HER TRIAL TRIP

— RIGID AIRSHIPS FOR WAR, MAIL & PASSENGER SERVICE —

SIR W. G. ARMSTRONG, WHITWORTH & CO., Ltd.,

NEWCASTLE-UPON-TYNE. **Works: Barlow, near Selby, Yorks.**

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The aeroplanes made many flights and travelled 400 miles inland. Numerous photographs were taken and a series of maps were made. It is expected that the discoveries made by the expedition will lead to the exploitation of large areas of land bearing wood suitable for the manufacture of pulp.

BRAZIL.

Handley Page, Ltd., have secured the first complete aerial concession from the Brazilian Government. They are to carry passengers and mails between Buenos Aires and Pernambuco (2,725 miles), and the intermediate towns It is hoped to begin the service very soon. At first flying will take place only during the daytime, and the trip will take four days. It is expected that the time of the service will be reduced later to two days by flying by night as well as by day.

DENMARK.

The Danish correspondent of THE AEROPLANE writes :—

On August 24th Major T. Gran, with nine passengers, in a Handley Page, attempted a flight from Copenhagen to Aarhus, 85 miles away, but owing to weather conditions it was found impossible to reach the city, and a landing was made at Aalborg. Christiania was reached from there on August 25th, and a landing was made on the Gardermoen military drilling field.

Nielsen and Winther, Ltd., have closed their aviation department owing to lack of business and great loss. The achievements of their latest production, a 160-h.p. vertical type motor, have not been published. Their last action was to send a 90-h.p. Thulin engined two-seater Nieuport scout to Bolivia, *via* Buenos Aires, for the Danish Lieut. Jarfelt, chief of the Bolivian air service, who will accept the machine if it will climb to the height of the mountains, 18,000 feet.

FRANCE.

M. Clemenceau in June had formed a General Co-Ordination Board. The Decree appointing the Board was signed by President Poincaré and seven Ministers, who were charged to carry out its provisions. General Duval, the Director of Military Aeronautics, was appointed to control the Board.

As a result of the Board the French Government is constructing four rigid airships for commercial purposes, and will run an experimental service with them. The airships and the information obtained will be handed over to a civil transport company when sufficient data and experience have been gained from the service. The Government will make arrangements with the company regarding a subsidy and various charges.

Seaplane and aeroplane services will also be subsidised. Already a contract is being made with a company to start an air service between Toulouse and Rabat (Morocco), with intermediate stations at Barcelona, Alicante and Malaga or Madrid and Seville. A definite number of services each way has to be maintained, and the Government will pay a subsidy for mail space in each machine.

The type of machine and engine to be used is laid down and the prices for passenger and goods traffic are fixed. After a certain sum has been earned by the contractor the Government participates in the profits. The use of Government aerodromes and hangars is granted to the contractor at fixed annual charges.

The announcement that the British Government has set aside £64,000 and 80 aerodromes for the encouragement of commercial aviation has made a deep impression in France.

The energy with which civil aviation is being developed in England is causing the French aircraft constructors to complain that they are being neglected by the financiers and commercial business men. The starting of a London-Paris air service on the first day that flying was allowed between the two countries seemed to come as a surprise.

In the "Temps" of Aug. 25th the following appears :—

"We congratulate our friends on the other side of the Channel on their rapidity. At the same time, we regret that no French organisation is capable of such swift realisation. There seems to be a lack of *liaison* between our directors of aeronautics and our French industrialists, whereas in England the parties interested were informed of the negotiations between the two Governments long beforehand. Proof of this is to be found in the publication made last week in numerous English journals of the whole organisation for this service. Once more our French industry has been placed in a situation of manifest inferiority."

It is now known that the failure of the Farman aerobus "Le Goliath" to reach Dakar on Aug. 13th was due to the shearing of the bolts securing the right propeller, while the machine was flying along the coast at a point about 90 miles north of St. Louis, Senegal. For 35 minutes the flight was continued with the starboard engine running alone. This engine overheated, and it became necessary to land on a patch of sloping beach when the tide was high. The machine after landing ran into the sea and was badly damaged The crew were alone for six days before parties of natives from neighbouring villages discovered them. They had a limited quantity of food in their possession, and water was obtained by distilling sea water.

The Commission Sportive Aeronautique announced that all claims (presumably by French pilots only) for records said to have been established during the war must have been submitted to them before Aug. 31st last.

At 5.30 a.m. on September 1st Poulain (the cyclist who recently flew fifteen yards in an Aviette), was to have made an official trial on the Longchamps racecourse, before members of the Aero Club. Unfortunately the machine was damaged before the trial began.

HOLLAND.

E.L.T.A. NEWS

H.M. Queen Wilhelmina and the Prince Consort paid a visit to the E.L.T.A. Exhibition at Amsterdam on Aug. 27th. They viewed the stands in the Exhibition. Demonstrations were given by several pilots, among whom were Mr. W. R. Kenworthy, Major Draper, and Capt. Hinchcliffe. The last-named pilot smashed the right wing of his machine when landing.

The E.L.T.A. still proceeds in fairly lively fashion, at least, so far as the flying is concerned, performance in eating and drinking showing a marked decline since the opening days.

On the 28th the B.A.T. Limousine, piloted by Major Draper, and containing Mr. Koolhoven and Mr. Lawford, the Airco pilot, departed for London against a gale. It duly reached its destination in 4½ hours, including a stop at Marquise. The weather conditions were such that the passengers had to rig up a rope arrangement en route to hang on to. The return trip was made on the following Saturday, the passengers being Mr. Koolhoven, Mr. and Mrs. Wallace Barr, and Commander Ramsey, U.S.N. The time taken from London to Soesterberg was 2½ hours.

Further arrivals during the week were the Vickers commercial "Vimy," piloted by Capt. Cockerell, a Caproni biplane, "'commercialised" by the addition of a glass house for 10 people on the fuselage, a 2-seater Morane "Parasol," two Portuguese Bréguets, and a Morane monoplane, piloted by Fronval. The latter is putting up some exceedingly fine shows of trick flying.

On the 25th the sensation of the day was provided by the arrival of a Caproni triplane, complete with omnibus attached, containing a further detachment of the Italian Flying Corps, numbering about 16. On the roof, which is formed by the original nacelle, six more persons, including the pilot, are established. It was met over Amsterdam on arrival by the big B.A.T., which made circles round it till the descent took place.

A competition in stunt flying was held on the 26th, a committee of ladies forming the judges. There were 10 competitors. The result was a win for Major Draper on the B.A.T. "Bantam," Mr. Kenworthy, on the "Kangaroo," being second, while Mr. Duke, on the "Bantam," and Ferrarin, on the Italian "Balilla" (a S.V.A., with ordinary single bay bracing), tied for third place. A very amusing performance was given by Capt. Hammersley on the Avro "Baby," which, however, appeared to make more impression on expert spectators than on the judges.

The "Kangaroo" and the five Avros are steadily working through their daily queue of passengers in fine style. The big B.A.T. has made a good many flights, with important passengers, top-hatted representatives of the Dutch Government evidently appreciating the comforts of the cabin. —R. B. N.

On August 29th the public swarmed onto the landing-ground at Winschoten, Groningen. Captain Hinchliffe, with three passengers, in an Avro machine, attempted to land there. Two spectators were killed and three injured.

The North Sea Aerial Navigation Company of Olympia, Leeds, are carrying passengers at the E.L.T.A. Exhibition in Blackburn "Kangaroo" machines. Sixty to seventy passengers are carried daily.

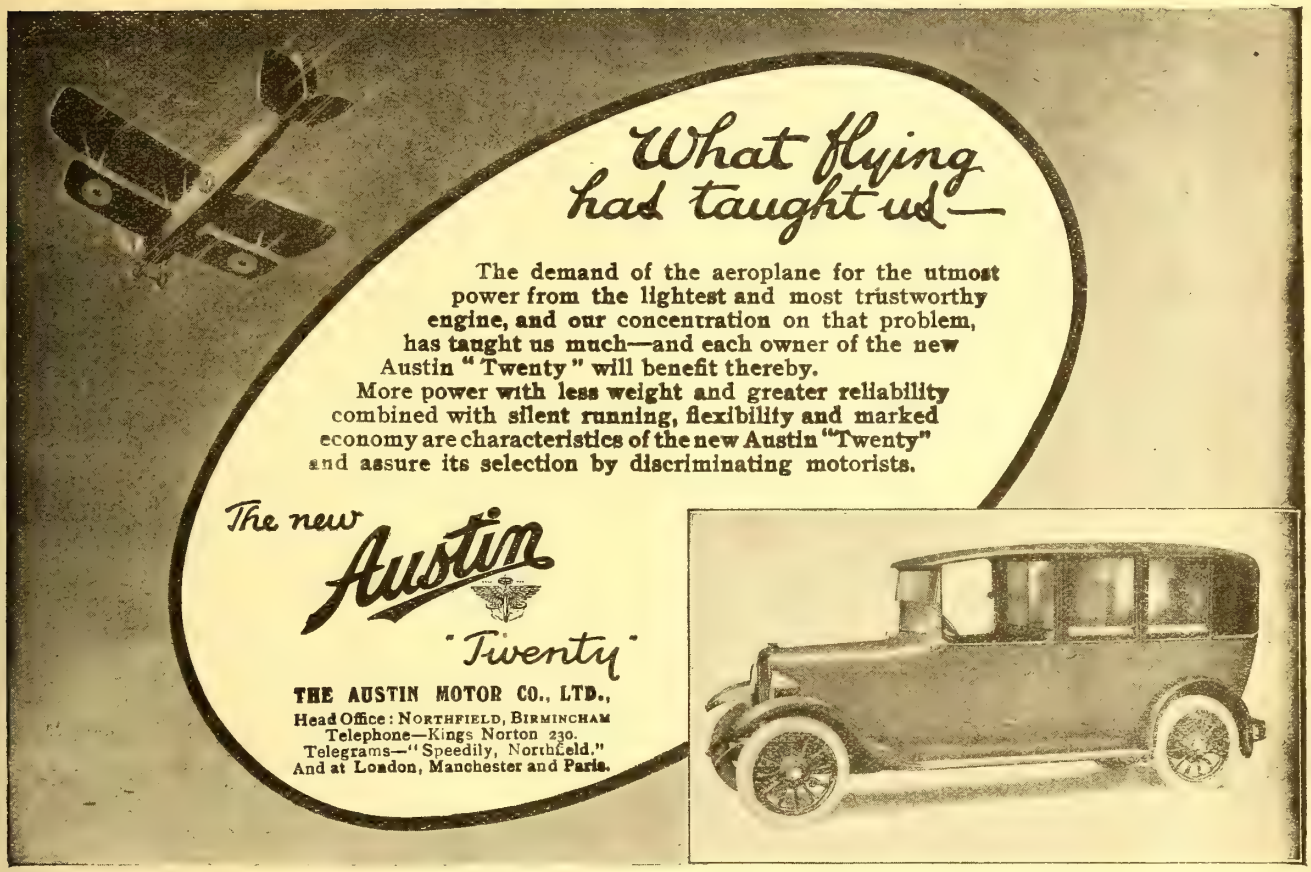
Flights between Amsterdam and London are to be arranged when the demand justifies them.

In the issue of THE AEROPLANE, dated August 20th, it was stated that a company had been formed for air transport in Holland. Vickers Ltd. have some interest in it. According to the "Haagsche Courant" of August 30th regular air services in Holland will be started next spring. The machines to be used will carry two, three and twelve passengers. Twopence each will be charged for carrying letters in Holland, and fivepence to England.

ITALY.

The Italian correspondent of THE AEROPLANE writes :—

The Seaplane Circuit of Sicily, promoted by the Automobile Club of Sicily, and the great sportsman, Chev. Florio, is to take place on or about Sept. 14th. The pilots are to be men who actively participated in the defence of Sicilian



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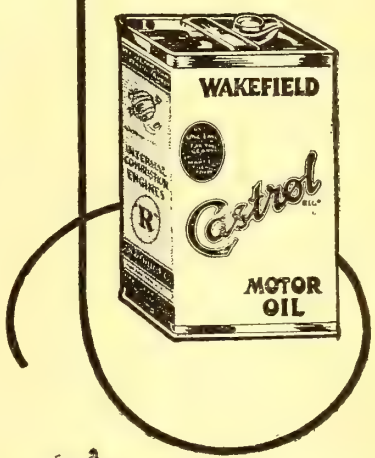

SBAC THE SOCIETY OF BRITISH AIRCRAFT CONSTRUCTORS

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coasts during the war. The French pilots from the Marsala Escadrille are, of course, included in this category.

It is rumoured that a 3,000 h.p. C.A. triplane may yet visit Amsterdam in time for the E.L.T.A. Exhibition.

There is news from Naples of a new enterprise in the completely civilian line. Signor Balierio and Doctor Longo are reported to have alighted there with the first of a batch of aviatics (one presumes S.A.M.L. brand) to set up a flying school with a passenger-carrying and trip department.

The Association of Aviators and Aeronauts of Italy held the first of a long projected series of fêtes for popularising flying on Aug. 24th at the Ansaldo flying ground at Turin. Everything was excellently done.

It is announced that Japan is placing contracts for the supply of large numbers of single-engined aeroplanes in Italy.

Further detailed news of the Rome-Pekin SVA Reliability Squadron trip being organised by D'Annunzio has been communicated to the Press.

Of the five machines starting, three will carry a passenger each. The other two will take luggage containing spares, food and comforts, which will be sent down by parachute to any pilot forced to land in an unaccessible position. Should a pilot go down in a place where landing is possible, one of the luggage machines will descend, throw out the luggage and take the pilot on board.

The length of the trip is about 10,500 miles, and it is to be made in 19 stages in 12 days. Engines may be changed at Bassora, Calcutta, and Shanghai.—T. S. H.

Reuter states that on Aug. 27th the steamer "Nippon" left Spezia for Tokio. It is carrying spare parts of aeroplanes and aeronautical instruments which will be unloaded at various points on the route to be followed by the squadron of Signor d'Annunzio on their flight to Tokio.

A Caproni aeroplane crashed near Vienna shortly before noon on Aug. 23rd.

The machine had taken off from the aerodrome at Aspern to fly to Rome *via* Turin, when it fell to the ground from a less height than 1,000 ft., and was totally wrecked. The occupants, a pilot, a mechanic, and two officers of the Italian Armistice Commission, were killed.

NORWAY.

The Danish correspondent of THE AEROPLANE writes :—

A number of fishermen on the west coast of Norway have combined to buy a seaplane to go in search of the herring shoals; their choice is a German Brandenburg three-seater, with the naval Capt.-Lt. Christiansen as pilot.

Having bought a new and larger Curtiss flying-boat the Danish-American millionaire, Mr. Larsen, sold his small flying boat of the same make, which was piloted by Capt. Batts, and engined by a Curtiss 6-cyl. vertical type aluminium motor, by auction at the Norwegian capital. Although it cost £3,300, only £1,000 was obtained from the Christiania firm, "Norsk Luftkraft," who are using it for their new flying school.

This firm has already been referred to. It was inaugurated at Gardermoen with Lieut. Haganæs as manager and Lieut. Vogt as instructor. They have six 70-h.p. two-seater Caudron school machines, and three Avros for advanced training. They were all bought in England and tested by a British lieutenant, whose elegant flying drew much admiring comment. The school is attended by 50 pupils at a fee of £111.

SWEDEN.

On August 26th the Austrian Lieut. Ebner put up a new Scandinavian altitude record of 17,100 feet with two passengers, at the Thulin aerodrome in Ljungbyhed, presumably on a Phœnix aeroplane.

SWITZERLAND.

Taddeoli on the S.I.A.I. is continuing the exhibition flights for which he flew that machine to Lake Geneva. He has been flying over the Rhone valley end of the lake with passengers at great heights, thereby showing his caution.

Lts. Comte and Mittelholzer recently flew from Dubendorf to Samaden *via* Ragaz Oberhalbstein and the Magna and Berniria mountains. The affair was organised by the St. Moritz hotel people, who hope that when that lake is frozen —usually late in November—many landings will be made there.—T. S. H.

The Federal Council have partially modified the Decree of 1914 which forbade flights over Swiss territory. Though the Aerial Code is not yet definitely binding, permission to fly will be accorded to aviators willing to pledge themselves to observe certain conditions.

Lt. Pillichody, who flew to the summit of the Jungfrau on Aug. 19th last, was unable to attempt to leave for three days owing to the prevailing high wind. On Aug. 22nd he made an attempt, but was brought down by a gust of wind a few feet after leaving the ground. His machine fell into the snow and was seriously damaged.

Major Isler, the Chief of the Swiss Military Aviation Department, has announced that a new sport will be possible for tourists in the Alps next summer. He calls it "Alp-climbing by Air." Landing-places will be made on or near the summits of mountains, such as Mont Blanc.

Tourists will be able to make the trips by aeroplane in a very short time. At first the charges for these trips will be high, but they will be gradually reduced.

Private companies will be formed shortly for Alpine aviation.

SOUTH AMERICA.

The L.A.L.T.A.—Latin Alliance for Aerial Transport in South America—is doing well, especially in Brazil.—T. S. H.

UNITED STATES OF AMERICA.

At the start of the Aerial Derby from Toronto on Aug. 25th a Curtiss Oriole machine, piloted by Rholfs, turned on its back and delayed the start.

The first machine to arrive at Mineola, New York, from Toronto, was piloted by Coombs, and landed at 7.11 p.m. on Aug. 25th. Two other aviators landed a few minutes later. They were the only competitors to arrive from Toronto on that date, and started on the return journey on the next morning.

Colonel Barker, V.C., was the first to complete the flight from Toronto to New York and back. He was flying a Fokker, and finished the circuit at 9.35 a.m. on Aug. 27th.

None of the 40 machines which started from New York on Aug. 28th reached Toronto on the same day. Eight stopped the night at Syracuse and 16 at Albany. The remaining 16 had to land where they could.

Four machines reached Toronto from New York on Aug. 26th. The first machine to arrive back at New York was piloted by Lieut. Plumb, who, with two other aviators, reached there on the evening of Aug. 26th.

Eight machines completed the circuit at New York on Aug. 28th. Bad weather at Toronto and several crashes detained the others. A De Havilland has been missing since it left Buffalo for Toronto on Aug. 27th. It is feared that the aviators have fallen into Lake Ontario and perished.

Lieut. Maynard, a United States army officer, won the aerial Derby between New York and Toronto. Flying a D.H.4 fitted with a Liberty engine he covered the 1,042 miles in 7 hours, 45 min., 15 sec. flying time.

Two other American officers, Lieuts. H. H. George and D. B. Gish, also in D.H. machines, were respectively second and third in 8 hours 40 min. 5 sec. and 8 hours 44 min. 15 sec.

The winners, under the United States army regulations, cannot accept the cash prizes, which will go to civilians who made the next best time. Lieut. Maynard, however, will receive the Canadian Exposition trophy for the fastest round trip, and the Aero Club of Canada trophy for the Roosevelt Field entrant, making the best time one way, which he did in 3 hours, 20 mins., 45 sec.

During the six weeks, ending Aug. 2nd, 56 fires were discovered in the California forests by the aerial forest fire patrol. The fires were reported promptly and quickly extinguished, having caused only nominal damage.

The corps of aviators from the three flying stations, Mather Field, Sacramento; March Field, Alessandro; and Rockwell Field, San Diego, have made 373 flights over the forest, covering a distance of 45,376 miles.

The U.S. Army Balloon School at Arcadia have kept a balloon up all day and night, and have discovered and reported many fires.

The Director of Air Service had authorised on Aug. 5th the extension of the forest patrol over parts of the Oregon forests. The headquarters have been established at Salem Ore, where eight aeroplanes will be stationed.

The U.S. Department Agriculture Weather Bureau has prepared a map of the United States divided into 13 zones. Weather forecasts are made in each zone at 9.30 a.m. and 9.30 p.m. to cover 24 hours. These forecasts were available for aviators and balloon pilots from Aug. 10th.

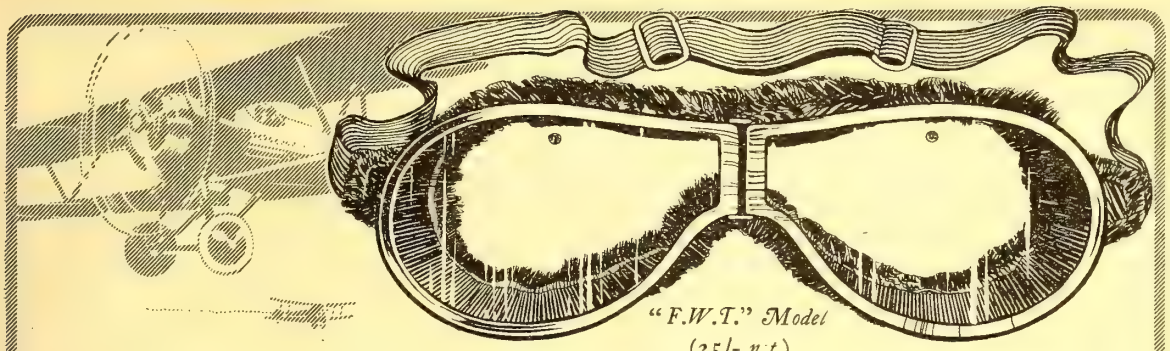
Similar forecasts have been made with the country divided into seven zones since July 21st with very satisfactory results.

The Superintendent of the Western Division of the New York-Chicago Air Mail has stated that the service will be extended from Chicago to St. Louis in about the middle of September. The distance is approximately 400 miles, and will be covered in a single flight from Chicago.

One of the new Curtiss H.A. mail machines recently broke all records on a stage of the New York-Chicago air mail service. The speed averaged 120 m.p.h.

This machine was built for the Liberty engine. It carries 900 pounds of mail, and in a test flight attained a speed of 145 m.p.h. with a full load.

The Philadelphia Aero-Service Corp has started commercial aerial transport. The aerodrome is situated in the suburbs of Philadelphia. Four aeroplanes have been purchased and a flying school has started.



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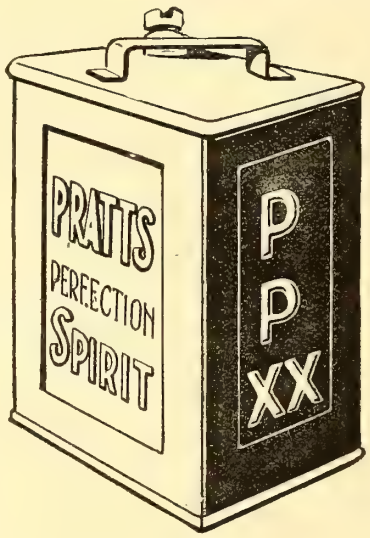

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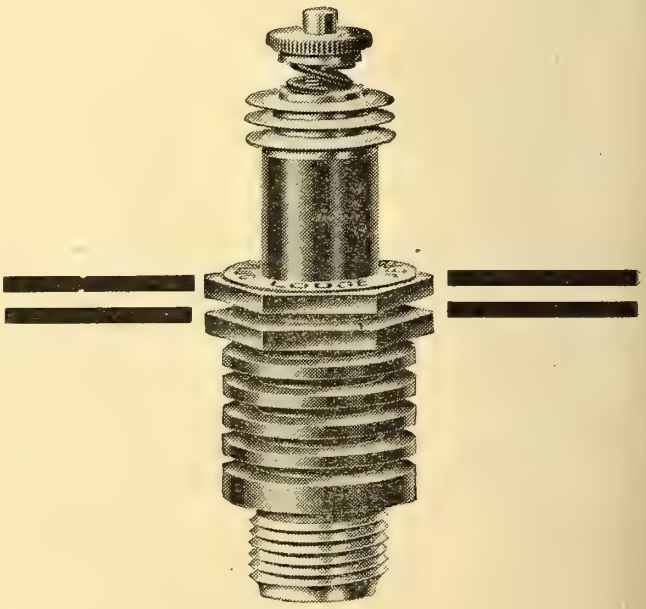

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FROM THE "LONDON GAZETTE."

ADMIRALTY, Aug. 14th.

R.M.L.I.—The commissions of the following officers are terminated on transfer to the Royal Air Force:—Maj. R. Gordon, C.M.G., D.S.O., Maj. E. L. Gerrard, C.M.G., D.S.O., Maj. C. E. Risk, D.S.O., Maj. C. F. Kilner, D.S.O., Capt. C. E. H. Rathborne, D.S.O., Capt. I. T. Courtney, O.B.E., Capt. A. G. Bishop, A.F.C., Aug. 1st.

ADMIRALTY APPOINTMENTS AND PROMOTIONS.

The following appointment has been made:—

SEPT. 1st.—WT. SHIPWTS.—E. E. Back, to "Argus."

* * *

Reports from Viborg state that a violent bombardment was heard there on the 27th ult. lasting for two hours, from the direction of Kronstadt.

It is supposed that the British Naval and Air Forces were in action. Thick clouds of smoke were seen afterwards above Kronstadt.

It is officially reported that an aeroplane coming from Kronstadt appeared over Terijoki recently and dropped six bombs, which, however, caused no damage.

MILITARY.

FROM THE "LONDON GAZETTE."

WAR OFFICE, August 26th.

REGULAR FORCES.—INFANTRY.—R. Fus.—Lt. R. L. G. May (attd. R.A.F.) resigns his commn., Aug. 27th.

Gord. Highrs.—Sec. Lt. J. MacGeorge (attd. R.A.F.) resigns his commn., Aug. 27th.

GENERAL LIST.—Sec. Lt. to be Lt.:—W. Sharpe, A.F.C.

ROYAL ARMY CHAPLAINS DEPARTMENT.—The Rev. A. McHardy, temp. Chapln. to the Forces, 4th Class, relinquishes his commn. on transfer to the R.A.F., Aug. 1st.

WAR OFFICE, Aug. 27th.

REGULAR FORCES.—R.F.C.—Mil. Wing.—Flying Officer.—The date of appointment of temp. Sec. Lt. R. G. Berwick, Gen. List (since killed), is July 6th, 1917, and not as in "Gazette" of Oct. 26th, 1917.

OVERSEAS FORCES.—CANADA.—CAN. ENGRS.—Temp. Lt. A. D. Macdonald, D.F.C., ceases to be secd. for duty with the R.A.F., July 29th.

W. ONT. R.—Temp. Lt. D. McD Northcombe ceases to be secd. for duty with the R.A.F., Aug. 13th.

MANITOBA.—Temp. Lt. J. Cave ceases to be secd. for duty with the R.A.F., Aug. 13th

CAN. MACH. GUN CORPS.—Temp. Lt. H. W. Pearson ceases to be secd. for duty with the R.A.F., Aug. 12th

WAR OFFICE, August 30th.

TERRITORIAL FORCE.—INFANTRY.—7th Bn. W. Rid. R.—Sec. Lt. H. H. Lockwood (Sec. Lt., R.A.F.) to be Lt., and to remain secd., Feb. 28th.

THE CASUALTY LIST.

Reported August 29th.

CANADIAN FORCES.—DIED.—Williams, Lt. P. E., Cent. Ont. Regt., attd. R.A.F.

OFFICIAL COMMUNIQUÉ

The following official communiqué was issued by the War Office on August 30th concerning operation on the Archangel front:—

General Ironside reports that aircraft co operated with the Royal Fusiliers in recapturing Emptsa (Yemtsa), by dropping bombs on barracks and armoured trains.

* * *

Mr. Lloyd George will unveil a statue in memory of Captain Albert Ball, V.C., on his visit to Nottingham in October.

* * *

The second day of the Army Championship Meeting concluded on Aug. 29th at the Queen's Parade, Aldershot.

In the 220 yards race for demobilised officers and soldiers, W. J. Thompson (late serjt., R.A.F.) was first by four yards, 24 3-5 sec. H. Dear (late lieut., R.A.F.) was third, and two yards behind the second in.

AIR FORCE.

FROM THE "LONDON GAZETTE."

AIR MINISTRY, August 26th.

His Majesty the King has been pleased to make the appointment to the Most Excellent Order of the British Empire:—

KNIGHT GRAND CROSS.

Major-General Sir Frederick Hugh Sykes, K.C.B., C.M.G., Retired List, late R.A.F., for distinguished services to aviation in general, and in particular for invaluable work as former Chief of the Air Staff.

R.A.F.—The following temp. appointments are made at the Air Ministry:—Staff Officers, 3rd Class (P.).—Flying Officer E. N. D. Worsley, Sec. Lt. H. Baker, August 1st

Staff Officer, 4th Class (T.).—Lt. E. H. Eldridge, Aug. 20th.

The following temp. appointment is made:—Staff Officer, 1st Class (P.).—Lt.-Col. C. T. Maclean, D.S.O., M.C. (substituted for notification in "Gazette," Aug. 19th).

FLYING BRANCH.—Maj. R. B. B. Colmore, O.B.E., to be Maj. (A'ship), from (S.O.), May 12th (substituted for notification in "Gazette" Aug. 5th).

Capts. to be graded for purposes of pay and allowances as Majs whilst empld. as Majs. (A.):—R. M. Drummond, D.S.O., M.C., May 1st; C. W. Hyde, from May 1st to 11th.

Capt. (actg. Maj.) R. S. Booth, A.F.C., to be Capt. (A'ship), and to relinquish the actg. rank of Maj., from (S.O.), Aug. 10th.

Lts. to be actg. Capts. whilst empld as Capts. (A.):—C. S. Stonehouse from Oct. 25th, 1918, to April 30th, W. L. Fenwick, June 1st.

Lts. to be graded for purposes of pay and alowances as Capts. whilst empld. as Capts.:—W. L. Fenwick, from May 1st to 31st; T. H. French, D.F.C., from May 1st to July 1st; T. S. Ivens, from May 1st to July 15th; J. R. Milne, D.F.C., from May 1st to July 15th; F. V. Way, A.F.C., from May 1st to June 22nd; S. Baker, S. E. Faber, A.F.C., E. M. Henderson, R. C. Jenkins, M.C., S. P. Marcus, H. V. Pendavis, D.S.O., W. K. Sutton, R. L. Lyster-Smythe, H. E. Walker, M.C., D.F.C., E. W. White, May 1st.

Lt. R. A. Denne to be Lt. (A.), from (Ad.), April 15th.

Sec. Lt. H. G. Pratt to be Lt., Aug. 31st, 1918

Sec. Lt. H. A. Castaldini to be actg. Lt. whilst empld as Lt. (O.), from Dec. 11th, 1918, to April 30th (substituted for notification in "Gazette," Jan. 24th); A. A. Phillips (temp. Sec. Lt. R. W. Kent R.) is granted a temp. commn. as Sec. Lt. (O.), Oct. 30th, 1918 (substituted for notification in "Gazette," Dec. 31st, 1918)

The following relinquish their commns. on ceasing to be empld.:—Lt. H. Seymour, and is permitted to retain his rank, Aug. 31st, 1918 (substituted for notification in "Gazette," Aug. 30th, 1918); Lt. (Hon. Capt.) D. Owen (Capt., Nova Scotia R.), May 31st; Lt. E. C. L. Copner (Lt., Devon R.), July 30th; Lt. J. M. Leach (Lt., York R.), Aug. 6th; Sec. Lt. (Hon. Lt.) D. McD. Northcombe (Lt., W. Ont. R.), Aug. 13th; Lt. (Hon. Capt.) A. M. Mitchell (Capt., R.A.S.C.), Aug. 20th.

Transferred to unempld. list:—Sec. Lt. J. H. Hall, Jan. 15th; Sec. Lt. A. Watson, Feb. 2nd; Sec. Lt. H. Roberts, Sec. Lt. J. Walker, Feb. 7th; Lt. G. L. Graham, D.F.C., Feb. 10th; Sec. Lt. F. H. T. Rudkin, Feb. 12th; Sec. Lt. S. A. W. Setchell, Feb. 14th; Sec. Lt. R. McDowall, March 12th; Lt. C. Unbeham, March 30th; Sec. Lt. L. H. Jackson, April 1st; Capt. P. G. Williams, April 4th; Sec. Lt. (Hon. Lt.) W. Norris, April 10th; Lt. C. H. Harrison, April 12th; Sec. Lt. J. L. Kilroran, April 13th; Lt. E. I. Wells, M.C., April 14th; Lt. L. S. Harvey, April 16th; Capt. C. J. Hyde-Trutch, April 17th; Sec. Lt. T. L. Harding, Lt. W. E. Roe, April 19th; Sec. Lt. T. James, Sec. Lt. R. Ramsay, April 20th; Sec. Lt. W. H. Hoskings, Lt. (actg. Capt.) G. T. Williams, April 24th; Lt. P. C. Richards, May 1st; Lt. F. James, May 7th; Sec. Lt. C. S. Rathbone, May 10th; Sec. Lt. J. A. Reith, May 11th; Sec. Lt. F. W. Radford, May 13th; Sec. Lt. H. Lyne, Sec. Lt. J. F. Rowbotham, May 15th; Lt. G. V. Learmond, May 16th; Lt. A. W. E. Reeves, May 18th; Lt. H. L. Whittome, May 19th; Lt. A. C. Aspinall-Howe, May 20th; Lt. F. Lynn, May 26th; Lt. D. L. Lynn, Lt. G. W. Lynn, June 3rd; Sec. Lt. (Hon. Capt.) L. R. Hibbert, June 4th; Sec. Lt. W. S. Weeks,, June 10th; Lt. J. C. Louw, June 13th; Sec. Lt. (Hon. Lt.) J. S. Smith, June 14th (substituted for notification in "Gazette," Aug. 15th); Lt. J. H. W. Clarke, June 15th; Lt. B. E. Randall, June 16th; Sec. Lt. (Hon. Lt.) I. B. Boyce, June 17th; Sec. Lt. (Hon. Lt.) W. Reid, June 20th; Lt. M. S. Lewin, June 25th; Lt. J. F. Bushe, June 27th; Lt. J. W. D. Leigh, M.C., June 28th; Sec. Lt. W. Endersby, July 1st; Sec. Lt. W. McCullagh, July 3rd; Sec. Lt. H. E. Hounsell, July 4th; Lt. G. Bryers, July 5th; Sec. Lt. H. C. Rochester, July 8th; Lt. I. A. Peers, July 10th; Sec. Lt. F. L. Hutchinson, Sec. Lt. S. H. Jacobus, Sec. Lt. W. S. Lawson, Sec. Lt. W. L. Taylor, July 12th; Lt. N. H. Colson, July 15th; Sec. Lt. (Hon. Lt.) H. L. Jackson, July 17th; Lt. A. E. Love, July 20th; Sec. Lt. G. M. Ross, July 22nd; Lt. G. S. Hankinson, Sec. Lt. F. J. Jackson, July 30th; Sec. Lt. N. C. R. Roberts (substituted for notification in "Gazette," July 25th); Sec. Lt. F. H. Wilcock, Sec. Lt. A. K. Doull, Maj. W. J. Tempest, D.S.O., M.C., Aug. 1st; Capt. Lord E. A. Grosvenor, Sec. Lt. H. B. Harmsworth, Sec. Lt. M. Imeretinsky, Lt. F. A. Rowe, Aug. 2nd; Sec. Lt. J. Leftwich, Aug. 4th; Lt. D. F. Burton, Sec. Lt. R. A. Molin, Aug. 5th; Sec. Lt. J. F. Greenwood, Sec. Lt. L. G. Lowe, Aug. 6th; Lt. D. P. Bees, Sec. Lt. D. W. Thornton-Inman, Aug. 7th; Lt. C. W. Harman, Aug. 8th; Sec. Lt. F. E. Green, Sec. Lt. G. J. Holdcroft, Lt. G. E. Hicks, Sec. Lt. E. C. M. Reid, Aug. 9th; Lt. H. H. T. Potter, Lt. M. Stuart-Menteth, M.C., Lt. W. E. Warden, M.C., Sec. Lt. R. J. Wood, Aug. 9th; Sec. Lt. J. H. Walton, Aug. 13th; Sec. Lt. W. K. Badenach, Sec. Lt. J. R. Baisley, Lt. B. Dawe, Lt. G. Richardson, Lt. H. T. Rushton, Sec. Lt. J. H. Sims, Lt. G. H. L. Woodley, Aug. 14th; Lt. H. S. Malik, Aug. 16th; Lt. R. J. Brownell, Aug. 19th; Sec. Lt. G. Fisher, Aug. 21st; Lt. A. W. Allan, Aug. 23rd

Capt. E. F. Elderton relinquishes his commn. on account of ill-health caused by wounds, and is permitted to retain his rank, Aug. 20th.

The following Lts. relinquish their commns. on account of ill-health and are permitted to retain their rank:—F. J. Taylor (caused by wounds), July 28th; A. N. Nesbitt (caused by wounds), Aug. 7th; A. Coombs, Aug. 13th; H. A. Smeeton, Aug. 15th.

Lt. J. MacGeorge (Gord. Highrs.) resigns his commn., and is permitted to retain his rank, Aug. 27th.

Sec. Lt. J. N. Hamman resigns his commn. and is permitted to retain his rank. March 6th (substituted for notification in "Gazette." Nov. 29th, 1918).

The following Sec. Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank:—A. L. Fachnie, July 11th (substituted for notification in "Gazette." June 20th); S. Soothill (caused by wounds), G. E. Williams (caused by wounds) Aug. 14th; H. R. Messinger (contracted on active service), Aug. 16th; J. Levy, Aug. 20th (substituted for notification in "Gazette," Jan. 30th).

Sec. Lt. P. A. Templeton is antedated in his appointment as Sec. Lt. (A. and S.), May 25th, 1918.

The name of Sec. Lt. (Hon. Capt.) L. Wilmot-Johnson is as now described, and not "J. L. Wilmot" as stated in "Gazette," July 20th.

The initial of Sec. Lt. C. Crosthwaite is as now described, and not "G." as stated in "Gazette," Aug. 15th.

The initials of A. C. D. Anderson are as now described, and not "A. C." as stated in "Gazette," Sept. 6th, 1918.

The notification in "Gazette," July 29th, concerning Sec. Lt. W. R. Wright refers to "Walter Redvers Wright."

The surname of Lt. (Hon. Capt.) H. N. Witting is as now described, and not "Whitting" as stated in "Gazette," June 13th.

The notification in "Gazette," Dec. 31st, 1918, concerning Sec. Lt. M. Ross-Jenkins (deceased) is cancelled.

The notification in "Gazette," March 28th, concerning Lt. E. Tasker, A.F.C., is cancelled.

The notification in "Gazette," April 1st, concerning Capt. E. J. B. Ho wis cancelled.
The notification in "Gazette," April 11th, concerning Sec. Lt. G. Gardner is cancelled.
The notification in "Gazette," May 6th, concerning Lt. J. Davidson is cancelled.
The notification in "Gazette," June 27th, concerning Sec Lt. J. Stopford is cancelled.
The notification in "Gazette," July 22nd, concerning Lt. H S. Preston is cancelled.
The notification in "Gazette," July 25th, concerning Sec. Lt. R. Russell is cancelled.
The notification in "Gazette," July 29th, concerning Sec. Lt. W. Kinghorn (deceased) is cancelled.
The notification in "Gazette," July 29th, concerning Sec. Lt. H. J. Clark is cancelled.
The notification in "Gazette," July 15th, concerning Lt. J. H. Williamson is cancelled.
The notification in "Gazette," April 25th, concerning Lt. A. C. Anderson is cancelled.
The notification in "Gazette," July 18th, concerning Sec Lt. A. L. Fachine is cancelled.
The notification in "Gazette," Aug. 15th, concerning Lt. D. Cairns is cancelled.
The notification in "Gazette," Feb. 14th, concerning Sec. Lt. F. L. Roberts is cancelled.

ADMINISTRATIVE BRANCH.—Sec. Lts. to be Lts.:—H. J. Clark, Aug. 9th, 1918; (actg. Capt.). G. D. Ashby, Oct. 20th, 1918, and to retain the actg. rank of Capt. until April 30th (substituted for notification in "Gazette," July 18th).

Sec. Lt. H. F. Henry (late Gen. List, R.F.C., on prob.) is confirmed in rank as Sec. Lt., Aug. 26th, 1918.

G. J. Maunsell (Sec. Lt., Lond. R.) is granted a temp. commn. as Sec. Lt., April 1st, 1918.

Lt. S. McGaw (Lt., Gord. Highrs) relinquishes his commn. on ceasing to be empld., Aug. 1st.

Transferred to unempld. list:—Lt. E. Tasker, A.F.C., March 13th; Sec. Lt. F. S. Riley, March 26th; Lt G. Wilson, April 11th; Lt. P. Cairns, April 23rd; Sec. Lt. J. P. Young, April 29th; Sec. Lt. J. R. Nicholson, May 1st; Lt. L. B. Lyle, May 7th; Sec. Lt. (Hon. Lt.) S. P. Jacoby, June 4th; Lt. G. H. Raitt, July 1st; Capt. H. F. Roberts, July 4th; Sec. Lt. T. Irvine, July 5th; Sec. Lt. A. C. Challans, July 12th; Maj. E. A. Noel, July 14th; Lt. V. G. Davis, July 15th; Sec. Lt. H. A. Hobbs, July 16th; Lt. J. R. Currington, July 23rd; Sec. Lt. W. J. A. Rogers, July 25th; Lt. H. Lambourne, July 30th; Capt. M B. O'Brien, July 31st; Sec. Lt. J. E. G. Henchman, Sec. Lt. S. F. Marsh, Sec. Lt. C. E. Yates, Aug. 1st; Lt. L. V. Labrow, Aug. 2nd; Sec. Lt. C. J. Shapley; Sec. Lt. M. J. Wolseley, Aug. 8th; Lt. H. D. Scowcroft, Aug. 16th; Sec. Lt. H. C. Meade, Aug. 22nd; Lt. L. V. Nicholson, Aug. 23rd.

Lt. A. A. Denison, M.B.E., M.C. (Lt., York and Lanc. R.), resigns his commn., and is permitted to retain his rank, Aug. 27th

Lt. E. J. Street (Regular Army Officer) relinquishes his commn. on account of ill-health, Aug. 26th

Lt. (Hon. Capt.) K. E. Clayton (Somerset L. Inf.) is dismissed the Service by sentence of a General Court Martial, Aug. 6th.

Sec. Lt. H. B. Willoughby relinquishes his commn. on account of ill-health contracted on active service, and is permitted to retain his rank, Aug. 14th.

Sec. Lt. T. L. Davies (Dgn. Gds.) relinquishes his commn on account of ill-health, Aug. 14th.

The notification in "Gazette," April 4th, concerning Sec Lt. J. Sadler is cancelled.

The notification in "Gazette," May 23rd, concerning Sec. Lt. H. T. Bolt is cancelled.

The notifications in "Gazette," July 18th, concerning Sec. Lt. R. A. Smith, Sec. Lt. W. J. Bradshaw, and Capt. C. D. Smart, M.C., are cancelled.

The notification in "Gazette," May 20th, concerning Lt. A. L. Freeman is cancelled.

The notification in "Gazette," of Aug. 8th, concerning Lt. A. N. Nesbitt is cancelled.

TECHNICAL BRANCH.—Sec. Lt. (Hon. Capt.) J. R. Cassidy to be Lt. (April 23rd, 1918), without pay and allowances prior to Aug. 22nd, 1918.

Sec. Lt. C. C. Hicks to be Lt., without pay and allowances of that rank, April 20th.

The following relinquish their commns. on ceasing to be empld.:—Sec. Lt. A. L. Bird, April 6th, 1918; Capt. H. A. Saunders (Capt., R. Marines), May 24th.

Transferred to unempld. list:—Lt W. H. Short, April 13th; Lt. (Hon. Capt.) C. D. Smart, M.C., April 22nd; Capt. G W. A. Brown, May 21st; Capt. C. J. Smith, May 25th; Lt. N. Haig, May 28th; Sec. Lt. (Hon. Lt.) H. Scott, June 12th (substituted for notification in "Gazette," July 18th); Sec. Lt. F. T. Johnson, July 8th; Sec. Lt. T. Wright, July 17th; Capt. J. Inwood, July 18th; Lt. W. Hardcastle, Sec. Lt. J. Leyland, July 25th; Lt. A. E. Rampton, July 30th; Lt. J. R. Brown, M.C., Lt. A. E. Layton, Maj. S. J. L. Vincent, July 31st; Sec. Lt. F. B. Reed, Sec. Lt. A. T. Williams, Aug. 1st; Capt. J. D. Blyth, Sec. Lt. A. R. Conder, Sec. Lt. H. Cue, Lt. E. W. Vaughan, Aug. 2nd; Sec. Lt. E. C. G. Vines, Aug. 3rd; Sec. Lt. (Hon. Lt.) E. E. Hooper, Aug. 4th; Sec. Lt. G. A K. Robertson, Aug. 6th; Sec. Lt. H. J. Lewis, Aug. 7th; Lt. F. A. Fyfe, M C., Capt. A. G. Griggs, Aug. 8th; Sec. Lt. G. Cockburn, Capt. J. L. Luntley, Aug. 9th; Capt. A. M. C. Scott, Aug. 11th; Sec. Lt. R. H. Thomas. M.M., Aug. 12th; Capt. H. A. Whelen, Aug. 15th; Sec. Lt. D. A. Angus, Aug. 22nd.

Sec. Lt. F L. Roberts relinquishes his commn. on account of ill-health, and is permitted to retain his rank, Aug. 15th.

The surnames of Sec. Lt. (actg. Lt.) H. F Weet is as now described, and not "West" as stated in "Gazette," June 10th.

The notification in "Gazette," Jan. 3rd, concerning Sec Lt. A. A. Davis is cancelled.

MEDICAL BRANCH.—The following are granted temp. commns. as Capts.:—J. G. Skeet (late Capt., A.I.F.), August 10th; G. M. Mellor, Aug. 21st.

Lt.-Col. E. O. B. Carbery, O.B.E. (Surg. Commander, R.N.), relinquishes his commn. on ceasing to be empld., Aug. 15th.

Transferred to unempld. list:—Capt. G. Visger, Aug. 1st; Capt. R. H. Robbins, Aug. 14th.

DENTAL BRANCH.—W. P. Bole is granted a temp. commn. as Lt., July 28th.

CHAPLAINS BRANCH.—The Rev. E. Roberts is transferred to unempld. list, April 9th.

The notification in "Gazette," Aug. 22nd, concerning Rev. A. S. Bishop is cancelled.

MEMORANDA.—The following Oversea Cadets are granted temp. commns. as Sec. Lts., with effect from Feb. 15th, and relinquish such commns., with permission to retain the rank, from the day following termination of the standardised voyage in the case of those claiming immediate repatriation, and from the day following demobilisation in England in all other cases:—171288 W. M. Hall, 2005826 F G. Nesbitt, 183609 H. D. Scotton.

The following Cadets are granted Hon. Commns. as Sec. Lts.:—178600 G. S. Adam, 175569 W. Andrews, 177345 G. Astley, 177879 J. Adam, 177952 S. G. Bridger, 178406 G. E. Bagullay, 176746 F. D. Barker, 178070 J. W. Bower, 178331 G. V. Beedham, 178408 E. J. Black, 178409 P. A. Brown, 178400 F. D. M. Brown, 177100 G. V. Constantinidi, 176753 W. G. Cattell, 176755 S. P. Camplin, 176523 E. Chadwick, 176781 J. Curling, 177101 D. G. Denoon, 177405 E. Dennis, 177526 N. H. Dent, 178345 A. H. Doog, 176704 C. W Doley, 177355 J. Dick, 178603 J. P. Evans, 176411 H. Ely, 178401 J. H. Edwards, 178735 S. A. French, 177164 W. J. Ferguson, 178249 J. A. Findlay, 176960 C. Farragher, 177266 F. Goodfellow, 177283 T. H. Gwen, 177450 G. Guilford, 177495 H. Gleave, 177589 J. Grimshaw, 177822 E. Glover, 178253 J. A. Graham, 178419 R. P. Gardener, 178774 L. Gregory, 178693 A. T. Harrington, 178252 F. J. Humm, 177106 C. W. Hopkins, 176239 J. E. Hargood, 177566 G. L. Harper, 178320 J. B. oJnes, 177111 B. K. Johnson, 177139 E. J. Jack, 177208 H. J. Jones, 178013 H. Knox, 177329 H. Law, 177679 W. F. Lane, 178053 G. Lowther, 178054 W. R. Loyd, 178480 A. L. McQuire, 178031 G. McCallum, 177570 J. McMillan, 177593 W. M. Miller, 177421 W H. Morgan, 177864 H. Moult, 177141 N. S. Parry, 178381 J. S. Precious, 178382 T. P. Powell, 178429 F. A. Perry, 175409 A. Rodgers, 177801 P. M. Russell, 177976 H. S. Rowse, 177672 C. A. B. Sewell, 177673 H. T. S. Strang, 175830 H. R. J. Smith, 177802 W. R. Simmons, 177985 W. A. Smith, 178027 W. Tait, 177471 E. G. Taylor, 177845 C. W. R. Taylor, 177872 W. J. Thompson, 177555 N. H. F. Unwin, 177079 B. E. Wilkinson, 177342 L. E. M. Wells, 177303 W. R. Walker, 177443 F. H. M. Winwood, 177574 E. F. Wainwright, 24969 L. T. Wells, 176296 T. R. Weston, 176715 B. J. Wright, 177760 G. E. Whitfield, 177910 S. Watts, 177948 A. S. Webber, 178068 C. S. Wilson, 178502 E. J. Walker, Jan. 18th; 177395 J. C. S. Ahern, 176308 H Brook, 176314 J. S. Bell, 177350 A. D. Bourne, 177616 A. C. Braham, 160150 N. R. Champion, 176408 J. W. S. Coulter, 176725 E. S. Crocker, 176726 W. H. Cook, 177134 J. Clarkson, 177424 K W. W. Cockenden, 177620 L. W. Causer, 177657 R. W. H. Cunningham, 176763 R. W. S. Drummond, 177659 E. P. Duffield, 175255 M. E. Elliot, 177407 W Ferguson, 177690 W. J. Findon, 177306 P. Gillies, 177323 T. W. Gilmour, 117896 W. Heath, 176242 E. F. Holliday, 176099 A. B. Lavy, 176352 A. G. Litherland, 177309 R. C. Large, 177746 J. F. Latham, 137770 J. O. Mountney, 176881 W. L. H. Miles, 128678 C. D. Newman, 176362 P. G. Parker, 177176 E. Pinks, 177754 S. Parker, 176629 T. J. W. Stone, 176827 J. S. Snell, 177674 R. A. Smith, 176136 R. H. Tointon, 110057 J. Whyte, 177445 J. W. Wills. 177761 J. W. Wells, Jan. 20th; 223686 S. H. Metcalfe, March 9th; 100225 A. G. Webb, March 18th (substituted for notification in "Gazette," July 8th).

Lt.-Col. C. R. Finch-Noyes, D.S.O., A.F.C. (Paymaster-Lt., R.N.) relinquishes his commn. on ceasing to be empld., Aug. 16th.

The following temp. Hon. Lts. relinquish their commns. on ceasing to be empld.:—A. J. Mackay, May 16th; C. A. Packer, May 31st; W R. V. Morgan, June 16th; R Searle, July 31st; P. C. Thornton, Aug. 24th.

Transferred to unempld. list:—Sec Lt. W. J. Randall, March 14th; Capt. W. A. C. Ricketts, from (S.O.), May 4th; Lt. E. G. Clement, from (S.O.), Aug. 1st; Sec. Lt. M. L. Bisson, Sec. Lt. J. H. F. Hock, Sec. Lt. G. T. Thorne, Sec. Lt. S. J. Livingstone, Sec. Lt. W. E. May, Sec. Lt. E. Moorlands, Sec. Lt. L. M. Montgomery, Aug. 14th; Capt F. Spencer, from (S.O.), Aug. 16th

The initial of 176681 Cadet K. McArthur is as now described, and not R. McArthur, as stated in "Gazette," Aug. 19th.

AIR MINISTRY, August 29th.

The following officers and other ranks of the Royal Air Force (including *personnel*, Women's Royal Air Force) have been brought to the notice of the Secretary of State in respect of the valuable services they have rendered in connection with the war, and a note to this effect will accordingly be made in the Official Records:—

Maj. C. R. Abbott, M.B.E., Lt. (actg. Maj.) F. B. Adams (Wilts. R.), Lt. (actg. Capt.) H. A. Adams (A.P.D.), Capt. (actg. Maj.) W. B. Adams, Lt. (actg. Capt.) P. E. D Addis (Som. L.I.), Lt. G. J. E. Agnew, Capt. F. R. Aldford, M.C. (Can. M.G.C.), Sec Lt. G. K. Alling, Lt. (actg. Capt.) C. E. Amoore, Sec Lt. B. D. Anderson, Hon. Lt. (actg. Capt.) G. F. Antell (Can. Ord. C.), Lt. A. Appleby (R. Fus.), Lt. (Hon. Capt.) A. G. T. Applin, Lt. (actg Capt.) C. F. Apthorp, Maj.-Gen. H. T. Arbuthnot, C.B. (R. Arty.), Capt. (actg. Maj.) C. L. Archbold, Lt. E. L. Ardley (K.R.R.C.), Lt. H. D. Arkell, Lt. J A. Armstrong, Lt. G. D. Ashby (R.G.A., S.R.), Lt. N. H. Astley, Admstr. Miss M. A. Atkin, Sec. Lt. J. A. Atkinson, Capt. J. C. Atkinson, Sec. Lt. F. T. L. Avis.

Maj. (actg. Lt.-Col.) P. Babington, M.C., A.F.C. (Hants. R., T.F.), Sec. Lt. L. Badger, M.M. (R.E.), Chapln. (Civil) Rev. W. A. Badger, Capt. E. P. L Baker (S. Staffs. R.), Sec. Lt. H. Baker, Lt (actg Capt.) Capt. E. P. L Baker (S. Staffs. R.), Sec. Lt. H. Baker, Lt (actg Capt.) P. D. Baker (R.A., T.F.), Capt. C. W. Baldwin (Dur. L.I.), Lt. (actg. Capt.) M. Ballard, Capt. C. Banyard, Lt. J. H. Baring-Gould (N. Dev. Hrs.), Lt. A. H. Barnard, Lt. (actg. Capt.) A. W. Barnett, Deputy Admstr. Mrs. N. A. M. Barnett, Lt. J. C. Barrett, Sec. Lt. (actg. Lt.) D. Barron (R. Hdrs.), Lt. (Hon. Capt.) L. E. Barry (R.A.S.C.), Lt. E. V. Bashford, Sec. Lt. H. Bates, Lt. A. H. Beach (Can. Inf.), Capt. E. A. Beaulah (Lincs. R.), Capt. B. F. Bedford, Sec. Lt (actg Lt.) C. E. Beeson, Lt. (Hon. Maj.) W. R. Bernard (R.N.), Lt. A. E. Biggs, Capt. A. A. Bisset (R.A.M.C.), Asst. Admstr. Miss I. Black, Lt. (actg. Capt.) P. G. Black, Maj. P. Blair (R.F.A.), Capt. M B. Blake (Canada), Maj. (actg. Lt.-Col.) G. Blatherwick, Capt E. C. Blight, Lt.-Col. R. G. Blomfield, D.S.O. (Washington); Lt. B. W. Blower (Shrops. L.I.); Capt. A. R. Boeree (Suff. R.), Capt. A. Bolton, M.C. (R Sc Fus.), Maj. R. J. Bone, D.S.O., Capt. J. E. Bonniksen, Maj. (actg. Lt.-Col.) H. B. Bonning, Sec. Lt. C. L. Booth, Lt. J. R. S. Borman (Bord. R.), Capt. H. G. Bowen, Maj. A. C E. S. Bowlby (S Staffs. R.), L. H. K. Boysen, Sec. Lt. (actg. Capt.) C. W. Braddy, Lt. J. W. Brash (R.A.M.C., S.R.), Capt. S. Brew, Lt.-Col. W. Briggs (Washington), Lt. H. Bristow (E. Surr. R.), Capt. W. C. Broadhead, Sec. Lt W. J. Brooker (R.E.), Lt. (actg. Capt.) G. E. Brookes, Lt. (Hon. Capt.) A. E. Brooks (R. Dgns.), Sec. Lt. (actg. Lt.) E. W. Brooks, Lt. (Hon. and actg. Capt.) A. Broomer (3rd R.L.R.), Capt. E. B. Broughton (R. Fus.), Sec. Lt. G A. Brown (E. Surr. R.), Lt. H. A. Brown, Lt. J. M. Brown (H.A.C.), Maj. V. S. Brown, Lt. W. A. Brown (North'd Fus.), Lt. C. P. Browne, Maj. R. W. Bruce (Can. Inf.), Lt. W. R. Bucknell (R. Hus.), Maj (actg. Lt.-Col.) K. L. Buist (H.L.I.), Lt. E. J. A. Burke, Capt. E. E. N. Burney, M.C. (R. Berks.), Maj. W. Burningham-White, Lt. A. E. Bush, Lt. L. A. Bushe (24th Can. Inf.), Lt. W. N. Bussell (Mid'x R.), Lt. R W. P. Butler (Rif. Bde.), Maj. (actg. Lt. Col.) C. A. J. Butter, O.B.E. (Scot. Hse. Yeo.).

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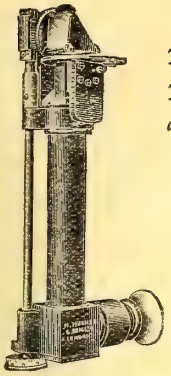

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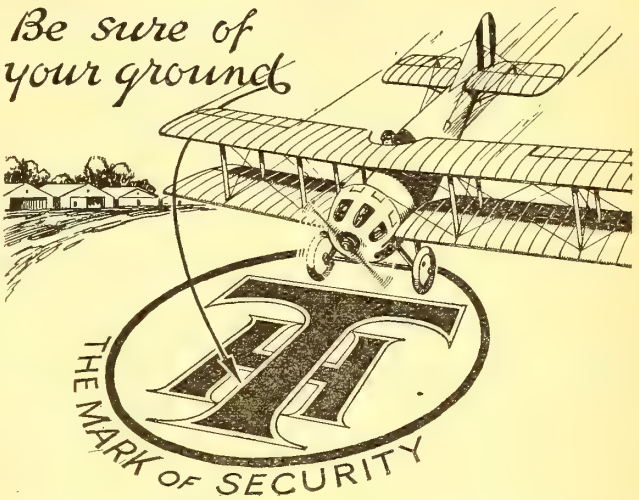

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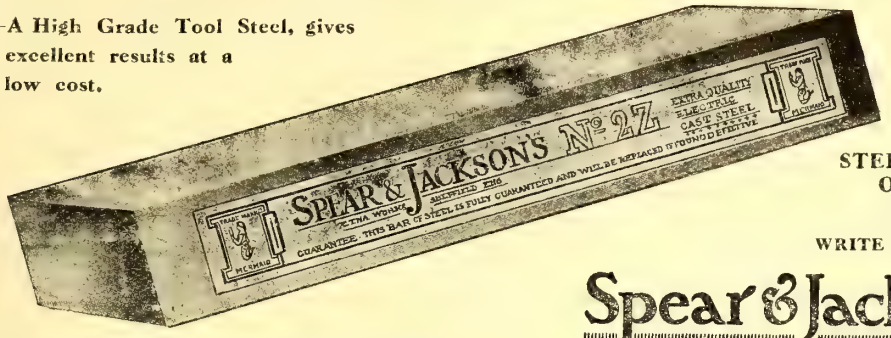

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5096 Ch. Mas. Mec. E. C. Oades, 227651 Actg. Sgt. G. Ogden, 2562 Ch. Mas. Mec. J. E. Onions, 57940 Actg. Sgt. A. H. Ormen, 71387 A.M.1 A. G. Osborn, 186754 Flt. Sgt. A. A. Owen.

42281 Sgt. A. R. Padwick, 187677 S.M.2 G. S. Palmer, D.S.M., 113827 A.C.1 J. Palmer, 16574 Flt. Sgt. F. D. Palser, 48066 Sgt. G. D. Parker, 126319 S.M.2 H. C. Parker, 3297 Sgt. Mec. R. Parker, 20337 Flt. Sgt. P. Parkinson, 220023 Cpl. H. Parr, 7090 Flt. Sgt. C. Parrott, 60240 Cpl. (actg. Sgt.) T. H. Parry, 203189 Flt. Sgt. J. W. Partridge, 72728 Cpl. (actg. Sgt.) H. Pascall, 11296 Flt. Sgt. H. E. Patching, 79606 L.A.C. (actg. Cpl.) C. Patrick, Can. 71494 Cpl. H. Patterson, 401026 Flt. Sgt. F W. Pavey, 84651 Cpl. S. Pawsey, Can. 70631 Flt. Sgt. A. F. Paxton, 66271 Flt. Sgt. A. R. Pearce, 5377 Flt Sgt. W Pearman, 220177 Cpl. G. S. R. Pederick, 206818 Cpl. G. R. Peers, 200613 Ch Mech. H. A. Percival, 210693 Flt. Sgt. A. J. Perry, 82263 Flt. Sgt. S. W. Pett, 3745 Sgt. H. F. H Phelps, 205641 Actg. Sgt. Maj. C. E. Phillips, 205841 S.M. C. E Phillips, 724 Flt. Sgt. F. J. Phillips, 38532 Flt. Sgt. H. A. Phillips, 36046 Flt. Sgt. C. H. G. Philpot, 1203 Member Miss A. Pickering, 106864 Actg. Sgt. Maj. S. E. Pike, 11597 Sgt. Maj.1 W J. Pinder, 7655 Ch. Sec. Ldr. Miss B. Plowman, 8060 Actg. Flt. Sgt. S. Poole, 6409 Ch. Sec. Ldr. Miss F M. Potter, 48455 Flt. Sgt. C. J. Pottier, 8095 Flt. Sgt. C. Powling, 202017 Sgt. Clk. W. Pratt, 185590 Flt. Clk J. E Prax, 2743 Staff Ldr. Miss A. Price, 43987 Flt. Clk. G. A. Pritchard, 130029 Cpl. Clk. H E. Pritchard, 45129 Sgt. J. F. Proctor, 2672 Flt. Sgt. C. A. Prowse, 2417 Flt. Sgt. (actg. Sgt.-Maj.) C. Pryor, 207115 Sgt. Mec G. M. Pullen.

18580 Flt. Sgt. J. M. Ralston, 54757 A.M.1 (actg Cpl.) C Ramsden, 6250 Sgt. S. Ranby, 166039 S.M.2 L. A. Rancom, 16/01 Sgt. A J. Rands, 22239 S.M.2 V. B. Ranford, 8662 Member Miss S. M. Rangel, 146090 A.C.1 (actg. Cpl.) F. Ransome, 4698 Flt. Clk. W. F. Ray, 2456 S.M. G. H. Raynor, 1482 Flt. Sgt. L. M. Reader, 42029 Sgt. A. E. Reed, 12500 Ch Sec. Ldr. Miss E. Reed, 2280 S.M. T. Reid, 227552 Cpl. Mech. E. E. Renault, 205417 Flt. Sgt. W. Rennie, 217016 Sgt Clk. M G. Reynolds, 7762 Flt. Sgt. W. J. Richards, 401665 Ch. Mech. A. J. Richardson 46418 R.S.M. F. Richardson, 32815 Sgt. J. Richardson, 72102 Actg Cpl. J. A. Riddell, 230998 Clk. I. R. Ridley, 405740 A.M.1 R. Ripley, 200079 Ch. Mech. (E.) R. W. Ripley, 64549 Actg. Sgt. H. Roberts, 187396 Flt. Clk. J. Robertson, 123421 Cpl. G F. Robey, 102 S.M. A. C. Robins,, 150898 Actg. Cpl. L. Roche, 68415 Actg. Sgt. R. Roser, 5304 S.M. M. B. Ross, 136968 A.C.2 P. C. Ross, 204445 Sgt. F. A. Rosser, 8267 Ch. Sec. Ldr. Miss E. L. Rouncefield, 204449 Sgt. B. A Rowe, 10753 Member Miss M. D. Rowe, 230 Flt. Sgt. O. R. Rowe, 1356 Sgt. (actg. Flt. Sgt.) S. A. J. Rowland, 314358 Sgt. J. L. Rowlinson, 4618 Member Miss A. L Ruler, 18608 Flt. Sgt. A. J. Russell, 37140 Flt. Sgt. Clk. J. H. Ryder, R.N., 224527 Ch. Mec. (R./L.) J. Rye.

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(To be continued.)

The Air Force Decorations.

The Air Ministry made the following announcement on Aug. 28th :—

His Majesty the King has been graciously pleased to approve the ribbons, as described below, being substituted for those at present in use.

Distinguished Flying Cross.—One inch and a quarter in width; violet and white alternate diagonal stripes, each of one-eighth of an inch in width, running at an angle of 45 deg.

Air Force Cross.—One inch and a quarter in width; red and white alternate diagonal stripes, each of one-eighth of an inch in width, running at an angle of 45 deg.

Distinguished Flying Medal.—The same as that for the D.F.C., except that the diagonal stripes are one-sixteenth of an inch in width.

Air Force Medal.—The same as that for the A.F.C., except that the diagonal stripes are one-sixteenth of an inch in width.

The ribbons will be worn one half-inch in depth, the diagonal stripes running downwards from the centre of the tunic towards the left, and will be so arranged that :—

(1) Distinguished Flying Cross or Air Cross ribbon will show at the top corner nearest to the left arm, and at the bottom corner nearest to the centre of the tunic, triangles of equal dimensions of violet or red, as the case may be.

(2) Distinguished Flying Medal and the Air Force Medal ribbon will show at the top corner nearest to the left arm a triangle of white and at the bottom corner nearest to the centre of the tunic a triangle of equal dimensions of violet or red, as the case may be.

(3) The order of precedence will be the same as at present.

The new ribbons should be worn as soon as practicable by all officers and airmen awarded the decorations The ribbons are now available, and a free issue will be made to those awarded these decorations.

In the case of demobilised officers and airmen, application for the ribbon should be made to :—

(1) Officers :—The Secretary, Air Ministry, Kingsway, W.C.2.

(2) Airmen :—The Officer, i/c Records, Royal Air Force, Blandford, Dorset.

The Cologne Aerial Mail.

The Air Ministry announced on Aug. 27th that :—

During the week ending Aug. 16th the R.A.F. aerial mail service from Lympne to Cologne carried no less than 7,090 lb. of letters and postal packets.

The service is carried on by two squadrons Nos. 18 and 120. The former is using D.H.9a machines with Liberty engines, and is working from the Cologne terminal, while the latter is equipped with the D.H.9 type with B.H.P. engines and works from Lympne.

The average time taken by machines of No. 18 on the journey is 3 hr. 14 min., while No. 120 with rather less powerful engines average 3 hr. 23 min.

The intermediate stage at Maisconcelle is now cut out, and the machines fly through without a stop. Out of 45 trips commenced, only in one case was there failure to complete the journey. The average weight carried per journey was 161 lb.

* * *

The R.A.F. aerial postal service established between Lympne and Cologne was discontinued on Sept. 1st. In view of the rapid demobilisation of our forces in Germany it was not considered necessary to continue the aerial post, especially as the service involved the maintenance of a number of wireless and directional stations.

* * *

The Air Ministry announces that the Royal Air Force landing-ground at South Denes (Yarmouth), has been relinquished.

* * *

A British aeroplane, while on its way from London to Bombay, fell into the River Capeau on Aug. 27th, near Salins d'Hyères. The crew of the machine, a Lieutenant and a Serjeant, were uninjured, and the machine was discovered to be very little damaged. The pilot is said to be one Lieut. Henfrey.

* * *

The recent raid on Kabul was carried out by the Handley Page machine, which, under the pilotage of Major MacLaren, R.A.F., with General McEwen, as a passenger, flew from England to India last January. The pilot on this voyage was Capt. Halley, R.A.F.

The machine started from Risalpur, and the distance flown was 400 miles, and apparently 8,000 ft. was the greatest altitude reached, and that only to pass over one ridge. The aeroplane remained over Kabul for 10 minutes, and the bombs dropped are stated to have caused a great deal of damage and panic among the people. The flight lasted six hours.

* * *

More than 1,000 women and girl workers at the R.A.F. Depot, Milton (near Abingdon, Berks, have received notice

The first account from **SIR JOHN ALCOCK'S** own pen of his **ATLANTIC FLIGHT** and his war experiences in the Near East appears in the September "BADMINTON MAGAZINE" The article is illustrated with hitherto unpublished photographs. The "BADMINTON" has also revived its pre-war Photographic Competitions.

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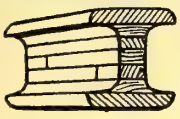
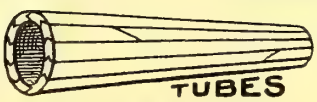


SPARS STRUTS LONGERONS



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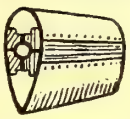

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that their employment will end in a few weeks. It is stated that only those willing to reside in camp will be retained.

* * *

An empty aeroplane, partly submerged, was found floating in the Solent near Yarmouth on August 29th. It was picked up by a War Department vessel.

It is thought that the machine possibly is one which, piloted by Capt. Cockey, R.A.F., fell into the Solent while on a flight from Plymouth to Southampton. Capt. Cockey was picked up unhurt by a yacht.

THE ARGENTINE.

An aerodrome was purchased at Buenos Aires by the Italian Government for the use of the Italian Air Force Mission some months ago. With the hangars and some of the aeroplanes, it has now been presented to the Argentine Government.

DENMARK.

The Entente Legations at Copenhagen have sent a Commission to inspect 90 German aeroplanes which have been bought by a Danish firm. The aeroplanes are in the hands of the Customs officials at Vandpupo. It is thought that these machines, which are new and bear Germany military marks, have been sent to Denmark in order to evade Article 202 of the Peace Treaty.

GERMANY.

It has been reported from Berlin that from 12 to 16 of the German airships that were to have been handed over to the Allies according to the provisions of the Peace Treaty have been destroyed by a young German naval officer.

The most circumstantial account has been sent from Berlin by Karl Wiegand, special correspondent of the Universal Service of America, whose message appeared in the "Daily Express" of Sept. 1st. In the course of his article, he said :

"About 16 Zeppelins were left of the 90 built during the war. The Peace Treaty provides for their surrender to the Allies. One, the Z72, is not completed, and is still intact at the Zeppelin works at Friedrichshafen. The other 15 were at various air harbours, chiefly in Northern Germany in the vicinity of the North Sea and Baltic coasts. Ten or 12 of the latter are said to have been sabotaged, and for all practical purposes are as good as destroyed.

"The naval officer, whose name has not yet been made known, acting, it is alleged, entirely on his own responsibility and initiative, is said to have ordered the cables by which the huge Zeppelins were suspended in their sheds to be cut, causing the airships to crash to the ground, crushing gondolas and engines, and twisting and bending the framework in such a way that they can be considered as good as 'sunk.'

"There is reason to believe that a plan to prevent the Allies getting the Zeppelins has been in contemplation in certain circles for some time. Indications suggest that the Government had no knowledge of the plan. The officer responsible is reported to have disappeared, but confirmation of this has not been obtained.

"One statement is that three of the oldest and obsolete type in sheds near the Baltic coast are unharmed. It is not yet certain whether the Z71, the last and largest Zeppelin completed, and one of those that attacked London, is among the airships wrecked.

"Something akin to consternation reigned at the Foreign Office when the report became known there. It is emphatically denied that the Government could have had any knowledge of it. On the contrary, officials saw only an attempt by certain elements to embarrass and make further trouble for the Government.

"In answer to my request for a statement, I was told at the Foreign Office that immediately the matter became known there the Government began an inquiry. The deed, it was stated, could only have been that of an irresponsible individual, who would be proceeded against as soon as it could be ascertained who was involved.

"In Nationalist circles the act is condoned as patriotic, whatever the consequences, and is compared to the sinking of the German Fleet at Scapa Flow."

ITALY.

If rumour is to be trusted, the Army rigid airship M6 is in September to fly from Rome to Brussels and back *via* Milan and Paris.

The Italian correspondent of THE AEROPLANE writes :—

Now that the Tripolitan rebels have been reduced to accept peace, the squadrons are turning their attention to postal work. It is officially communicated that the squadrons using C.A. machines are carrying on a coastal post service from Tripoli to Homs and Zuara. The F.B.A. people are doing the same from Tripoli to Sirte. Some sensational flights are being organised as well. Nothing seems to impress the Arab mind so much as speed.—T. S. H.

NORWAY.

On Aug. 29th Lieut. Jordan took Lieut. Stokke up in an Army Farman aeroplane at Vaernebmeren, near Trondhjem. When the machine had risen to about 50 metres it received a bad bump, got out of control and crashed. The petrol tank exploded on the machine hitting the ground. The machine burst into flames, and the aviators could not be rescued.

POLAND.

The first biplane built entirely by the Military Aeronautical Establishment at Warsaw is of the Roland type and passed its first flying tests at the Mokotow Military Aero Park on Aug. 22nd.

Reuter states that an American aviation squadron is being formed in Paris with the object of aiding the Poles in their fight against the Bolsheviks. Major Fauntleroy and Captain Cooper have received official authorisation from General Rosvedowski, head of the Polish Military Mission, to form a squadron which will consist of aviators who, like themselves, have seen service in the Air Force of the American Army. The squadron will be christened the Kosciusko Squadron, after the Polish national hero, and is expected to leave for Poland about Sept. 15th.

RUSSIA.

It is believed that a French aviation detachment has arrived at Krasnoyarsk, Siberia. The detachment will co-operate with Admiral Koltchak's Forces.

SPAIN.

The Ministry of War has ordered a large number of aeroplanes from the Caudron firm.

According to the " Times " of Sept. 1st, 20 aeroplanes are to be bought for the instruction of aviation pupils.

On Aug. 23rd and 24th a Spanish aviator dropped bombs on the fondak of Wadras in Spanish Morocco. On the 23rd two soldiers of Raisuli's regular army were killed, and five bombs were dropped. On the 24th 11 bombs were dropped, but there were no casualties.

The tribesmen state that the aeroplane was armoured, apparently because, although flying low, they could not bring it down. The actual type of machine is not known.

PERSONAL NOTICES.

NAVAL.

ENGAGEMENT.

COMPSTON—BARCLAY.—A marriage is arranged, and will shortly take place, between Capt. R. J. O. Compston, D.S.C., D.F.C., R.A.F., younger son of the Rev. H. F. Compston, Fellow of King's College, London, and Nina, only child of the late Arthur Hayward Barclay, Captain, 18th Hussars, and adopted daughter of Lieut.-Col. Hubert F. Barclay, of Essendon Close, Hatfield, Herts.

MILITARY.

DEATH.

KANN.—Capt. Raymond Victor Kann, R.A.F., who was killed in a flying accident at Stonehenge on Aug. 21st, at the age of 22, was the elder surviving son of Mr. and Mrs. R. Kann, 37, Lancaster Gate, and was married on June 19th last to Dorothy, the youngest daughter of Mr. and Mrs. Percy Love, Adelaide Road, Hampstead.

ENGAGEMENTS.

BALFOUR—SHEPPERSON.—The engagement is announced between Major Harold H. Balfour, M.C., late 60th Rifles and R.A.F., second son of Colonel and Mrs. Nigel Harington Balfour, of Belton, Camberley, and Barbara, only daughter of Claude A. Shepperson, A.R.A., A.R.W.S., and Mrs. Shepperson, of 5, Mulberry Walk, Chelsea.

ELLVERS—ELLIOTT.—The engagement is announced between Lieut. Victor Ellvers, R.F.A. and R.A.F., son of the Rector of Melbury Abbas, Shaftesbury, Dorset, and Audrey Guest, daughter of the late Mr. George Elliott, K.C., and Mrs. George Elliott, of 54, Cheyne Court, Chelsea.

GODDARD—BERNARD.—A marriage has been arranged between Capt. H. E. Goddard, R.A.F., late East Yorkshire Regt., younger son of Colonel W. F. Goddard, V.D., J.P., D.L., and Mrs. Goddard, Thwaite House, Cottingham, near Hull, and Enid Bernard, daughter of the late Mr. Edmund Bernard, J.P., and Mrs. Bernard, Snakemoor, Botley, Hants. The ceremony will take place very quietly in the country on Sept. 16th.

KINGSCOTE—PAUL.—The marriage arranged between Lieut.-Col. A. R. F. Kingscote, M.C., Royal Artillery, and Mrs. Percival Paul will take place at St. Margaret's Church, Westminster, on Tuesday, Sept. 9th, at 2.15 p.m.

BIRTH.

GRANDAGE.—On Aug. 29th, at "Edinburgh House," Brockhurst Road, Gosport, Hants, to Winifred (née Foster), wife of Norman A. Grandage, A.M.I.Mech.E. (Lt. R.E. (T), attd. R.A.F.)—a daughter.

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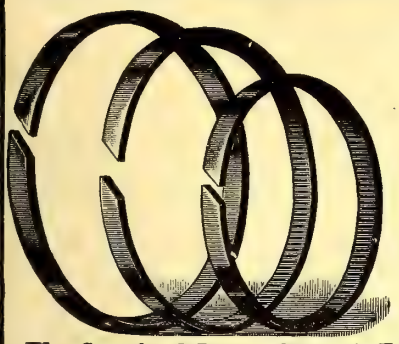

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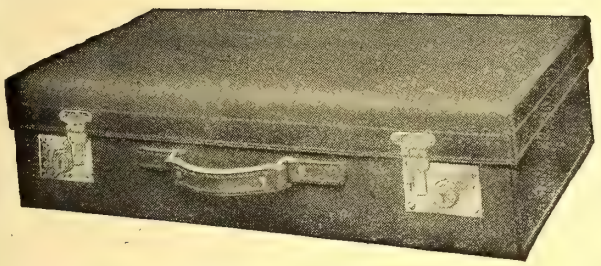

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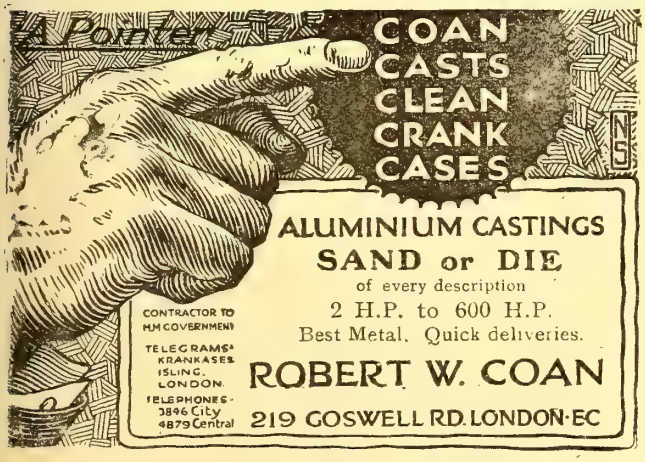

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THE AEROPLANE

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ON THE INTERNATIONAL AIR NAVIGATION CONVENTION.

Owing to the intervention of matters of greater immediate importance, comment on the International Air Convention which was published some weeks ago has perforce been postponed. It is now possible to return to the subject.

Taking it all round, the International Air Convention is a very fine affair, but there are in it what appear to be some appalling snags, which if they do not in years to come develop into actual *casi bellorum* will at any rate give rise to "diplomatic incidents" of some importance.

As that entertaining person the "Lincoln Imp" has already indicated, the High Contracting Powers have agreed that the air over each State belongs to that State. This is not an admission of the *usque ad cœlum* doctrine, but rather the institution of the doctrine as an international law. Its installation as such does not in the least entail its acceptance in an ordinary court of law for private consumption. So we can still fly with impunity over our neighbour's land.

Incidentally those who recall the "Imp's" great discovery that the *usque ad cœlum* doctrine has never been the law of the land will remember that all the precedents quoted in support of the doctrine referred solely to the ownership of trees, or birds in the trees, over certain land. In fact, the only applications of the doctrine which carried any legal weight seemed to imply that *cœlum* did not mean *heaven*, but merely what aviators understand by the word *ceiling*, that is to say the *highest reachable level.*

Thus the "ceiling" of a land-owner is merely the tops of his own trees. If this fact were ever established in a court of law, or if the Air Ministry had the pluck to make a regulation that anybody is at liberty to fly over anybody's land so long as he is above the owner's "ceiling," a whole lot of trouble would be saved, and yet the *usque ad cœlum* doctrine would be vindicated.

In International Law, on the other hand, there can be no doubt whatever about the ownership of the air. It is now agreed that "every State has complete and exclusive sovereignty in the air space above its territory and territorial waters." So that's that, and it is very necessary to remember it, for according to the wording of Article 1, Chapter 1, of the Convention the Law applies just as well to the air space above the territory of States which do not agree to the Convention as it does to States which sign it.

A Suppositious Case.

Thus, for example, if the free and independent Republic of Andorra refused to agree to the Convention and announced that it would not have the aeroplanes of other nations flying over its territory, there would be nothing to prevent it from organising an anti-aircraft corps and turning its Archie batteries onto any aeroplane which trespassed in its air space. If an aeroplane of foreign origin were brought down, and if the occupants were killed, it seems that no action would lie against the Government of Andorra. As a Sovereign State it would be within its rights in compelling respect for its own laws. In such a case the whole State would be a prohibited area, and the Andorran Archie-gunner would have as much right to shoot as would a British Archie-gunner who fired on an aeroplane flying over Woolwich or Spithead.

One does not on this account recommend demobbed Archie-gunners to dash straight off to Andorra (if they can find it on the map) and offer to organise an Andorran Air Defence Area, even though the said A.A.D.A. might be concocted after the latest recipe for L.A.D.A. *à la* Ashmore. They might be very welcome, and they would probably find out that Andorra's objection to aircraft was largely due to the fact that Andorra was not large enough to contain an aerodrome, and, moreover, that Andorra being mostly vertical, it would be impossible to find a flat place even if there were room for it, and that so the Andorrans, being mountaineers of a sporting nature, had decided to have a little aeroplane shooting, as a change from eagle and ibex.

But, the Archie-gunner would soon find himself in trouble, for he would also find that he could not fire at an aeroplane without his splinters and duds falling into the territory of other Sovereign States. It is alleged that Andorra once bought a Creusôt gun but has never fired it because if it were fired it must inevitably hit either France or Spain.

Nevertheless, without Andorra's consent you must not fly over Andorra. That is assuming that Andorra is anywhere on a line from anywhere in France to anywhere in Spain between which points anyone would want to fly. Which one doubts.

Prohibited Areas.

There is in the early part of the Convention one rather sportsmanlike clause which deserves attention. Article 3 says:—"Each contracting State has the right, for military reasons or in the interest of public safety, to prohibit the aircraft of the other contracting States, under the penalties provided by its legislation and subject to no distinction being made in this respect between its private aircraft and those of the other contracting States, from flying over certain areas of its territory."

That is to say an Archie-gunner protecting the Woolwich or Sheerness prohibited area has a perfect right to shoot down a French, Belgian, Czecho-Slovak or Jugo-Slav machine which flies over his area. But, he must, in common decency and fair play, also shoot down the next British machine which flies over his area—that is unless he is merely a temporary officer and gentleman.

Foreign air travel is evidently not going to be such a haphazard affair as foreign motoring used to be, for one reads further in Article 4 that "Every aircraft which finds itself above a prohibited area shall, as soon as aware of the fact, give the signal of distress provided

in Paragraph 17 of Annex D, and land outside the prohibited area as near to it as possible and as soon as possible at one of the aerodromes of the State unlawfully flown over."

Apart from the horrid grammar of that article one is put in doubt as to its precise meaning. Presumably it will be left to the local Archie to notify the offending aircraft whether it is over a prohibited area or not. Most pilots who fly over a prohibited area are diplomatically blind to its precise extent, and he would have to be a very conscientious person indeed who would take the trouble to land and report himself just because he found himself half a mile west of the famous chimneys at West Thurrock instead of half a mile to the east of them. And probably it would depend very much on the quality of Archie's shooting whether the pilot made the prescribed signal of distress or not.

But what is really fogging is the meaning of landing outside the prohibited area "as near to it as possible and as soon as possible at one of the aerodromes of the State flown over." Does this mean that the machine must land close to the edge of the prohibited area at once, and then land again at an aerodrome! Or does it mean that it must land as soon as possible at an aerodrome as near as possible to the prohibited area? And does "an aerodrome of the State" mean a Government aerodrome, or merely any aerodrome, private, public, or Government, near the prohibited area?

It strikes one that while a pilot was making up his mind what to do about it he would either be shot down or would be so far away on his journey that it would not be worth his while to land till he reached his destination. Also, be it remembered, under the Civil Aerial Transport regulations it is part of Archie's job to fire a warning shot if he sees an aircraft approaching a prohibited area, so there is nothing in the first shot to tell the pilot that he is doing anything worse than looking as if he were going to trespass over the sacred area.

Air Defence Areas.

On the whole it looks as if there is going to be quite a lot of quiet fun and probably a good deal of litigation over this question of prohibited areas. And certainly there is going to be heaps of work for the Archie-gunners and their searchlights and observer companies. In fact the protection of the prohibited areas in this country will demand the services of quite a large personnel.

Which seems to suggest that the excellent organisation which has been created under the G.O.C. and Staff of the London Air Defence Area ought to become a permanent institution for the defence of prohibited areas. There will certainly be plenty to keep it in even better practice than when it had only to deal with Hun raiders, and so it will become extremely expert in readiness for the next war.

Whether this Air Defence Force should be under the War Office or under the Air Ministry is an arguable point. Personally one inclines to the belief that it is the Air Ministry's "pidgin." The ground jobs might become in time a kind of home for officers whose flying days are done. The Home Defence squadrons that were (during the war) would become a species of aerial police to chase those who trespassed over prohibited areas and to take their numbers.

There may be reasons why such a force should come under the War Office, or even under the Admiralty. If so one would like those who think so to "give their reasons and draw a map." But in any case the Air Defence Force should now become a permanent institution.—C. G. G.

AN APOLOGY.

Our attention has been called to the article under the heading, "On the Harmsworth Press and the R.A.F. Vote," which appeared on page 654 in our issue of the 20th ult.

Messrs. Simmons and Simmons, solicitors to Brig.-General Livingston, inform us that the paragraphs under the sub-heading of "An Unfortunate Connection" have caused considerable annoyance to him owing to their defamatory nature.

We gladly take this opportunity of stating we had no intention of making any imputation whatsoever against the General. We unreservedly withdraw our remarks and offer to the General our sincere regret that the article appeared.

THE USE OF WIRELESS TELEPHONES AND TELEGRAPHS WITH AIRCRAFT.

The Air Ministry makes the following announcement:—

The form of licence to be granted for the use of wireless to and from aircraft, and the conditions under which such licences will be granted, are under consideration. In the meantime, pending the issue of the licence by the Postmaster General, temporary provisional authority for the installation and use of wireless apparatus in aircraft can be obtained, in approved cases, by application to the Secretary of the Post Office.

For the present the wave length suggested for wireless telephony is 480 metres. This is the wave length which the existing Air Ministry W/T Stations at present employ for work with aircraft.

For the benefit of designers and others interested, it may be said that the Postmaster-General's licence, when available, will probably contain provisions to the following effect:—

The sending apparatus installed at any aircraft station shall be constructed so as to be capable of using waves of 600 metres interrupted continuous wave, and 900 metres continuous wave; such of the following wave lengths, namely, 220, 300, 450 and 800 metres interrupted continuous wave, and 200-550 metres, 650-950 metres, 2,000-3,000 metres, continuous wave may also be used for transmission as are authorised in writing by the Postmaster-General.

The use of the wave of 600 metres (hereinafter referred to as the "aircraft-ship" wave) shall be confined to the use of the system known as "Interrupted Undamped Wave or Tonic Train, or I.C.W.," and the use of 900 metres hereinafter referred to as the "Aircraft Notmal Wave," shall be used only for continuous damped waves or wireless telephony.

Should an aircraft station be also fitted with a supplementary installation on long continuous waves, such installation shall be so constructed as to be capable of using the wave length of 2,400 metres.

The range of wave lengths for which the receiving apparatus may be constructed is not limited, but the apparatus must be capable of receiving on 600 metres and 900 metres, and on 2,400 metres when a transmitter working on this latter wave length is installed; it must also be made to embrace any other wave length on which a transmitter installed has been authorised to work.

The input of power to the licensed apparatus measured at the terminals of the power generator or battery shall not exceed 100 watts, provided always that when vacuum valves having heated filaments constitute a part of the sending or receiving apparatus, or both, the power employed for heating the said filaments shall be excluded in computing the said maximum input.

RELINQUISHMENT OF R.A.F. STATIONS.

It is announced by the Air Ministry that the following Royal Air Force Stations are to be relinquished and disposed of:—

Lowestoft (Balloon Base), Hicking Broad (Seaplane station), Bembridge (Seaplane Station), New Bembridge (Aerodrome), Seahouses (Aerodrome), Seaton Carew (Aerodrome), Marham (Aerodrome), Tynemouth (Aerodrome), Leadenham (Aerodrome), Upper Hoyford (Aerodrome), Usworth (Aerodrome), Helperby (Aerodrome), Ashington (Aerodrome), Scale Hall, Lancs. (Landing Ground), (after Oct., 1919).

GREAT BRITAIN AND FRANCE.

The Air Ministry announced on Sept. 3rd that in connection with the opening up of civil communication by air between Great Britain and France the French authorities have raised objections to the use of petrol and oil by civilian machines, which has been imported into France without payment of the ordinary dues, for military purposes. Aircraft companies and all others concerned must in future provide their own petrol and oil at Le Bourget through the ordinary commercial channels.

THE SCHNEIDER CUP ELIMINATING TRIALS.

The eliminating trials which were to have been held by the Royal Aero Club at Cowes on Wednesday, Sept. 3rd, to select the British team for the Schneider Cup proved rather a fiasco.

Three of the four entrants were known on Tuesday to be completed and to have taken the air. The Supermarine boat had not been out, and inquiries at Woolston on Tuesday evening showed that the machine had been delayed by the non-delivery of a propeller—due to a strike at the propeller makers—but that the missing article had safely arrived later on that afternoon, and that the last split pins in the propeller bolts were then being inserted. About 8 p.m. that night the Napier engine was given a run, and arrangements were made to take the machine out for a trial at 6 a.m. on Wednesday morning.

At six on Wednesday, Southampton was in a deluge, and the rain carried on steadily and hopelessly till nearly 11 o'clock, by which time the tide was too low to get the machine out at Woolston.

However, there was no doubt of the machine's readiness, and if the weather cleared sufficiently for the trials Major Hobbs was determined to be at Cowes for them.

Between Southampton and Cowes the steamer ran through steadily improving weather, and at Cowes at 12.30 there was no question of postponing the event on account of bad conditions. There was a light N to N.E. breeze, no sea at all, and quite good visibility.

The Fairey with Clipped Wings.

Shortly after two o'clock an engine was heard approaching, and a seaplane appeared over Calshott making for Cowes. At first it was taken for the Sopwith—but it was soon recognised as the Fairey—fitted with clipped wings and a single row of struts at each side.

Lieut.-Col. Nichol made a very slow and perfect landing and taxied to the slipway at Saunder's yard. Just as the Fairey landed, a small flying-boat came in sight—which proved to be a three-seater Supermarine with 160 h.p. Beardmore, and not the Supermarine racer.

Then a small black speck on the horizon grew rapidly into the Sopwith racer—passed over, and landed on the East side of the harbour.

The landing was a fairly fast one, and the machine sank into the water in a quick and rather unhealthy looking manner, till the engine was opened up again, and the machine then made rapidly for the beach on the opposite side to the appointed rendezvous. It was brought over, Mr. Hawker sitting on the port wing tip, and a rowing boat under the starboard one, with floats nearly submerged and the tail plane awash.

On lifting the machine it was found that the starboard float was minus about 2 sq. ft. of bottom just under the rear chassis strut, and had, in addition, one or two minor holes, and that the port one was also punctured. Mr. Hawker's impression is that the main damage occurred at getting off at Hythe, and, in any case, the nature of the damage was such as to indicate that the float had hit something more solid than mere water.

A Bully Beef Tin.

After a long wait a motor-boat from Hamble brought over Mr. A. V. Roe, Capt. Hammersley, and Mr. Chadwick, who explained that the Avro had encountered a floating bully beef tin while getting off at Hamble, and had thereby been deprived of the step to one float.

Later a contingent from Woolston arrived, who explained that their three-seater boat had seen Mr. Hawker's mishap and had, therefore, concluded that the trials would be washed out, and they had, therefore, not brought their machine across.

Thereafter, Col. Nichol departed on the Fairey, Mr. Hawker returned by motor-boat with his two damaged floats to Hythe to collect a spare set. The Avro and Supermarine detachments returned to their homes and the rest of those present adjourned for tea.

So far as could be gathered upon the spot the Committee in charge of the trials, consisting of Col. Ogilvie, Majors McClean and Mayo, and Lieut.-Commander Perrin, decided that the Fairey and the Sopwith are to be included in the British team, and that the Supermarine and the Avro should run a separate trial on Monday, Sept. 8th, to decide upon the third representative.

The Sopwith rising in Trials.

The Fastest Aeroplane One has Seen.

Of the two machines which did appear at Cowes it may be said at once that the Sopwith gives one the impression of being by far the fastest aeroplane of any type that one has yet seen. There is nothing freakish about it, it is very simple and clean in outline, and, in so far as a very small, light high-speed machine can be seaworthy, this should be. Therefore, given reasonably good fortune and fair weather, the Sopwith should win against everything.

The big Fairey—for it is a big machine, in spite of its 28-ft. wing span—looks capable of ploughing through anything in the way of a sea that a seaplane can stand up to, and it is not a slow machine by any means. If the gale that Mr. Fairey is hoping for does blow on Sept. 10th, his machine should put up an excellent show.

THE FRENCH AND ITALIAN COMPETITORS.

Yesterday (Tuesday), the Royal Aero Club stated that the two Nieuports (300 h.p. Hispano-Suiza), entered for the Schneider Cup race, had collided on the Seine. One was badly damaged and the other slightly. One of the machines, whether it is the slightly damaged one that had been repaired, or another, was not known, flew over and ran into a buoy, near Cowes, and was damaged, but it was expected that it could be repaired in time. Another machine was understood to be on the way, so that there may be two Nieuports in the race after all.

The Spad (300 h.p. Hispano-Suiza) and the Savoia (250 Isotta) were reported to have arrived.

THE AVRO ENTRY.

The details and dimensions of the Avro "Puma" racing seaplane entered for the Schneider Cup Race are now available.

They are as follows:—

Span of top wing	25 ft. 6 in.
Span of bottom wing	24 ft. 6 in.
Span of tail plane	9ft.
Height overall	9 ft. 9 in.
Length overall	21 ft. 4 in.
Chord of top wing	4 ft. 6 in.
Chord of bottom wing	4 ft. 6 in.
Chord of tail plane and elevators	3ft. 6 in. (mean)
Angle of incidence, top plane	1½ deg.
Angle of incidence, bottom plane	1½ deg.
Dihedral angle, top plane	0 deg.
Dihedral angle, bottom plane	3 deg.
Angle of incidence, tail plane,	adjustable from + 3 deg. to — 3 deg.
Area of main planes and ailerons	195 sq. ft.
Area of tail plane and elevator	28 sq. ft.
Area of rudder	5½ sq. ft.
Area of fin	8 sq. ft.
Loading of main planes	10.5 lb. per sq. ft.
Loading of engine (250 h.p.)	8.18 lb. per h.p.
Airscrew, "Avro"	8 ft. 6 in. dia., 8 ft. pitch, 2 blader
Petrol feed	pressure
Petrol capacity	25 gall.
Oil capacity	3 gall.
Water capacity	7 gall.
Controls type (machine)	joy-stick and rudder-bar
Controls type (engine)	single control
Weight bare (with water)	1,670 lb.
Weight loaded (pilot 170 : fuel and oil 279)	2,119 lb.

"SOME LOOP."

For some time past it has been a daily sight to see machines from the Cambridge School of Flying looping near Cambridge, and an Avro with its nose well down, preparatory to a loop, at once rivets attention. Recently the R.33 appeared over the town and suddenly put its nose down at a steep angle. A dear old lady in the crowd watching said excitedly, "Oh, look, it's going to loop the loop!"—G. D.

The WORLD of AERONAUTICS

NEWS OF THE WEEK FROM ALL QUARTERS

The Miss Douglas-Pennant Inquiry.

The inquiry into the dismissal of Miss Violet Douglas-Pennant from the position of Commandant of the Women's Royal Air Force will be opened at the House of Lords on Oct. 14th. The Chairman will be Lord Wrenbury, and the proceedings will be open to the public.

Miss Douglas-Pennant's statement of the case was filed at the House of Lords yesterday afternoon by her solicitors. Other persons interested are permitted to lodge statements up to Sept. 23rd, having an opportunity in the interval of seeing the exact nature of Miss Douglas-Pennant's complaints.

An Entertainment.

Major-General Seely, as Lord-Lieutenant of Hampshire, on Sept. 6th gave a luncheon to between 500 and 600 disabled sailors, soldiers, and airmen at Winchester Castle The King sent a message from Balmoral, in reply to a telegram from the gathering, stating that he much appreciated the loyal message from disabled men assembled to celebrate our victory, in which they had played so noble a part.

A Profitable Superstition.

According to the "Daily Mirror" many flying passengers are yielding to a superstition that if they throw a silver coin to earth as the aeroplane is ascending, luck will attend the flight. It is said that many passengers on the first of the Paris trips did this.

One wonders who was the enterprising groundsman who started this profitable idea.

168 Miles per Hour.

It is announced that Col. H. B. Clagett accomplished the feat of travelling from Washington to the Statue of Liberty in one hour and fifteen minutes on August 8th, at the rate of 168 m.p.h.

The flight was made in a De Haviland machine at a height of 4,000 feet. Sergeant Ralph Kratz flew with Colonel Clagett as a passenger.

The best previous record for the 210 mile flight was one hour and 24 minutes, or at the rate of 150 m.p.h.

To India and Back.

On Sept. 6th the "Daily Express" reminded its readers that the £10,000 prize for an Imperial Reliability Flight is to go to the entrant of the first aeroplane, seaplane, or airship which flies from England to India and back, and carries a load of at least a ton on both journeys.

The time occupied on either journey is not to exceed 12 days, and the return journey is to be begun within 14 days of arrival in India.

The competition is declared open as from May 1st, 1920, and will be closed on Oct. 31st, 1920.

The Advisory Committee, representing the Air Ministry, the Aeronautical Inspection Directorate, the Society of British Aircraft Constructors, the Royal Aeronautical Society, and the Royal Aero Club, at its second meeting expressed unanimous approval of the step taken by the "Daily Express" in offering the £10,000 prize for the return flight to India.

Entries are now in order, and should be sent to the Secretary, "Daily Express" Advisory Committee, £10,000 Imperial Reliability Flight, 3, Clifford Street, W.1. The fee for each entrant is £100.

Germany's Big Aeroplane.

Reuter reports that what is claimed to be the biggest aeroplane in the world is stated in the newspapers as having been built at the aviation works at Leipzig. It has made its first flight. It has a span of 134 ft., and is 69 ft. in length and 20 ft. in height.

It is equipped with two Benz motors of 500 h.p. and two of 250 h.p.

The aeroplane is capable of carrying a crew of six and 18 passengers with luggage.

Apparently, the Aviatic works are those to which the message refers.

How to obtain Efficiency.

The manager of a commercial aviation firm relates that at a northern aerodrome recently a pilot landed, paid the five shillings landing fee, and obtained the assistance of two airmen. In a few minutes he was ready to take off again, but only flew a few hundred yards before his engine failed. He looked round to beckon to the airmen and saw a Red Cross ambulance car rolling across the aerodrome with a number of W.R.A.F.s on board. The car stopped to pick up the two airmen and made off, leaving the pilot cursing on the deserted aerodrome. After much running about he discovered that it was one of the afternoons appointed for a mixed bathing parade and that until the ablutions considered necessary by the grandmotherly authorities had been carried out no more work would be done on that station.

It may be that one may live to see nationalised railways worked on the same principle and then one will occasionally find it impossible to obtain a ticket or the help of a porter because the equivalent of the adjutant has ordered a parade to teach the men on the establishment the arts of ticket punching and luggage smashing by numbers.

A Stunt.

Climbing on to a wing of an aeroplane flying 1,000 ft. above the Mersey near New Brighton Lighthouse on Sept. 6th, Professor F. Gadsby, a one-legged swimmer, jumped with a parachute.

As he was unable to free himself from the parachute he did not dive into the river as intended, but dropped gently and was picked up by a motor-boat.

The somewhat foolish stunt was cinematographed from another aeroplane.

Advice to Recruits.

The Washington Official News Letter has contained much advice to recruits. Recently it stated that :—

"The future commercial flying will, without a doubt, develop along the lines of lighter-than-air craft, and the man who goes into the balloon and airship game now and takes advantage of his opportunities will, at the end of a three-year enlistment, be able to step into a new field of endeavour in civil life, where, with a thorough knowledge of machines, gas, cordage, fabrics, or rigging, he will meet with no such competition as the airplane mechanic, whose training does not cover such a variety of phases of air navigation.

"That commercial airships are soon to become as ordinary a sight in the air as army airplanes are at present is an assured fact, as all of the balloon manufacturers in America and abroad are planning and actually building airships from a small "sport model" two-passenger ship up to the enormous 10,000,000 cubic ft. ship, fitted out for a world cruise with all the conveniences of an ocean liner. It is a new field that is only now opening up. The man who contemplates entering the air service and neglects to look into the airship (lighter than air) opportunities now offered him will be as short-sighted as some of those old conservatives who stayed in the bicycle game when automobiles first came into use."

The Truth.

The following letter has been received :—

Sir,—Probably it will interest you, in view of your quotation from "Truth" *re* life of aero engines, in the current issue of your most valuable and interesting paper, if I mention, to support your statement, an experience of mine.

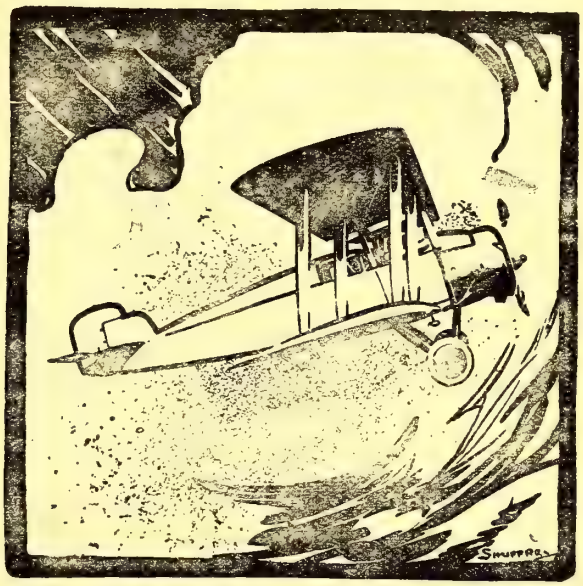
On August 20th, 1918, I set out on an altitude test on Avro 1808, 110 Le Rhone (No. 13734), and reached the ceiling at 15,000 ft. This engine at that time had done 80-90 hours' flying, and before overhaul had well over 100 hours to its credit. It will be unnecessary to practical minds to point out that engines overhauled, say, every 30-50 hours would have a much longer "life" than the above engine, which most of the time was flown by pupils.

An Aviation Meeting at Barcelona.

An aviation meeting will take place at Barcelona on Oct. 5th next, under the auspices of the Aero Club de Cataluna. The British Chamber of Commerce for Spain has been successful in securing the participation of foreign pilots in the race, which is to take place over a course of about 100 kilometres. The foreign pilots will be "hors concours" so far as the race for Spanish aeroplanes steered by Spanish pilots is concerned. In the case of more than three foreign machines taking part, a special prize will be reserved.

CIVIL FLYING

WITH



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The WORLD of AERONAUTICS (continued)

A Transatlantic Souvenir.

To-day, Sept. 10th, is the last day on which the stamp souvenir of the Transatlantic flight may be secured. The much-advertised "Hawker" postage-stamp, initialled on the back by the Postmaster-General of Newfoundland, and encased in an album with the autographs of Lord Northcliffe, Capt. Sir John Alcock, Capt. Sir A. Whitten Brown, Mr. H. G. Hawker, Capt. K. Mackenzie Grieve, and Mr. T. Sopwith, is to be sold to the highest bidder; the total sum received will be handed to the Newfoundland Marine Disasters Fund.

The highest bid up to Monday last was £52 10s., which is offered by Mr. H. S. Saunders, of Lloyd's.

An Airship Bed.

Lady Sybil Grant is organising an exhibition to be called "Airships in Peace and War." It is to be opened at Prince's Galleries, Piccadilly, London, on Sept. 15th. It will contain models of airships, pictures and sections of ships. It is announced that the French authorities have sent a splendid exhibit. The profits of the exhibition will be used to subsidise an "Airship Bed" at St. Dunstan's.

Inspired into Song.

Miss Nellie Gibson, the parachutist, wrote recently to the inventor of the "Guardian Angel" parachute:—

"When I had the signal given me to drop from the Handley Page machine I dived without the slightest fear, and before I had the time to appreciate the fact that I had leapt from the 'plane, I felt myself gloriously and comfortably on the balance, just as if I were swinging in a hammock, being at perfect ease in my harness, and during the descent the happiness inspired me into song. I made a safe landing much to the joy of the Indian troops who witnessed the descent."

Whale-hunting with Aeroplanes.

Aeroplanes are being used on the west coast of Vancouver Island for spotting whales. The machines patrol the sea in the same way as did the submarine hunters during the war, and when the whales are spotted the news is wirelessed to the whaling ships.

£1,000 in Prizes.

Prizes to the value of £1,000 are offered by Kodak (Australasia), Ltd., for photographs taken *en route* by competitors in the England to Australia flight.

The first prize is £800, the second £150, and the third £50. Competitors are asked to apply to Kodak, Ltd., Kingsway, London, W.C.2.

A £200,000 Flight.

According to Reuter the cost of Gabriele d'Annunzio's flight from Rome to Tokio is estimated at £200,000. Italian officers and soldiers have already started for the places where d'Annunzio will refurnish himself with fuel on his journey—Asia Minor, India, Siam, Fusan, Korea, Osaka, and Tokio.

£300 Machines.

Inquiries made at the London branch of the United Aircraft Engineering Corporation, at 123, Pall Mall, S.W.1, show that so far only six of the ninety-eight D.H.6 machines bought a few weeks ago from the Aircraft Disposal Board have been sold.

The machines are fitted with 100 h.p. Curtiss ox.5 engines, and it is said that in this country a certain amount of prejudice against this engine seems to exist, though its performances have been good. Some of them have run as many as 250 hours before they have been taken down.

The machines complete have been offered for sale at £300. The D.H.6 machines without engines might be sold for about £130. Both machines and engines are absolutely new, as they have not been in the air since their test flights.

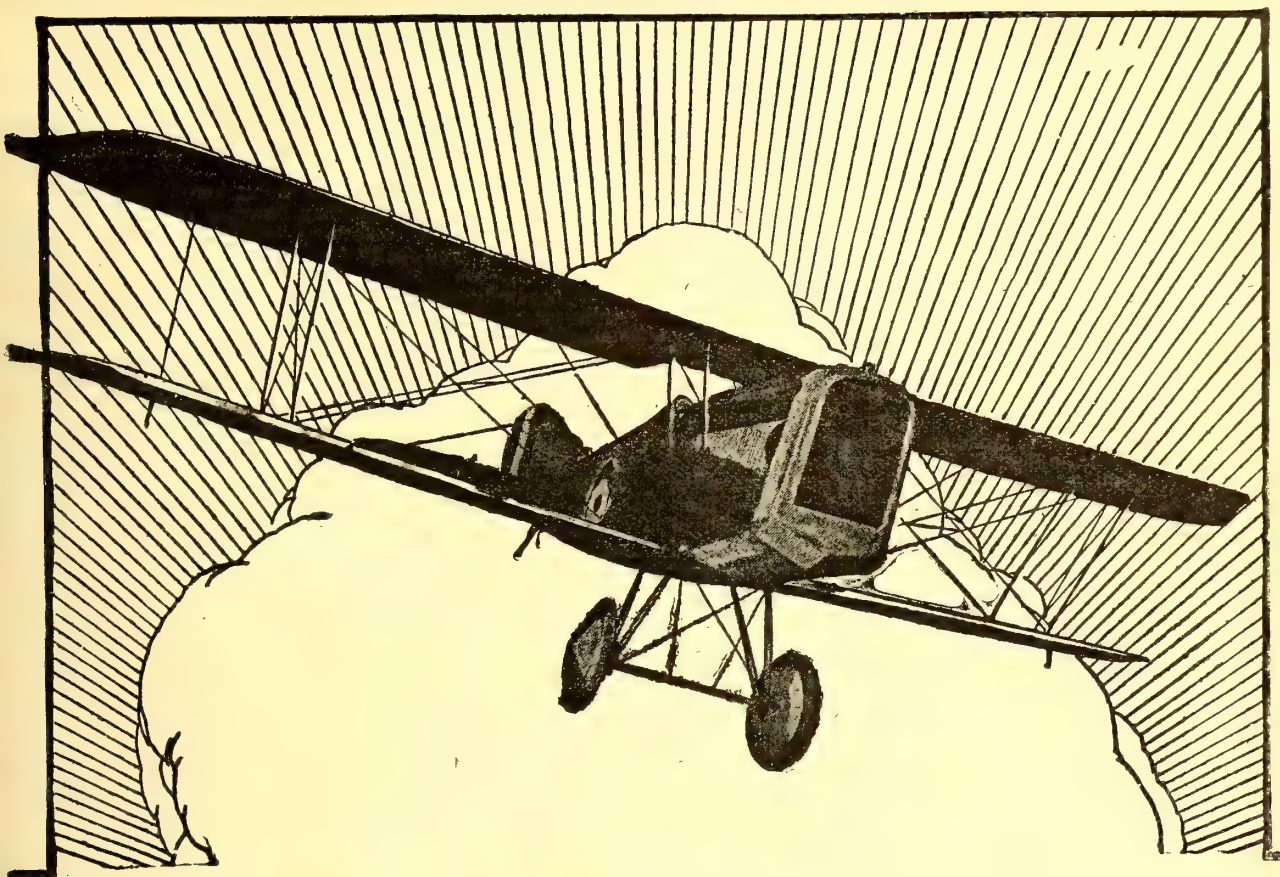
The First Women to Cross the Channel.

It was stated in THE AEROPLANE recently that Lady Muriel Paget, who flew from Paris to London on Aug. 27th, was the first woman-passenger to cross the Channel since the inauguration of the Cross-Channel Air Service under civil aerial transport conditions.

Apparently, this report was erroneous, for on Tuesday, Aug. 26th, Mrs. Sholto Douglas and Miss Gertrude Bacon flew from Cricklewood to Le Bourget on a Handley Page, piloted by Lieut.-Col. Sholto Douglas, M.C., so that these two ladies actually have the distinction of being the first two women-passengers to cross.

Miss Bacon is evidently determined to maintain her record as a pioneer of aviation, as she was one of the most distinguished of women balloonists in the days before flying, and she was actually the first English woman to fly in an aeroplane, her first flight being made at the great Reims Meeting in 1909.

The Sopwith Seaplane fitted with 450 h.p. Cosmos "Jupiter" engine entered for the Schneider Cup Race.



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The WORLD of AERONAUTICS (continued)

The Inventor of the Balloon.

In the "Nieuwe Courant" there has been published an article on the first inventor of the balloon, who, it is stated, was not, as is commonly believed, the Frenchman Mongolfier, but the Portuguese Bartholomew Lourenco do Gusmao. Up to a few years ago no one even dreamed of his having ever existed. For two centuries the plan and description of his invention lay buried under the dust of Coimbra University, until Viscount de Faria, Portuguese Consul at Lausanne, brought them to light. Viscount de Faria is the grandson of the viscount of that name, who was Portuguese Minister at the Netherlands Court in 1840-44. A work from his pen, devoted to the first flying man, appeared in 1913, when he visited The Hague as delegate to the Aerial Navigation Conference.

Bartholomew Lourenco do Gusmao, Viscount de Faria tells us, was born in 1685 at Santos, in Brazil, as the son of a physician. He studied law at Coimbra University, and after successfully completing there his curriculum he devoted himself to mathematics and physical science. In the pursuit of these studies he hit upon a process of producing a gas much lighter than air, with which he expected to work wonders. He built a machine, remarkably like the present-day dirigible.

In order to protect himself against his invention being appropriated by others he applied to the King of Portugal for a certificate giving him the exclusive right to his invention before he gave a public demonstration of his balloon. Evidently he was diplomatic enough to represent to the King the very qualities likely to appeal to him. "By means of this machine," he wrote, "any orders can be carried without the enemy being able to prevent it, provisions of all kinds may be sent to beleaguered cities, whilst it would also be very useful to commerce."

The certificate was duly given him in April, 1709, and on Aug. 8th following he gave his public demonstration in the presence of the Court. The spectators were greatly impressed by the spectacle, and called him the "flying man," and his machine the passarola (sparrow).

The inventor met an untimely death in 1724. The Inquisition had got hold of his machine, ordered it to be destroyed, and its inventor to be cast into prison for sorcery. He died in hospital at Toledo.

War Memories.

Capt. Sir John Alcock, K.B.E., D.S.C., has contributed an article to the September number of the "Badminton Magazine." In it he relates some of his experiences during the time he was at Mudros. He writes :—

"Machines were scarce, and we were proud of the fact that a fighting scout was actually built by us at Mudros. And a very good machine it proved, and might have rendered a good account of itself had it not been accidentally destroyed by a following machine landing on top of it in the darkness. Of necessity we took chances in those days—or rather nights. It is easy to land a machine in the daytime, and with plenty of ground a squadron may be assembled; but to take a squadron over water and land them safely in the dark is hazardous, to say the least. It was in these circumstances that our Mudros machine was crashed and ruined. We had no time to grieve, however; accidents were part of the day's work, and we paid but little heed to our loss. There were now plenty of machines, and we were over the enemy all day and every day.

"But my bad day arrived. In the morning I had accounted for two German machines. They were acting as convoy to a camera-carrier. One I put straight to the ground. The other proved more difficult, but I stuck to him till I had him beat, and later his drifting propeller was picked up by our men with the pilot's last message written large on one of its blades. I have just received the following letter from the Bulgarian lady for whom—as it now transpires—this message was intended. Although rescued on this occasion, he seems to have met his fate later :—

" 'Dear Sir,—

'I apologise for having taken the liberty to write to you without being known by you—the liberty to write you and to have your attention just for a moment follow these lines.

'Therefore I must introduce myself to you. I am the young lady to whom the German pilot Muller, that you brought down two years ago, had written his last greetings on the propeller of the wrecked seaplane. Some time ago I received the number of the "Daily Mirror" which contains a picture of the propeller and your photo. I was very curious to know something about you, and Capt. Wildish and Comdr. Greig, who know you very well, told me what a good flier you are, and that just recently you gained the prize in a concourse for a flight over the ocean. I congratulate you for that.

'My friend Muller is a very good pilot, he was one of the best, and I see that he has had a worthy ending, more than that, you must have excelled him to have beaten him down.

'I myself have never been in an aeroplane, and don't know what the sensations may be when one is so high up, but there must be something that makes you risk your life so readily, you really must feel great having conquered the space.

'I began by introducing myself, and I must say something more to let you have a complete picture. I am a Bulgarian and am a graduate of an American college; I lived several years among English and American people, and learned to love your language and literature. Last winter we had great many English people here, and I had the chance to practice the language, and enjoyed it greatly.

'I shall be immensely pleased if you send me a good photograph of yourself, and if you add some snapshots of your seaplane too, I shall enjoy them none the less, and with the picture in the "Daily Mirror" I shall highly treasure. I shall not say how I would wish to possess the famous propeller, but rightly it belongs to you; it is your trophy, for it is you have risked your life.

'Believing you will answer my small request,

'I am, with very best wishes,

'Yours sincerely,

'(sd.) STRAOKO ILIEVNA.

'Varna, Bulgaria,
'21 Vornishka,
'1/8/19.' "

The Misunderstood Public.

Apropos the recent announcement that the aerial navigation regulations are being broken constantly by aviators who drop leaflets or take up and land passengers at unlicensed aerodromes, a writer in the "Field" remarks :—

"The Ministry solicits the assistance of the public in detecting offenders, and we are all asked to lay information against anybody whom we find doing these things. As we have said, we fear the Ministry has misjudged the British public. It will secure every assistance in this way when the offence appeals to the ordinary member of the public as deserving punishment, but we are not sanguine that the dropping of leaflets of other than an objectionable character, or the dropping of a passenger or taking up of such, save under decidedly suspicious circumstances, or even the obscuration of registration marks, will move the average man or woman to turn informer.

"These are matters which the police are responsible for in co-related affairs, and very few people somehow, and particularly motorists, are anxious to adopt the rôle of amateur policemen. Low flying will be reported and possibly flying over populous places, if the pilots are foolish to fly low enough to enable their registration marks to be discerned, but who is going to challenge the military or non-military character of an aeroplane, and how is it to be done? Surely it is the duty of the Air Ministry to see that no military or naval machine is sold out of the Service and allowed to retain its distinguishing marks. It is entirely characteristic of a Government Department to put the onus of such responsibility on the shoulders of others."

A Departure.

Among the passengers on board the "Aquitania," which left Southampton on Sept. 6th for America, was Commodore Beaumont, President of the American Aero Club in France.

COMING EVENTS.

AUGUST.

Amsterdam Aircraft Exhibition. (Still open.)

SEPTEMBER.

Saturday, Sept. 20th.—14 Wing, R.A.F., Italy. Dinner at the Imperial Restaurant, Regent Street, London.

Friday, Sept. 26th.—40 Squadron, R.A.F. Dinner at place to be announced.

Sunday, October 5th.—The Aviation Meeting at Barcelona.

Tuesday, October 14th.—The Miss Douglas-Pennant inquiry to be opened at the House of Lords.

May 1st, 1920.—The "Daily Express" £10,000 Prize Competition opens.

DATES TO BE ANNOUNCED LATER.

Hendon-Paris-Hendon Air Race.
Hendon-Manchester-Hendon Air Race.

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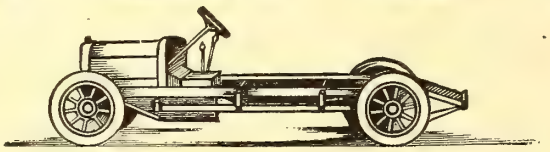

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NAVAL & MILITARY AERONAUTICS

GREAT BRITAIN.

NAVAL.

The Atlantic Fleet separated into five groups on Sept. 6th and left Portland in the afternoon for an autumn cruise of the East and West coasts. In the morning 11 aeroplanes flew over from Gosport and eight of them discharged dummy torpedoes at the battleships riding at anchor under the screen of smoke-bombs dropped by the other machines. Of three torpedoes discharged at the "Queen Elizabeth" from some 500 yards distance two struck her forward.

MILITARY.

THE CASUALTY LIST.

Reported September 5th.

PREVIOUSLY REPORTED MISSING, NOW REPORTED KILLED.—McLaren, Sec. Lt. F. M., R.F.C.

OFFICIAL COMMUNIQUÉ.

The War Office issued the following communiqué on Sept. 2nd dealing with the operations in North Russia:—

MURMANSK FRONT.—A successful raid has been carried out on Rimkaya, on the east shore of Lake Onega, by Russian troops, assisted by the Lake Flotilla and the R.A.F.

THE LATE BRIG.-GEN. C. F. LEE, C.M.G.

The following notice as to the life of Brig.-Gen. C. F. Lee, C.M.G., is extracted from the "Times" newspaper:—

The death of Brigadier-General Charles Frederick Lee, C.M.G., in an aeroplane accident at Weston-super-Mare, is a serious loss to aviation.

General Lee was only 31 years of age, and was the son of Major W. F. Lee, T.D., J.P. He was educated at Eton, joined the King's Royal Rifles (60th), and was adjutant of the 2nd Battalion when he retired, about two years before the war, and joined the Somerset Yeomanry. He transferred to the Royal Flying Corps at the outbreak of war, and went to France in 1914 as adjutant to Air-Marshal Sir Hugh Trenchard (then a lieutenant-colonel commanding a wing). Afterwards he became brigade-major to Vice-Air-Marshal Sir John Salmond, and in July, 1916, he was appointed R.F.C. Staff Officer, 1st Class, and promoted lieutenant-colonel. When Sir John Salmond went to the War Office as Director-General of Military Aeronautics General Lee (then lieutenant-colonel) was sent to America in command of the British Aviation Mission, where he did very valuable work, and was promoted acting brigadier-general.

He was a first-class pilot, and his wonderful flying in the United States did much to promote the practical *liaison* between the two countries. He had only recently joined the Avro Company, having decided to devote the greater part of his time to the practical development of civil aviation. He was a thorough sportsman, a keen rider to hounds, and polo player, and will be deeply missed by a large circle of friends both in the Service and outside.

* * *

Aeroplanes were sent up to search for armed raiders in three motor-cars who killed a corporal and injured two men of the Shropshire Light Infantry on Sept. 7th at Fermoy, Co. Cork. The party of infantry consisted of 18 men who were about to enter a chapel. Their rifles were taken from them. Pursuit by motor-car was impossible, as the roads had been blocked by trees.

* * *

The Inter-Service Athletic Championships were held at Stamford Bridge on Sept. 4th. The Army won with 42 points. The R.A.F. was second with 37 points.

The following represented and won or obtained places for the R.A.F.:—

100 Yards Race.—(1) Serjt.-Maj. F. Mawby, won by 2 ft. Time, 9 9-10 sec. (3) Serjt.-Maj. L. Kessler.

220 Yards Race.—(1) Serjt.-Maj. Mawby. Time, 22 sec. (3) Serjt.-Maj. Kessler.

440 Yards Race.—(1) Capt. A. P. Mitchell. Time, 50 1-5 sec. (4) Cpl. C. E. Bosberry.

880 Yards Race.—(3) Lt. W. B. H. Shaw, 2 min. 4 sec. (4) A.M. A. E. Morris.

One Mile Race.—(3) Capt. Gibbs, 4 min. 31 4-5 sec.

Three Miles Race.—(2) Serjt. Clibbon, 14 min. 55 4-5 sec.

High Jump.—(1) Lt. F. C. Penny, 5 ft. 9 in. (2) Serjt.-Maj. J. Miller, 5 ft. 8 in.

Putting the Weight (16 lb.).—(3) Lt. P. Fish, 32 ft. 10 in.

120 Yards Hurdles.—(3) Lt. J. F. Fraser. (4) Lt. C. R. Fenton.

Long Jump.—(1) Lt. J. F. Fraser, 21 ft. 11½ in. (3) Capt. Scott, 21 ft. 3 in.

440 Yards Race. Women's Relay (teams of four, each to run 110 yards).—(1) W.R.A.F. team, 55 1-5 sec.

Three-Quarter Mile Relay (teams of four, two to run a furlong and two a quarter-mile).—(1) R.A.F. (Serjt.-Maj. L. Kessler, Serjt.-Maj. F. Mawby, Cpl. C. E. Bosberry, Capt. Mitchell), 2 min. 26 2-5 sec.

AIR FORCE.

According to the "Times," of Sept. 6th, the revised scale of disablement pensions for the higher ranks, which came into force as from September 3rd, is as follows:—

SOLDIERS AND AIRMEN.

For total disablement.	New rates. per week. s. d.	Previous rates with bonus. s.
Warrant Officer, Cl. 1 (Regtl Sgt.-Maj., etc.)	60 0	51
N.C.O., Cl. 1 (Co. Sgt.-Maj., etc.)	53 4	45
N.C.O., Cl. 2 (Co. Q.M.S., etc.)	50 0	42
N.C.O., Cl. 3 (Sgt., etc.)	46 8	39
N.C.O., Cl. 4 (Cpl., etc.)	43 4	36
Allowances for wife and children:—		
For the wife	10 0	No allowance
For the first child (or 10s. if there is no wife)	7 6	1st child 8s.
For the 2nd child (or 7/6 if there is no wife)	6 0	2nd child 6s.
For each subsequent child	6 0	5

The allowance for the man's wife will be granted only where the marriage took place before the receipt of the wound or injury or before the man's removal from duty on account of the disease for which pension was awarded.

The rates (for man, wife, and children) in cases of partial disablement will be proportionately lower.

A widow pensioned under Article 11 of the Royal Warrant will receive while she is under 40 and without children one-half of the pension which might have been awarded to her husband if totally disabled, and when 40 or over, or when she has children, two-thirds of such pension. Children for this purpose are children eligible for allowances under Article 12 of the Royal Warrant.

WIDOW'S ALTERNATIVE PENSION.

The widow's alternative pension (for widows of the above ranks and privates or men of corresponding rank) will be one-half of the husband's pre-war earnings, increased by 60 per cent., subject to a maximum of 50s., while the widow is under 40 and without children. In other circumstances—i.e., where the widow is 40 or over, or has children, it will be two-thirds of the husband's pre-war earnings, similarly increased, subject to a maximum of 66s. 8d. Widows' alternative pensions in issue will be reviewed without application, and so also will cases in which applications received under the 1918 Warrant have been rejected.

The above new rates will continue for at least three years, and thereafter will be subject to readjustment according to the cost of living, but in any case they will not be lowered by more than 20 per cent. or under the previous rates (including bonus).

* * *

Reuter states that British aeroplanes carried out a raid on Kronstadt on Aug. 30th. They were subjected to a heavy bombardment from the batteries at Kronstadt and Krasnaja Gorka. The firing continued the whole evening.

A correspondent of the "Berlingske Tidende" states that the British air raid on Kronstadt on Aug. 30th was an important attack made by 18 big machines. They dropped a great number of bombs, which caused immense damage to the Bolshevik fortress, judging from the many fires observed.

* * *

The following is extracted from an Air Ministry "News Story," dated Sept. 2nd, on the flight of the F.5 Flying Boat from Felixstowe to Scandinavia:—

Exhibition and passenger-carrying flights were carried out at Christiania, Christiansand, and Copenhagen. At Christiania flights were made before their Majesties the King and Queen of Norway. Her Majesty was taken up on two occasions. During the second flight, when the Queen was accompanied by the Crown Prince Olaf, Her Majesty took control of the flying-boat for a short period.

A good impression was created in each of the Scandinavian capital towns visited. It is hoped that valuable results will accrue to the British aircraft industry in opening up what is perhaps the best market in the world for watergoing aircraft. Very few land aerodromes exist in these countries, and the land lying between them is difficult and generally dangerous for alighting. On the other hand, sheltered stretches of water are found everywhere, and there are numerous natural seaplane harbours.

Practically the whole of Norway is navigable by seaplanes making use of the fiords, and in Denmark all the large towns are approachable by water. In Sweden a natural seaplane highway extends right across the country, formed by the two large lakes Vättern and Vänern, the Gotha Canal, and countless small lagoons and lakelets.

The Germans are doing their best to obtain a footing in Denmark, and a short time ago announced aeroplanes and seaplanes for sale at unmistakably "cut" prices. The same policy is being pursued by German companies throughout Scandinavia. Several accidents have occurred with these machines.

The competition of our trade rivals must not be disregarded. It is important to realise that, once a country becomes permeated by machines of one type, a market for spare parts is secured, and the difficulty of effecting a radical change of type increases as time goes on; a golden opportunity will be lost if the British Aircraft Industry does not respond to the great good will which already exists in Scandinavia towards British people and British manufacturers.

From the technical standpoint, the flight of the F.5 gave proof of high efficiency; the hull of the flying-boat was as seaworthy after its month's immersion and exposure as when it left Felixstowe, and the reliability of the Rolls-Royce Eagle 8 type engines was beyond praise. With the wireless telegraphy installation communication was maintained with Dundee during the entire period of the voyage across the North Sea.

The times and distances of the stages flown were as follows :—

		Sea miles	Hrs. flying
July 11th	Felixstowe to Dundee	360	6.0
,, 20th	Dundee to Christiansand	380	7.15
,, 22nd	Christiansand to Christiania	150	2.20
,, 29th	Christiania to Copenhagen	265	4.15
Aug. 3rd	Copenhagen to Stockholm	390	4.30
,, 4th	Stockholm to Goteborg	300	5.0
,, 5th	Goteborg to Esbjerg	245	4.25
,, 6th	Esbjerg to Felixstowe	360	6.55
		2,450	40.40
Demonstration flights		—	5.30
		2,450	46.10

* * *

The Air Ministry announced on Sept. 3rd that all pilots, both Service and civil, who are compelled to effect a forced landing in Holland should report at once by telegraph or telephone to the Military Attaché, The Hague. The Military Attaché has made every arrangement to render rapid help as soon as he has proper details. Pilots should not leave the neighbourhood before they have made a written statement of the extent of the damage done to the private property in the landing; one copy of this must be handed to the owner or local authority, and one copy sent to the Military Attaché.

* * *

The Air Ministry published the following news item on Sept. 5th :—Amongst the various British units employed in fighting Bolsheviks in North Russia is the R.A.F. seaplane flight on the Dwina River. This unit has been continuously engaged since early June in co-operation with the river craft dispatched by the Admiralty to take action against the Bolshevik river gunboats.

The duties of this flight have been arduous. A constant watch has been kept on the enemy vessels, not only by day, but throughout the semi-darkness of the Arctic summer nights; enemy vessels have been effectively bombed and machine-gunned; spotting for the guns of our river flotilla has been directed by wireless, and photographic surveys have been regularly carried out.

The conditions under which this flight lives are somewhat novel. Their home consists of a barge, which moves up or down the river, according to the situation; the difficulties consequent on a moving base have been cheerfully met by all ranks of this unit to whose co-operation a considerable share of the success of the River expedition is due.

* * *

Flying Officer William Eugene Coulson and Aircraftsman James Roach Taylor, of No. 11 Squadron, were killed near Billingborough, Lincoln, on Sept. 5th. Together with another machine they were returning, it is stated, from overseas. The first machine landed safely, but that piloted by F.O. Coulson nose-dived and crashed from a height of about 80 ft. At the inquest on Sept. 6th a verdict of accidental death was returned.

* * *

Reuter states that Major Halse, R.A.F., arrived at St. Raphael (France) on Sept. 6th on a "fighting 'plane." He made arrangements with the British Flying School there to continue his flight to Egypt and India.

CZECHO-SLOVAKIA.

The Czecho-Slovakian Military Aviation Service consists of about 100 machines of the Breguet, Salmson, Spad and Farman types. There are roughly the same number of pilots. The service is at present under the command of Commandant Bordage.

* * *

Lieut. Story and Sous-Lieut. Blizenac, of the Czecho-Slovakian Air Service, flying a Bréguet biplane, left Prague on Sept. 2nd at noon and reached Mainz during the afternoon. Leaving Mainz at 9 a.m. on Sept. 5th, they landed at Le Bourget, Paris, at 12.45 p.m.

FRANCE.

Lieut. Bonzac, who is in training for a long-distance flight, made the following circuit in August on a 14-months-old Spad-Herbemont biplane (300 h.p. Hispano-Suiza) : Aug. 8th, Paris-Tours, 124 miles in 1 hr. 30 min.; Tours-Le Poteau, 149 miles in 2 hr. 30 min.; Aug. 11th, Le Poteau-Béziers, 217 miles in 2 hr. 30 min.; Aug. 14th, Béziers-Chalons-sur-Saone, *via* Clermont-Ferrand, 341½ miles in 3 hr. 10 min.; Chalons-sur-Saone-Paris, *via* Nevers, 279 miles in 3 hr.

* * *

On Aug. 25th, at Beauvais, a French sentry posted on guard of a British aeroplane which had made a forced landing during the day saw a man approach the machine. After challenging three times the sentry fired, and the strange visitor ran away. Followed by the sentry (they do these things differently in France) and other soldiers disturbed by the firing, a chase started through the streets of Beauvais. The hunted man was hit apparently by one bullet, for a cry was heard and he "prononça une phrase en allemand." He then succeeded in evading pursuit. The sentry on returning to his neglected post found another stranger by the aeroplane. A second chase followed and again without result. Nothing is known that will throw light on the incident.

* * *

Commandant Vuillemain and Lieut. Dagneau, who recently flew from Paris to Cairo, began their return journey last week. Commandant Vuillemain landed at Constantinople after an uneventful journey on Aug. 27th. Lieut. Dagneau wrecked his machine in landing at Beirout on Aug. 26th and is returning to France by sea.

* * *

Capt. Lafon, who has been awaiting an opportunity to fly again from Paris to Constantinople, has been appointed to represent French military aeronautics at the Amsterdam Exhibition. He left Villacoublay at 11 a.m. on Sept. 4th, flying a S.E.A. biplane. At 12.20 p.m he landed at Brussels after a flight at an average speed of 140 m.p.h.

During the afternoon he continued his flight to Amsterdam, landing there without incident.

* * *

The French Service d'Aviation propose on Sept. 11th next to do honour to the memory of Capt. Guynemer, who was killed in action on Sept. 11th, 1917. The last citation of Guynemer will be read to all aeronautical formations during the day, and the ceremony will be in addition an act of homage to the memory of all those aviators who died for France. A special ceremony, in which flying will be a part, will be carried out at the headquarters of No. 4 Group at Le Bourget. The General Officer Commanding Military Aeronautics will be present.

* * *

It is rumoured in Paris that Capt. René Fonck, the great French aerial fighter, intends to seek election to the Chambre des Députés for a constituency in the Gironde.

GERMANY.

The following is extracted from a telegram from Warsaw, dated Aug. 28th, received by the Polish Press Bureau in London :—

The Germans continue to make attacks on Poland. The "Kurjer Warszawski" reports that on Aug. 27th Sosnovitz, in the Dombrowa coal district of Poland, was attacked three times by German aeroplanes.

An aeroplane flying low over the town at 6.40 a.m. machine-gunned the people in the streets. At 9.35 a.m. the most crowded streets were attacked in the same way. Two persons were seriously wounded and thirty slightly wounded. A third similar attack was made at 7 p.m. Afterwards three German machines appeared. Bombs were dropped at the Polish outposts on the frontier and on the bridge at Szopienice.

* * *

A Berlin message from Reuter, dated Sept. 4th, states that with regard to the recent reported destruction of German airships, the Aerial Department of the Ministry of War stated that the Ministry has had no airships for months past, and therefore they had nothing to say regarding the reported wrecking of Zeppelins. The Navy Office declared that there

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Dear Sirs,

We beg to confirm our wire to you of the 1st inst. as follows "We have completed our non-stop flight from London to Madrid in 7¾ hours due in great part to the perfect running of your engine for which accept our hearty congratulations".

From the moment we opened the throttle at Acton to the time we switched off on landing at Madrid the engine ran perfectly and never caused us a single moment of anxiety. The petrol consumption on this flight was very low, the fuel used being considerably less than one third of the total capacity of our machine.

We cannot speak too highly of your engine on this flight.

Yours faithfully,

W. R. Curtis · Jas Peters

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was nothing to add to the statement already published in the Press to the effect that some of the German airships were dismantled during the last weeks of the war. Seven others were destroyed by their crews at that time and soon after the sinking of the warships at Scapa Flow.

The "Tägliche Rundschau" states that the report that the airships had been destroyed by their crews is not correct. There was no wilful destruction of the seven airships. This was not possible, if only for the reason that, in accordance with the armistice terms, all airships and aeroplanes had to be rendered unfit for military use.

ITALY.

On Aug. 22nd Lt. Ancilotto flew a S.V.A. non-stop from Rome to Warsaw with a message from the Italian Premier to the Polish Premier. The average speed made was 118 m.p.h.—T. S. H.

* * *

According to the "Giornale d'Italia," the Italian Government has decided to send to the capitals of the Great Powers military attachés especially competent to deal with aviation questions.

MEXICO.

The Mexican Army Air Service has been gradually growing until it now numbers 500 aviators in various stages of training, while there are 6,000 applications on file. Colonel Alberto Salinos is Chief of the Service.

RUSSIA.

The Bolshevik military report of Sept. 3rd states:—In the inter-lake region, in the direction of Murmansk, we captured an enemy aeroplane which was obliged to land, taking the pilot, an Englishman, prisoner.

BOLSHEVIST REPORT, September 7th.

In the inter-lake region (Murmansk Front) in the direction of Petrozavodsk (west coast of Lake Onega) enemy aeroplanes are carrying out systematic flights.

SPAIN.

The Spanish Government is continuing to dispatch large quantities of war material to Morocco, and special attention is being paid to the fourth arm. It is understood that 20 Airco biplanes are on order.

U.S.A.

A squadron of thirteen Curtiss army biplanes, named the "All-American Pathfinders," were due to start on a trans-Continental flight from Mineola (New York) to San Francisco on Aug. 13th. The squadron is under the command of Maj. O. M. Baldinger, and will fly in formation during the whole journey.

The itinerary of the flight embraces fifteen States and covers 4,183 miles. Stops and exhibitions will be made at 171 cities. The flight is being made to educate the people of the country, as well as being part of a recruiting campaign for all branches of the army.

The personnel consists of 22 officers and 80 men. The squadron has been divided into seven distinct sections: (1) headquarters and advance; (2) aerial routes, mapping and landing field; (3) recruiting; (4) flying and field operations; (5) wireless telephone and telegraph; (6) photographic; (7) balloon and airship.

Wireless telephones are fitted on all the machines, and reports of the progress made will be sent to the War Department by wireless.

The balloon and airship section are taking six specially constructed balloons and a "K" type observation balloon. This kite-balloon will be inflated at each stop.

A searchlight and field lighting section from the Engineer Corps also has been attached to the squadron. They are taking a 60 in. 250,000,000 candle-power searchlight, which can be seen by an aeroplane 110 miles away.

* * *

According to a message from the "Daily Mail" New York correspondent, dated Sept. 3rd, an American army aeroplane flying over the Rio Grande was heavily fired upon by Mexicans. The pilot, Capt. Macnabb, was severely wounded in the head. It is not yet known whether the aeroplane was over American or Mexican territory.

* * *

It is stated from Washington that 270 aeroplanes have been shipped to the Panama Canal zone for patrol duty.

R. A. F. FASHIONS.

It is reported that the new uniform for R.A.F. officers will cost £18 18s. Each extra gold ring on the sleeve costs 25s.

The barathea cloth used is much more expensive than the cloth used in the R.A.F. horizon blue uniforms, which cost £12 12s.

The advantages of the new blue cloth are that it is darker, more permanent, and possibly may have better wearing qualities.

METEOROLOGY AND AERIAL NAVIGATION.

According to the official news letter from Washington, an example of the importance of meteorological information and forecasts to aerial navigation is that in connection with the recent visit of the British dirigible, the R.34, to that country. The first call for meteorological information and forecasts was received from the commander of the airship when off Newfoundland, and was by radio through the shore station at Cape Race. Immediately on the receipt of this call, information of the prevailing weather and winds along the American coast north of New York and forecasts of wind and weather conditions were sent twice each day until the airship reached Long Island.

Perhaps the most important information contained in these advices was sent when the airship was flying between Nova Scotia and Cape Cod, encountering head winds and its supply of fuel nearly exhausted. The prediction was to the effect that the wind would change to the north-east within the next 12 hours. Unquestionably this change in wind was most timely, and enabled the airship to reach its destination without the aid of torpedo-boats. During all the time that the R.34 was moored at the flying-field on Long Island advices three times each day concerning the probable wind and weather conditions were supplied to its commander. Its dramatic departure was made on urgent recommendations from the Weather Bureau to the effect that a storm was approaching rapidly from the region of the Great Lakes, that the wind and weather conditions, then favourable for a start homeward, would continue but a few hours longer, and that to remain moored on the flying-field would be at the risk of having the airship torn from its moorings and swept away by winds and squalls that would set in before the expiration of the night.

This bulletin was sent as an urgent message at 9 p.m., and at midnight the R.34 was on her homeward flight under exceptionally favourable winds and weather conditions. It is fortunate that she left when she did, for the following morning the wind was blowing half a gale, rain had set in, and atmospheric conditions were most dangerous for an airship unprotected on a flying-field. In the meantime, the R.34 was miles eastward, flying in good weather and with strong following winds making exceptionally fine speed. That the work of the Weather Bureau in this connection was appreciated is evidenced by the following message received from her meteorological officer *via* radio after her departure: "Many thanks for kindly and efficient manner in which weather information has been supplied. Very grateful."

THE F.5 AT THE ELTA.—General Snyders, late Commander-in-Chief, Royal Nederlands Army, and various Dutch Editors inspecting the boat, Mr. M. H. Volk, of the Gosport Aviation Company, the constructors of the boat, is also shown.

Government Aircraft Competition

An important clause in the £64,000 prize conditions.

"16. Soundness and quality of construction will include—

(a) Fire protection, including use of self-sealing tanks (from the point of view of safety from fire in the event of a crash), fire fighting appliances and accessibility of same."

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AERONAUTICS and The LAW

PERSONIFIED AIRCRAFT.

By "THE LINCOLN IMP."

Human children are registered on birth. Aircraft are to be born on registration. A human being, even before birth, is not without legal recognition. Thus a female murderer with child cannot be hanged before she is delivered, and in practice is, the "Imp" believes, reprieved. It is also criminal to kill an unborn child. Similarly aircraft, even before registration, will have to be accorded some sort of legal recognition. But, speaking quite generally, the law does not recognise as separate and distinct personalities either unborn children or unregistered aircraft. Children begin in law on birth, aircraft on registration.

Unnational Aircraft.

An aircraft which is not entered on the register of any State is not only unborn. It also is "unnational" to coin a phrase to meet the novel facts. It has *no* nationality. Nationality is only to be acquired by the aircraft being entered on the register of some State. An aircraft without a nationality is a trespasser wherever it goes, except over the high seas. Registration by "a contracting State"—*i.e.*, a member of the League of Nations—confers the Nationality of that State. An aircraft of that nationality can claim freedom of innocent passage over the territory of that or any other member of the League of Nations as of right. But registration by non-members of the League confers no such right. Indeed, an aircraft so registered may not even be permitted to fly above the territory of a member, except by a special and temporary authorisation. Should Switzerland join the League and Germany not do so, then for Switzerland to allow aircraft registered in Germany to fly across its borders would be a *casus belli* at the suit of other members of the League. Such aircraft, therefore, have a kind of local legality. Outside the ring fence of the League they are all right. Within it they have no business. The flight of unborn—that is, totally unregistered—aircraft is, however, altogether and everywhere illegal.

Illegitimate Aircraft.

Aircraft are also illegitimate and their flight illegal by reason of parentage or ownership. Parents of children may be of two nationalities, but owners of aircraft may not. An Englishman and a Frenchman may not own the same aircraft. Nor may an English company and a French one. At least they may not be its registered owners. To what extent nomineeship and trusteeship is to be permitted (if at all) is not apparent. If an American and a French-Canadian buy an aeroplane in France, intending to fly it there, and approach the French Registrar to have it registered, he will refuse them. Neither is a French national. If they approach the English Registrar, he will refuse them.

Canada is a "State" for the purposes of the Convention, and a Canadian is not an English "national." If they approach the American Registrar, he should refuse them. The aircraft does not belong "wholly" to American nationals. Suppose the Canadian lies low and the aircraft is accepted as American. Later, desiring to join in a point-to-point trade reserved to Canadian aircraft, the Canadian buys out the American. Now wholly Canadian-owned, the aircraft is struck off the American register. The Canadian then approaches the Canadian Registrar. But he, it seems, must refuse him registration. "An aircraft cannot be validly registered in more than one State." It is illegitimate and useless. (In all probability this is not what was meant by Article 8, but it happens to be what it says.)

Personality.

Let it not be thought that the "Imp" is pressing too far the analogy between aircraft and humans. It is the Convention and Regulations which carry it too far. Aircraft, it seems, are to be completely personified. They are to be persons in law. How in the world—or in law—can a *thing* be a *person*? Quite easily if the law chooses to make it one. Ships have a "character"—British or foreign. Ships are frequently defendants to actions in the Admiralty Court. In Roman Law things were frequently persons. The inheritance of a dead Roman was an aggregation of things—slaves, cattle, money, houses, and land. This aggregation (called a *universitas*) was a person. Before the heir was ascertained, it had rights, could own property, and was subject to liabilities.

Take an illustration. A child is born to one of the female slaves. Whose is it? It cannot belong to its mother (a slave), to the former owner (dead), or to the heir (unascertained). It belongs to the *universitas*. The *universitas* is a person.

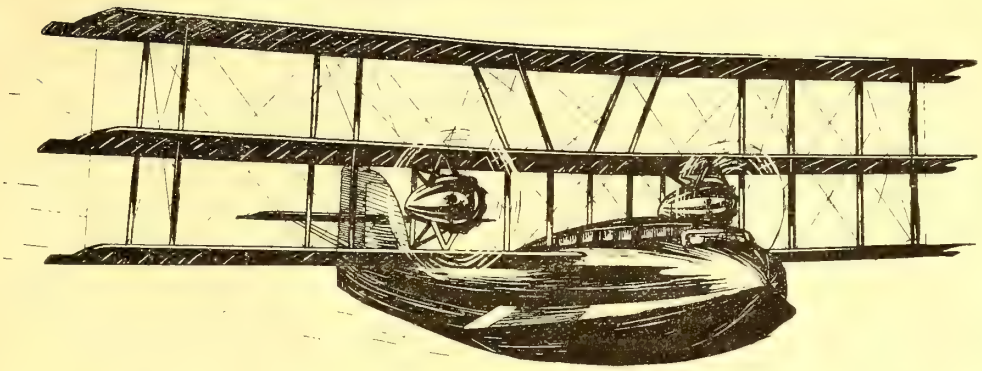
In modern English Law, however, a hard and fast line has (up to now) been drawn between persons and things. Land cannot own the houses built upon it. You cannot sue a railway train. The Admiralty action *in rem*, in which the ship itself is the defendant, is the exception that proves the rule. A ship is not a person in law, in spite of having a character. An airship, however, or any other kind of aircraft, really does seem to be personified. The language of the Air Legislation goes far beyond that of the Merchant Shipping Acts.

Marks of Personality.

What are the distinguishing marks of personality? Life is not necessary, for then a corporation could not be a person. Senses are not, for then a blind, deaf and dumb idiot paralytic could not be a person. But to have a name and a nation, to have a will, power to move, power of action; to have knowledge and intention and ability to communicate with others; to have rights and privileges, public and private and even international; to have responsibilities and obligations; to be able to take care or be negligent; to be able to intend wrong and to attempt it; to have needs and the power to suffer and perhaps even to be punished. Surely a being having all these marks of individuality upon it cannot be anything else than a person? Each of these marks an aircraft has expressly attributed to it by the Air Legislation. An aircraft is a person.

Individuality of Aircraft.

If there are 20 souls on board an aircraft, how many persons are there aloft? Not 20, but 21, if the aircraft is a person. The University of Oxford is a corporate person. "If there are a hundred people assembled in a room to work out a decree of the University of Oxford,



TRANSITIONS IN TRANSIT

No. 5. The Merchant Ship of Ancient Rome.

The Trans-Mediterranean sailing vessels of the Romans may be rightly termed the early ancestors of the modern flying boat. Owned by the wealthy Navicularii Marini Corporations, they carried on profitable trade between the countries of the then known world. Rich spices from the East—precious stones from Africa—tin from Cornwall—oil and bullion—such were the light but valuable cargoes they brought into the Tiber.

But the civilised world has grown since those classic days. Speed has therefore become a factor of greater importance.

Nowadays the aeroplane fills the niche, carrying the light but valuable cargoes from one country to another swiftly—safely. For quick, reliable transit the seaplane is ideal.

The machine illustrated above is the Nieuport Mark Seaplane.

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how many persons are there in the room? Not 100, certainly, but 101." (Knogisdoff, "Common Sense in Law.") To any reader of a philosophic turn of mind the "Imp" recommends the study of the theory of corporate personality.

Is a corporation a real person—a fact? Or is it a figment of imagination, a convenient abstraction, a fiction of law? Learned writers argue either way. No one knows for certain. Take it which way you will, facts or fictions, you meet those corporate people every day.

Business men, unlearned in the law, are wont to irritate the ears of lawyers by speaking of "Messrs. Handley Page, Ltd.," and so forth. The solecism lies, of course, in the ignorance that it displays of any corporate personality. Handley Page, Ltd., is not (as Messrs. would imply) the name of a partnership, with Messrs. Handley and Page as partners. It is the name of a single, distinct, legal person or corporation whose name, birthday, fortune, rights, powers, origin, and duration differ in every particular from those of Messrs. Handley and Page or any partnership between them. All this is trite law, but necessary to some readers by way of explanation.

LIMITED LIMITED.

Aircraft can be owned by corporations. Limited Limited, let us suppose, is the name of a company, the chief of whose objects set forth in its memorandum is "to be the registered owner of English aircraft." Its nationality is English. Its registered office is in England. It complies with all the requirements of the English company law. Its chairman and at least two-thirds of its directors are English—but marionettes. The financiers of the concern own series of debentures secured severally and collectively on the fleets of aircraft "owned" by the company. The holders of these debentures are German-Austrian-Turks (or whatever may happen to be your favourite brand of foreigners). They "own" no English aircraft. Oh dear, no! The owners are an English company. If the venture is a success—good for G.A.T. If the venture is a failure, the aircraft misbehave themselves, and their "owner" is wanted, that is nothing to G.A.T., who are now merely innocent creditors of the wicked and insolvent company. Heads they win, tails we lose.

(To be continued.)

"ON GIVING A DOG A BAD NAME."

"An absolute death-trap; spins if you look at it." Of how many types of machine has one heard this said. So far as my recollection goes, the only machine about which it has NOT been said, at any rate, so that I have heard, is—the old Longhorn Maurice Farman Mechanical Cow.

And that brings us to the point in question.

So far as the present writer's experience goes, the Longhorn was the first machine on which he and fellow "Huns" juggled with death.

When we were all thoroughly skilled (according to our own ideas) on this type we were in due course promoted to the Shorthorn (now universially known as the "Rumpety").

Now, as all pilots know, this machine is a trifle lighter, or shall we say, less heavy, on its control than the former, consequently, our "star" Longhorn pilot on his first trip, when he was up about a thousand feet or so, started to do a moderately quick turn. This particular machine is, as we have seen, slightly more sensitive on ailerons than the Longhorn. Consequently, he put on more bank than he intended, and, as luck would have it, got a bad bump at the same time.

The machine side-slipped and started to do a dignified slow spin. He got it out in two hundred feet or so and landed with proper wind up. Everyone, of course, rushed up to him to find out how he liked it. "Ruddy awful thing, spins on a left-hand turn," was his comment.

Now from that day onwards in that particular squadron Shorthorns had a reputation for spinning on a left-hand turn.

About a year later I happened to be at the same aerodrome again and I actually found that the reputation for spinning on left-hand turns still clung to the poor old "Rumpety." When I asked a very young instructor how often he had seen a spin on a left-hand turn, he said he never had, as they were all told to watch the Pitôt carefully on a bank, since a fellow had been killed about a year ago by getting into a flat spin and being unable to get out.

When I suggested that this was probably the story, slightly added to, of our own particular Hun on his first Shorthorn solo, he merely looked at me with a pitying look and was sorry for my stupidity.

Now every machine that has been in the Service since the war has probably made a similar reputation in certain squadrons in a similar manner to the case just related.

At two aerodromes about fifteen miles apart there were two squadrons consisting of "Camels" and S.E.5s, respectively. While a visiting S.E.5 was getting up from the "Camel" aerodrome the engine "konked out," the pilot tried to turn back but side-slipped and crashed.

Now that particular type of crash has probably accounted for more flying fatalities than any other and is common to all types of machine, yet as long as this particular "Camel" squadron exists, they will never cease to regard S.E.5 as an apparatus designed by his Satanic Majesty for the express purpose of killing off perfectly good flying officers.

Shortly after this a "Camel" had the bad luck to crash on the S.E.5's ground through some simple accident. And now 90 per cent. of the pilots of this squadron regard a "Camel" in exactly the same light as do the "Camel" people the S.E.5s.

It is the same all through. Some people cannot find words sufficiently good for the D.H.9, others are unable to express themselves sufficiently forcibly in condemning it.

How, then, is one to counteract this tendency to give a machine a bad name?

First and foremost, in my opinion, it is weak-mindedness on the part of the pilots. They are too ready to believe what they are told: to condemn a machine untried.

The late Captain Hucks, in a paper which he read some time ago, before the Royal Aeronautical Society, drew attention to the fact that there is really very little difference between flying a big bomber or a small fighting scout once one has thoroughly mastered the art of flying.

Everyone agrees that there is a difference of "feel" between riding a small two-stroke motor-cycle and a big twin; the difference is in "feel," pure and simple, not in principle.

So, too, in aeroplanes. A pilot has been flying one type of machine for several hundred hours perhaps. He is put onto a newer and faster type. He is not so comfortable in it and finds it harder to fly, because it does things which his previous machine did not do, and does not do what the old one did.

In nine cases out of ten he will say "it's a ruddy awful machine," "it's dangerous," etc. Someone overhears him and tells someone else. Later on that "someone else" is asked if he knows anything about the machine in question and usually he comes out with the fact that "it's a ruddy awful thing," just as though his opinion were backed by his experience.

And in ninety-nine cases out of a hundred that is how all machines get their bad names.—G. D.

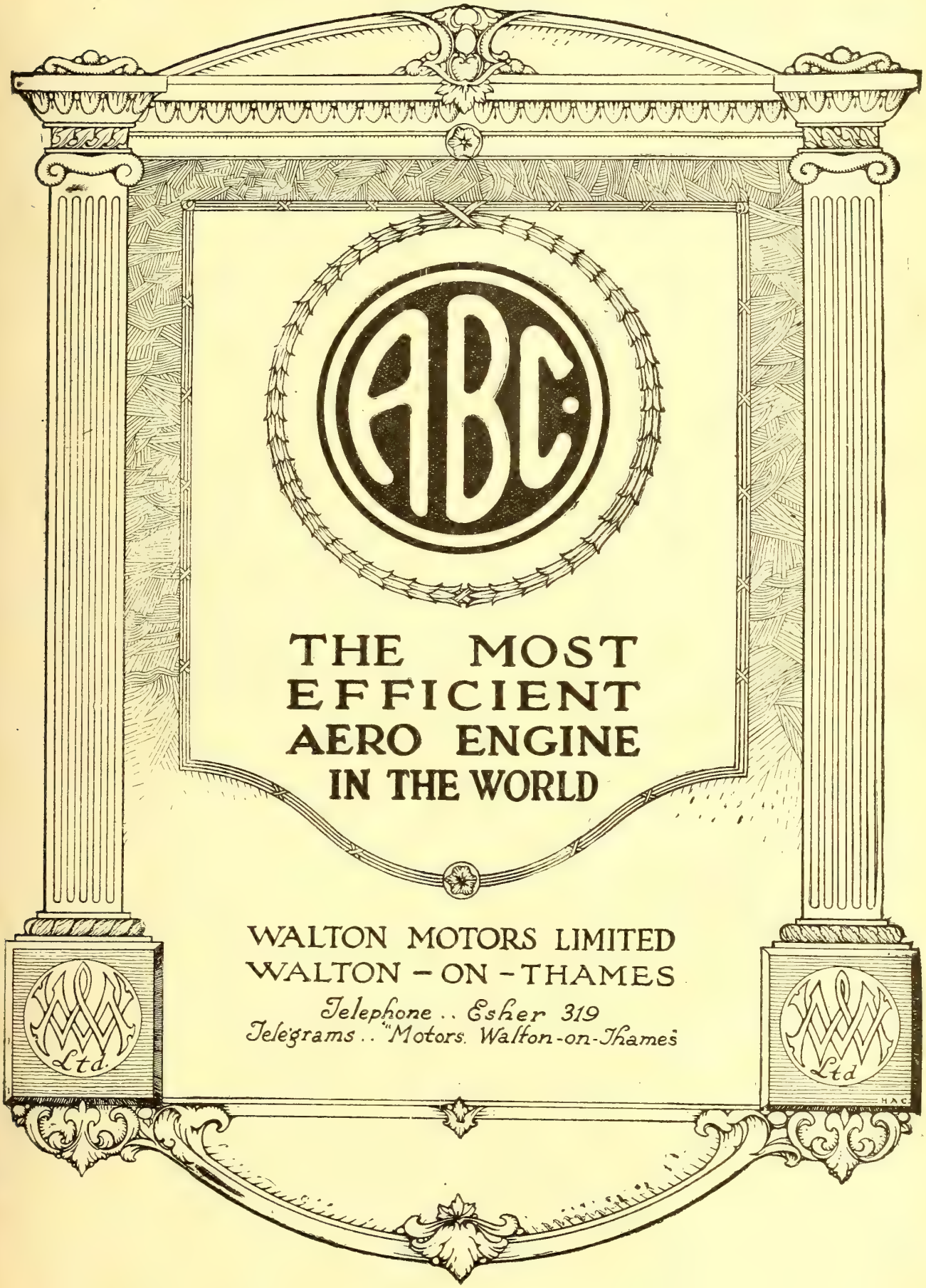
ALLEGED FALSE PRETENCES.

At Bow Street Police Court on Sept. 5th, before Mr. Garrett, Paul Lemay de la Plane, 21, an American citizen, describing himself as a commission broker, of Bedford Place, W.C., was charged on a warrant with obtaining £180 by false pretences from Lieut. James Arthur Eyres, R.A.F.

Mr. H. O. Carter, who prosecuted, said that the case was a sad one, as the prosecutor and the defendant were brother officers. They became friendly in France, and met again in this country at the beginning of July. The defendant, after borrowing £5 from Lieut. Eyres, told him that he had been brought up in the stockbroking business all his life, that he knew all about investments, and that he was working in a stockbroker's office with a salary of £11 a week. The prosecutor parted with various sums, amounting in all to £180, which the defendant told him he was investing in leather with Mr. Reginald Stanley, a hide broker. Ultimately, Lieut. Eyres, a young Canadian officer, made inquiries and found that no investments had been made with Mr. Stanley by the defendant.

Detective-sergeant Rixon stated that the defendant said to him that he had offered the money to Eyres on Sunday, Aug. 31st, but he refused to take it.

A remand was ordered.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AERONAUTICAL ENGINEERING

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THE WEEKLY COMMENTARY.

In an article "Concerning Competitions," Captain Sayers criticises the conditions of the Government competitions for commercial aircraft which have recently been published.

Particulars—so far as at present available—drawings, and illustrations of the various competitors for the Schneider Cup Race—which is to be held on the day after this paper goes to press—are given in this number.

Unfortunately no details whatever are available of the Italian entrant.

Of the competitors described it is notable that the regulations for the race have produced—as competitors—five purely racing machines, and only two which can claim to be really sea-going aircraft.

The Phœnix-Cork flying-boat, built by the Phœnix Dynamo Works, is the subject of this week's instalment of Modern British Aeroplanes.

CONCERNING COMPETITIONS.

By Capt. W. H. SAYERS, late R.A.F.

With the advent of Peace the days of aeronautical competitions have once more returned. The Atlantic Flight has been achieved, the Aerial Derby has been run, the Schneider Cup is once more upon us, and the Department of Civil Aeronautics, by way of justifying its existence, has announced that a competition is to be held for commercial machines in the early part of next year.

It is rumoured that the French Government, spurred on by the British example, is to attempt to forestall this country by holding a somewhat similar competition at an even earlier date.

In the present state of the Aeroplane Industry this revival of competitions of one kind or another is a very welcome sign. The Industry cannot live on competitions alone, but such of it as continues to survive is at least stirred by them to the extent of trying to improve its products in the directions demanded by them, and a relatively small expenditure in the shape of prize-money, intelligently awarded, may be the cause, directly or indirectly, of really great advances in the design and use of aircraft.

On the other hand, competitions run on the wrong lines, or under badly considered rules, or for the mere glorification and advertisement of their promoters, be they newspaper proprietors, patent medicine mongers, or mere Government Departments in need of rehabilitation, may, by inducing manufacturers and designers to waste time and money on intrinsically useless types of aircraft, seriously prejudice the future of aerial transport throughout the Empire.

Thus the right ordering of such competitions as are held is a matter of great moment to all who are seriously concerned with the future of aeronautics.

Competitions in so far as the aeroplane is at present concerned, are of two classes.

First and commonest is the type, generally purely sporting in nature, which aims at the exaggeration of some special quality, of which the Transatlantic and the Schneider Cup competitions may be considered as typical.

Such contests are extremely useful, in that they present to the designers and constructors of aircraft some fairly definite problem to be solved. The problem so set is generally not one of direct utilitarian value, and there is no pretence that the machines designed for such a competition and performing well therein are *ipso facto* machines having directly useful functions.

Indirectly such competitions may, and often do lead to very considerable improvements in certain quite limited sections of the technique of aeroplane design or operation, which may be and often are of great importance in the process of "improving the breed" of aeroplanes generally.

A record of sustainedly good performances in contests of this type will give to the public an impression that the technical staff of the firm holding that record is both professionally competent and sufficiently broad-minded to vary their designs so as to best meet any required conditions.

No competition of this type is likely to produce evil results. The task set is invariably that of accomplishing, either first or best, some definite performance, and therefore reduces itself in the end to the simplest satisfactory solution of some relatively well-defined problem, and there is little risk that a faulty or biased judgment on the part of those in charge of the contest will obscure the results.

The second class of competition, and a much more dangerous one, is that intended to promote the development of a directly useful type of machine.

If such a competition takes the form of presenting to competitors a definite job which is to be performed, and the prizes are awarded solely upon some definite measure of the results achieved in carrying it out, then the competition may be quite as safe—*i.e.*, as little likely to cause actual harm—as the purely sporting type of competition.

Thus a competition wherein the competitors were required to carry, say, a total load of 500 lb. in a form requiring 50 cubic feet of cargo space, one journey a day, from London to Manchester and back, for fourteen consecutive days, and wherein prizes were awarded for either

the shortest gross time in the air, or the closest adherence to a pre-declared time-table, or for smallest total consumption of fuel and oil, or such-like, would have nothing but a beneficial effect.

But a competition wherein some person or collection of persons, having determined to their own satisfaction that certain qualities of performance are desirable for machines intended for a specific purpose, lay down these performance qualities as essentials to the competing machines and who devise a series of tests and a system of marking on the results of those tests, and which purports thus to discover what machines are essentially suitable for some specific purpose, may produce the most unhappy results.

The competition which has recently been announced by the Air Ministry, which, according to its sponsors, is intended to encourage the development of safe and reliable aeroplanes for commercial purposes, seems to fall definitely into the dangerous class.

This is the more regrettable in that the regulations issued in connection therewith show that a very considerable amount of trouble has been taken by the committee which has drawn them up, and that they have been animated by excellent intentions.

The results unfortunately are nearly sufficient to drive one to forswear for ever either diligence or any but the most evil intent.

A competition run by the Department of Civil Aeronautics, expressly for the purpose of stimulating the design of reliable commercial aircraft, under rules drawn up by a committee which includes accredited representatives of the Aircraft Industry, cannot fail to attract a large amount of attention from all those who may have considered the possibility of using aerial transport in their business.

A very small proportion of such people have any technical knowledge of aeronautics, and they cannot be blamed if they come to the conclusion that the prize-winning machines in such a competition represent the best and most suitable commercial machines that the manufacturers of the Empire can produce.

There is, in fact, no guarantee in the regulations that the prize-winning machines will be of any practical value whatever.

Considering the details of the regulations as they stand, they call for some criticism.

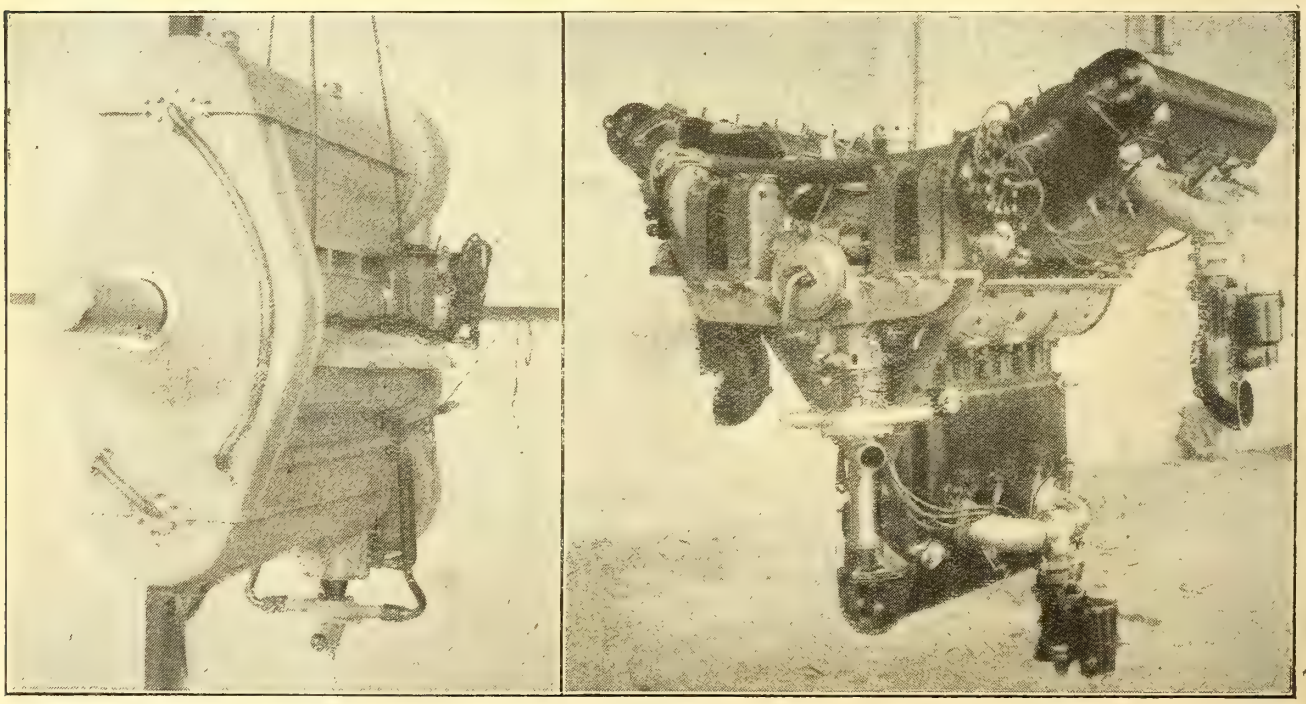
The absurdity of the small class for aeroplanes, limited to one passenger in addition to the pilot, has already been commented upon in The Aeroplane, as has the absence of any consideration of the engine power employed.

The speed ranges called for—from 40 to 100 m.p.h. for small aeroplanes and from 45 to 90 m.p.h. for large ones—are in themselves reasonable. Any attempt to increase the practicable speed range, and in particular to secure a low landing speed, without the sacrifice of a high maximum speed, is laudable, but the value of the condition is prejudiced by two factors—(1) that there is no limit to the engine power employed, (2) as a safety factor an unqualified minimum speed has no definite value. That is to say that a machine which can just support itself at 40 m.p.h., but which cannot be flown below 45 m.p.h. except by a skilled pilot, may be much less safe to land than a machine which falls out of the air at 42 m.p.h., but which is thoroughly controllable right down to that limit.

Similarly the specified climbing speeds are by themselves reasonable, but they are unnecessary for the purpose for which the competition is intended. The climbing requirements for commercial aircraft are limited by two considerations. The first is that the machine should be able to clear obstacles around landing fields.

This is purely a question of gradient of climb, and a machine climbing 400 ft. per min. at 40 m.p.h. will get out of a worse field than will one climbing 500 ft. per min. at 60 m.p.h. Yet the first machine would be disqualified and the second is eligible.

The second consideration is that a machine must be able to reach its cruising height in a reasonable time and without undue delay. This calls for an angle of climb up to cruising height in excess of the machine's best gliding angle. Given this, a machine may climb straight away on its proper course, and yet keep, whilst climbing, within gliding range of the aerodrome. This obviously calls for the maintenance of a sufficient rate of climb up



Two new Italian Aero Engines, built by the V.N.V. firm. On the left a "200/300" h.p. two-stroke, and on the right the 12-cylinder Y of 260 h.p.

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to the cruising height, which for competition work might be put at 5,000 ft. or some such figure, and therefore initial rate of climb alone, without some qualification as to its maintenance at height, is of very little value.

It is possible, though very improbable, that a machine which would climb 500 ft. in its first minute would yet never reach 2,000 ft. In this country such a machine could have only a very limited commercial value.

These performance figures should never have appeared in the rules, or, if they appeared at all, should have been extreme figures merely designed to keep out impracticable and absurd machines.

The landing and getting-off tests, amplified somewhat perhaps, should suffice to keep landing speeds down to safe limits, and a designer who can produce a satisfactory braking mechanism, which will allow of safe landing in a confined space at a high speed, should be allowed to demonstrate the utility and reliability of his design, and not ruled out.

Similarly the practical test of clearing an obstacle, together with the provision that a straight climb was to be made from the aerodrome to some given height, say 2,500 or 3,000 ft., in a wind not exceeding 5 miles per hour, and that on reaching that height the engine was to be entirely cut off before turning, and a return then made to the aerodrome, would secure the essentials of safety without any risk of debarring unforeseen methods of securing it.

This in essence is the nature of the objections which may be taken to the whole of the conditions.

Over and above such objections is the fact that the relative importance of the various features of the designs submitted have to be assessed, according to a scale which is on the one hand arbitrary and on the other hand liable to be influenced by the personal prejudices of a number of so far unknown judges. However well drawn the rules might be, and however competent and unbiased the judges, the result of such a contest will inevitably cause discontent, and will inevitably be open to destructive criticism.

It will in no case afford to the prospective user of aircraft for commercial purposes any of the data which he most desires.

If it really is the intention of the Department of Civil Aeronautics to assist the Aeroplane Industry in an effort to popularise the use of aeroplanes for commercial purposes, it would surely have been well to have considered what are the questions which would be raised by any business man in deciding whether such a use is practicable or not.

Roughly these questions would be three in number. The first would be, "What is to be gained, and how much?" This is fairly simple. The answer to the first part of the question is "Time," and the quantity which may be gained can be defined fairly closely for any given set of conditions.

The second question will be, "What is the reliability of this method of saving time?"—*i.e.*, how often in a year is the aeroplane going to fail to save time, how often is it going to lose its cargo or totally fail to deliver it?

This question cannot be answered with any sort of certainty. Nobody really knows what the reliability of the aeroplane as a carrier is. Nobody has tested it under conditions approaching those of commerce.

And the last and possibly the most important of all is, "How much is it going to cost?" And here again there is no answer.

Let it be imagined that the Department of Civil Aeronautics had suffered from a moment of lucidity and had announced that a competition was to be held under the following conditions:—

(1) Any machine designed and built in the British Empire may be entered. Such machines are to comply with the conditions required for an airworthiness certificate.

(2) The entrant of each machine is to declare the normal useful load capacity of that machine when carrying fuel for 300 miles at a declared normal cruising speed.

(3) Each such machine, loaded to the declared load, shall be submitted to certain defined tests of landing in small fields and getting off therefrom, more or less as those actually laid down in Rule 6 of the actual competition.

Thereafter the machines entered are to be handed over to the competition committee, complete and in running order, and a selling price for each is to be declared and published. Competitors may nominate their own pilots and maintenance staffs, and shall declare the rate of payment of each member of the nominated staff.

Each such competing machine shall then be run by the competition committee upon a regular service consisting of one journey of 250 land miles each day, loaded to its declared load, and timed at its declared cruising speed, for at least 14 consecutive days, though a much longer period would be desirable. During these tests the whole cost of operating should be borne by the committee, to be recovered eventually from the competitors.

At the end of the test the cost per ton-mile of goods actually delivered, including interest on the capital represented by the machine, depreciation based on the actual condition of the machine at the end of the trial, cost of fuel, oil, wages, repairs, and maintenance, should be ascertained.

These should be published, together with full particulars of the actual times taken on each journey and of all mishaps and delays.

With such a test, prizes might be awarded on almost any of a large number of different bases.

For instance, cargoes might be priced at so much per ton per minute. Every minute lost from the schedule time would be charged to the machine losing it, and every lot of cargo not delivered at all would be charged at its price per ton and added to the running costs, and a prize for the lowest cost per ton-mile awarded. This might be extended to cover speed classes—*i.e.*, machines classed as low speed, up to 70 m.p.h. overall average, and high speed, up to 100 m.p.h. overall average.

Or prizes might be awarded merely on reliability and punctuality, or on almost any basis—it would matter little—since the publication of the performance data would supply all the information that anyone needed, and any manufacturing firm that felt confident that its machines would perform well from a commercial standpoint would enter for the sake of the advertisement that they would stand to gain.

As the proposed competition stands now, there are so many conflicting or disconnected features for which marks are to be awarded, and so much is inevitably left to the opinion of the judges, that the winning of a prize therein may mean anything—or nothing.

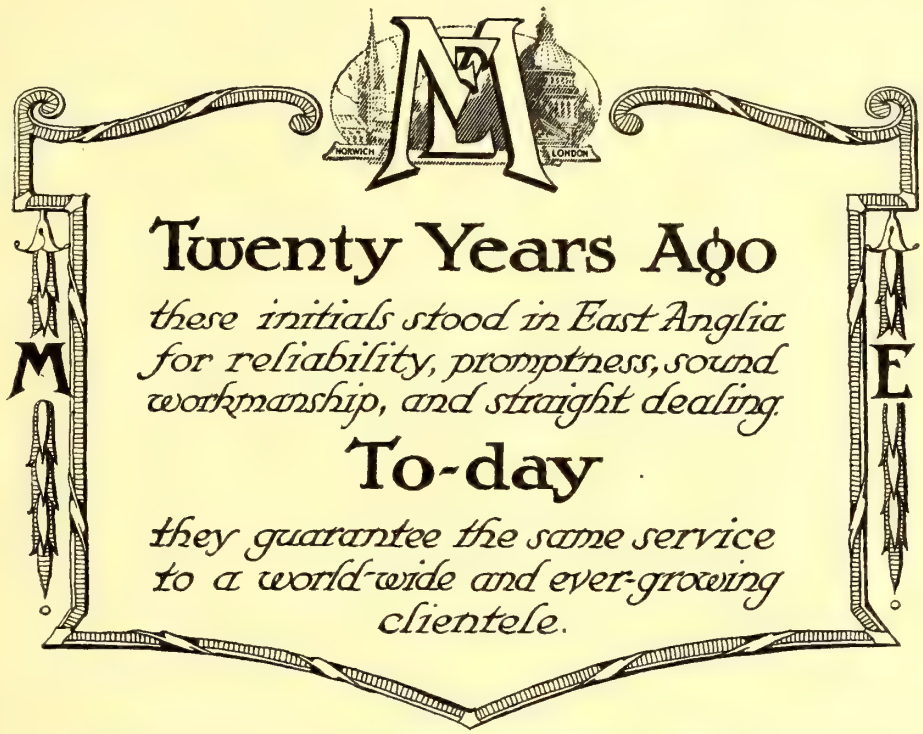
THE AIRCO EXHIBIT AT THE E.L.T.A.

The British section of the E.L.T.A. exhibition at Amsterdam has been considerably improved since the opening of this successful aeronautical show. The Airco stand has the white Airco 16 machine complete, with the exception of the planes, and it is very attractive in appearance, as most of the metal fittings, including the long exhaust pipes, are nickel-plated.

The cabin is tastefully decorated. The roof is cream colour, the curtains old gold, and the seats black. The sides of the cabin are dull green, purple, and old gold, and two large pillows of green silk are added. A black carpet covers the floor.

The cowling of the machine is buffed aluminium, the front part of the fuselage white, and the rear portion—the section covered with fabric—and the tail unit are natural dope colour. The chassis is dull black.

Excellent postcards with inscriptions in Dutch, and leaflets and pamphlets, also in Dutch, have been prepared.



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THE SCHNEIDER CUP COMPETITORS.

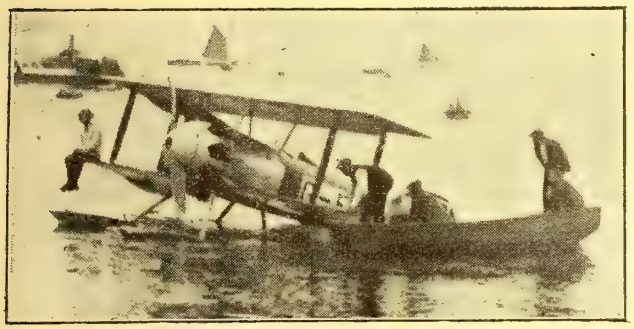
THE SOPWITH MACHINE.

The Sopwith Schneider Cup racer shows a number of interesting and more or less typically Sopwith characteristics.

The very small span, relatively large chord, and the small gap are very reminiscent of the original Sopwith Schneider Cup machine of 1914. If memory serves one right, the chord and gap, 5 ft. 1½ in. and 4 ft. 6 in. respectively, were the same in the 1914 model as in that of to-day. The span of the new machine is some 3 ft. less, and there is a small backward stagger.

The floats and chassis are not unlike those of the original, though the section of the front part of the floats, with an outwardly flaring bottom—a sort of "Vee" bottom halved—is new to this firm.

The main floats have also been extended aft and faired off considerably and a tail float dispensed with. The big 450-h.p. radial engine has naturally called for a big bull-nosed body—even more bull-nosed than the original—and the body has been faired off to a rounded section instead of having been left square. The tail fin and tail plane are likewise faired into the body with large radii, and altogether the machine has been carefully studied with a view to producing the minimum of head resistance.



The Sopwith at Cowes.

With a power loading of slightly under 5 lb. per h.p. and with the Sopwith firm's unrivalled experience in the production of small fast machines, this machine should prove to be one of the fastest aeroplanes yet built, and Messrs. Sopwith should stand an excellent chance of winning the Cup for the second time.

SPECIFICATION.

Span	24 ft.
Chord	5 ft. 1½ in.
Gap	4 ft. 6 in.
Total area of wings	210 sq. ft.
Length (propeller boss to tail)	18 ft.
Length (overall)	20 ft.
Stagger	2½ in. negative
Weight (empty)	1,600 lb.
Weight (loaded)	2,200 lb.
Engine	Cosmos Jupiter 450 h.p.

THE SUPERMARINE BOAT.

The Supermarine flying boat is a considerably larger machine than any of the other competitors, except the Fairey and possibly the Savoia, of which there are at present no particulars available. It is in fact more or less a standard type of flying boat, designed with an eye to real seaworthiness, and fitted with an engine large enough to give it a really high speed.

The boat-hull is more or less on similar lines to the well-known Supermarine two-seater and "Baby" types—in that it is a circular, or nearly circular, section streamline body, boat built and doubly diagonal-planked.

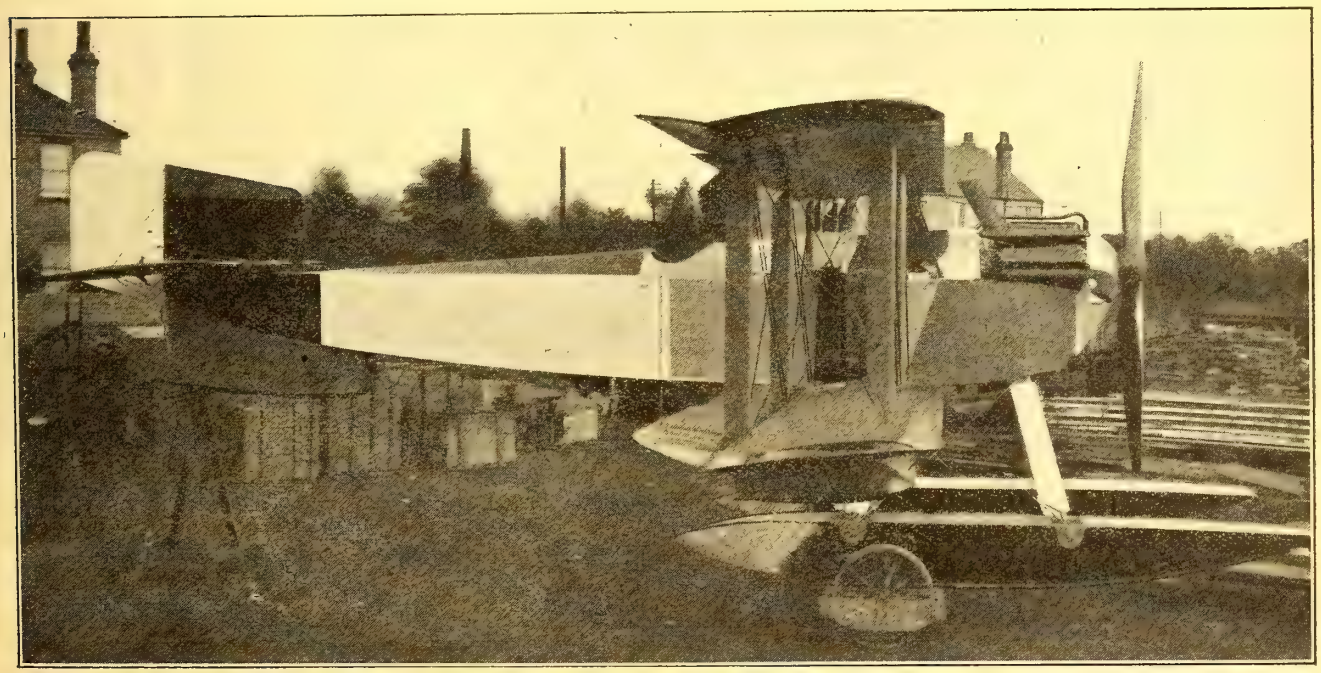
The Supermarine Boat.

It differs from the older Supermarine types in two particulars. Firstly, the fins, which are built out from the main hull to provide planing surface, are concave on their upper sides, and run into the main hull tangentially, instead of being flat and meeting the hull at a sharp angle. This renders the whole fin considerably more flexible and reduces the sea stresses on the whole hull structure.

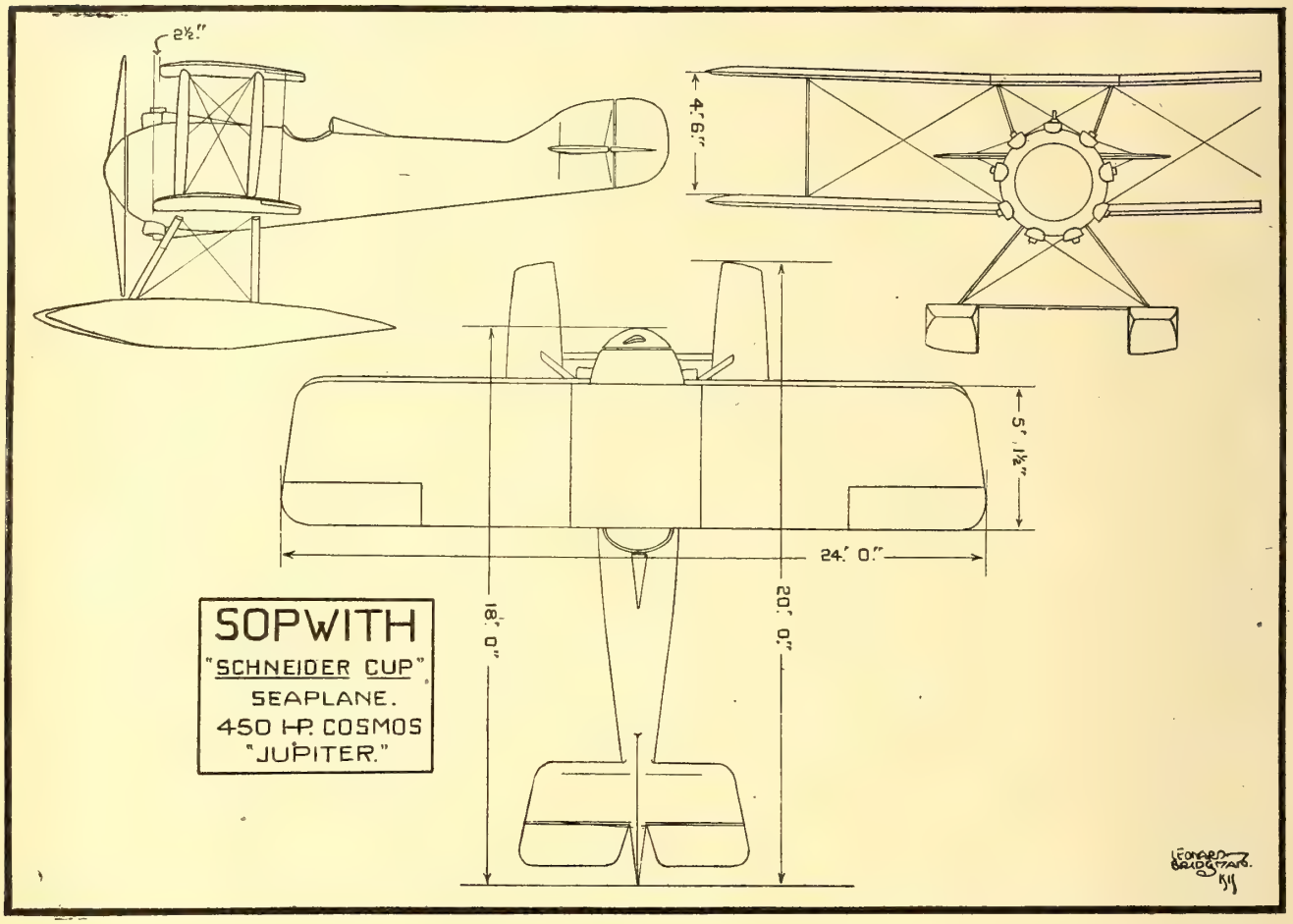
Secondly, instead of the fins washing out gradually into the hull lines forward the fins are kept wide to well forward and are then brought in sharply to the bows, which are made to assume a sharp "ram" or beak shape instead of being rounded or rather blunt in form. This arrangement, which can be seen in the rather poor illustration—the only one so far available—will very considerably reduce the amount of water coming over the bows when "taxying" in rough water, and gives to the hull a distinctive appearance.

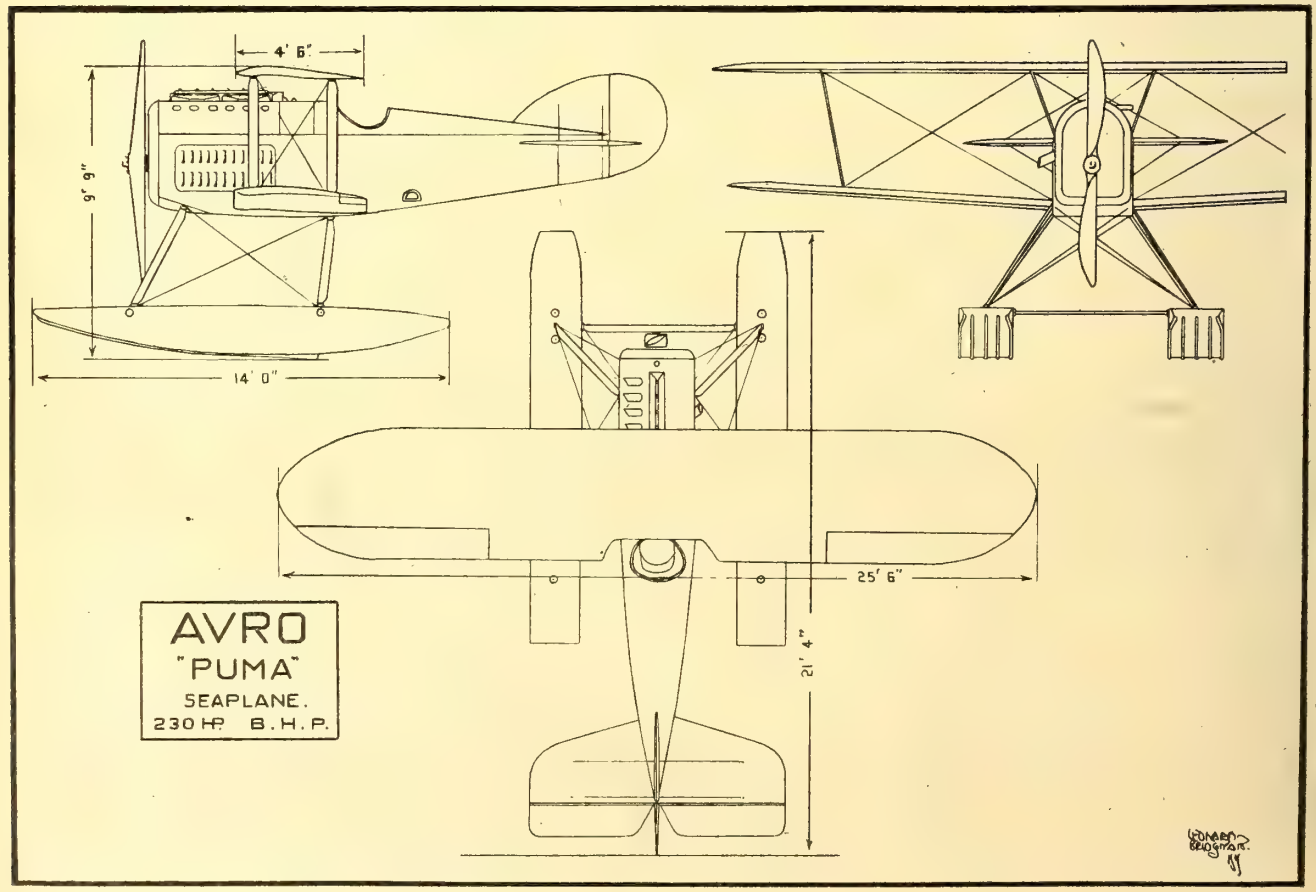
The engine—a 450-h.p. Napier—is carried from the hull on two ash bearers supported on steel tube struts from the root spars of the lower wing, with its crankshaft centre line somewhat higher than halfway up the interplane gap. Ahead of the engine a radiator of oval end elevation forms the forward end of an oval cowl in which the power plant is enclosed.

From the base of the engine struts two pairs of out-



The Fairey Schneider Cup Machine, with the large wings in place.


2½"
4' 6"
5' 1½"
24' 0"
18' 0"
20' 0"
SOPWITH
"SCHNEIDER CUP"
SEAPLANE.
450 HP. COSMOS
"JUPITER."


4' 6"
9' 9"
14' 0"
25' 6"
21' 4"
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wardly raking struts support the rather wide upper centre section. To this and to the lower wing roof spars are attached the outer section wings. Both upper and lower outer sections are of approximately equal size, and thus—the upper centre section being very considerably wider than the wing root spars—the upper wing has a considerable overhang

The single pair of interplane struts on each side slope outwards, practically parallel to the centre section struts.

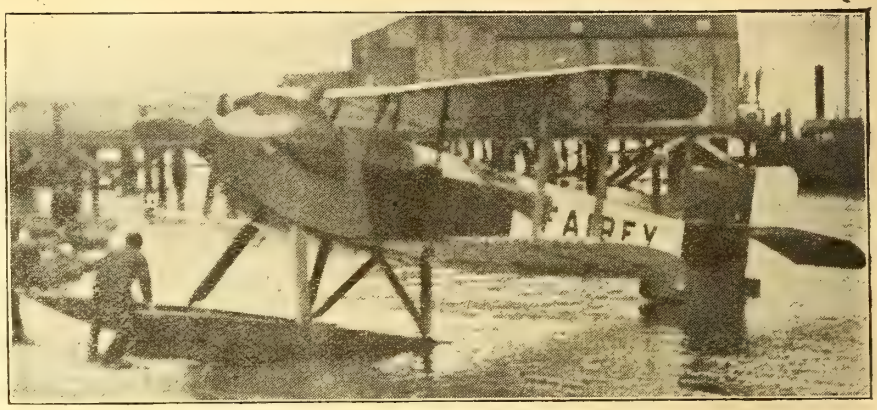
The upper wing is fitted with large balanced ailerons.

The tail unit consists of a large fixed fin mounted above the hull. The fixed tail plane—of the inverted wing section type—is carried on the fin structure well above the hull and slightly lower than the thrust line of the airscrew and is braced to the hull with faired steel tube struts. The elevators, of ample size, are balanced, as is the rudder.

The latter is of very high aspect ratio, and is carried right down to the base of the hull stern post, and is at its lower end reinforced to act as a water rudder.

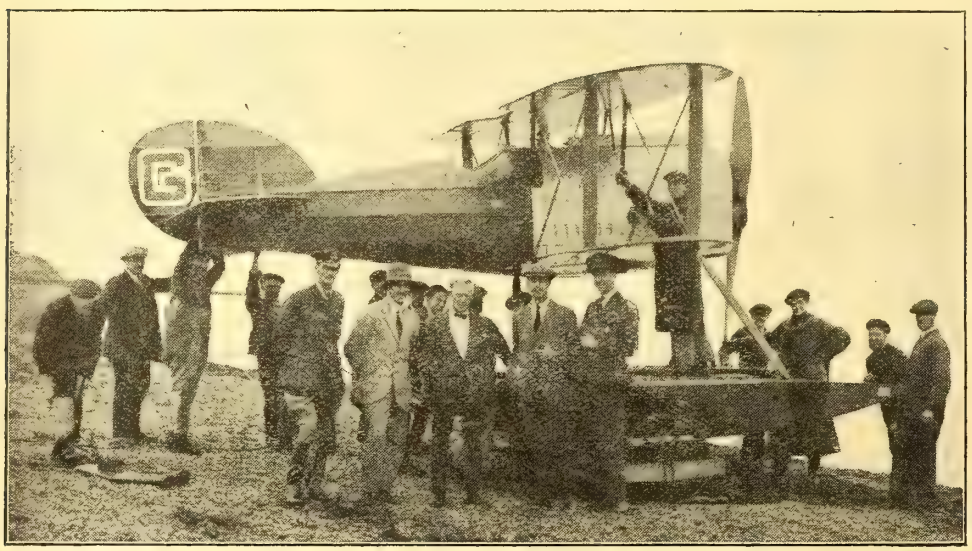
Although the machine is to be run in what is essentially a speed race and will have to compete with machines which are racers pure and simple, it will be completely equipped with a bilge pump, with branch suction pipes to each hull compartment, anchor, sea anchor, mooring ropes, etc.

The following table gives—approximately only—the chief dimensions of the machine. The makers state that the design is under consideration by the R.A.F. as a type of service seaplane and that they therefore do not desire that any full specification should be published at the moment.



The Fairey with the small wings at Cowes.

Gap	4 ft. 3 in.
Height	9 ft. 9 in.
Length (overall)	21 ft. 4 in.
Total area of main planes	200 sq ft.
Area of tail plane	20 sq. ft.
Area of elevators	8 sq. ft.
Area of fin	4 sq. ft.
Area of rudder	5¼ sq. ft.
Total area of ailerons (4)	22 ft.
Span of tail plane	9 ft. 6 in.
Length of floats	14 ft.
Engine	240 h.p. Siddeley "Puma."



The Avro Schneider Cup Machine.

SPECIFICATION.

Span	Top wing 35 ft., bottom 29 ft.
Length (overall)	27 ft.
Total wing surface	360 sq. ft.
Total weight (loaded)	2,900 lb.
Loading	8 lb. per sq. ft.—6.5 lb. per h.p

THE AVRO MACHINE.

A general description of the Avro entry to be flown by Capt. Hammersley appeared in this paper on Aug. 27th. This it is now possible to supplement with the following specification, and with a scale drawing and photograph. Unfortunately, owing to the untidy state of Southampton Water, and a consequent disagreement between the Avro and some floating débris which put one float out of commission, it is impossible to comment upon its appearance in the air. However, Capt. Hammersley reports that the machine handles excellently, and is up to expectations in the way of speed.

SPECIFICATION.

Span	25 ft. 6 in.
Chord	4 ft. 6 in.

THE FAIREY SEAPLANE.

As has already been stated, the Fairey entry is a modified type 3 seaplane—fitted with the standard floats and chassis, fuselage and centre section, and with a 450-h.p. Napier engine.

Instead of the standard nose radiator two projecting sections of radiator are carried, one on each side of the fuselage, and the front of the fuselage is streamlined off by the engine cowling.

Two sets of wings have been built for the trials, one—more or less of the same type as those of the standard type 3c—with two rows of interplane struts a side. One photograph is given of the machine in this state. With these wings a very low landing speed is possible and the machine with its sturdy floats and undercarriage should be capable of getting off and landing in any sea.

The second set is of 28 ft. span with only a single row of struts. With these the landing speed is still quite moderate, and the top speed is very considerably raised, and unless the conditions at Bournemouth on the day of the race are abnormally bad the machine will probably fly with the latter set.

The Fairey alighting at Cowes.

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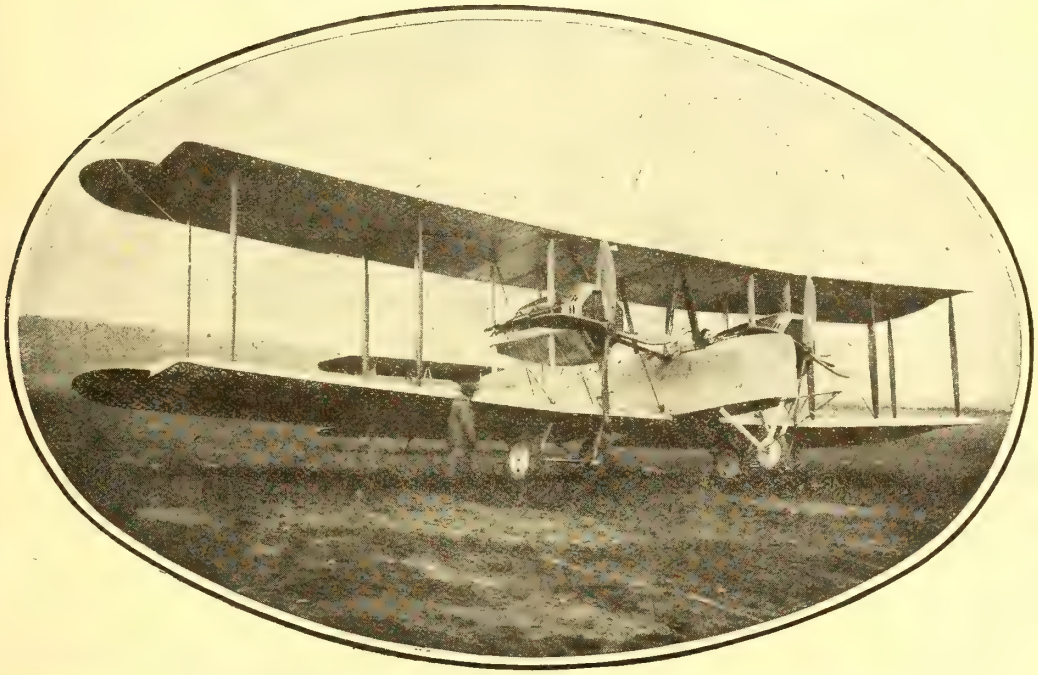

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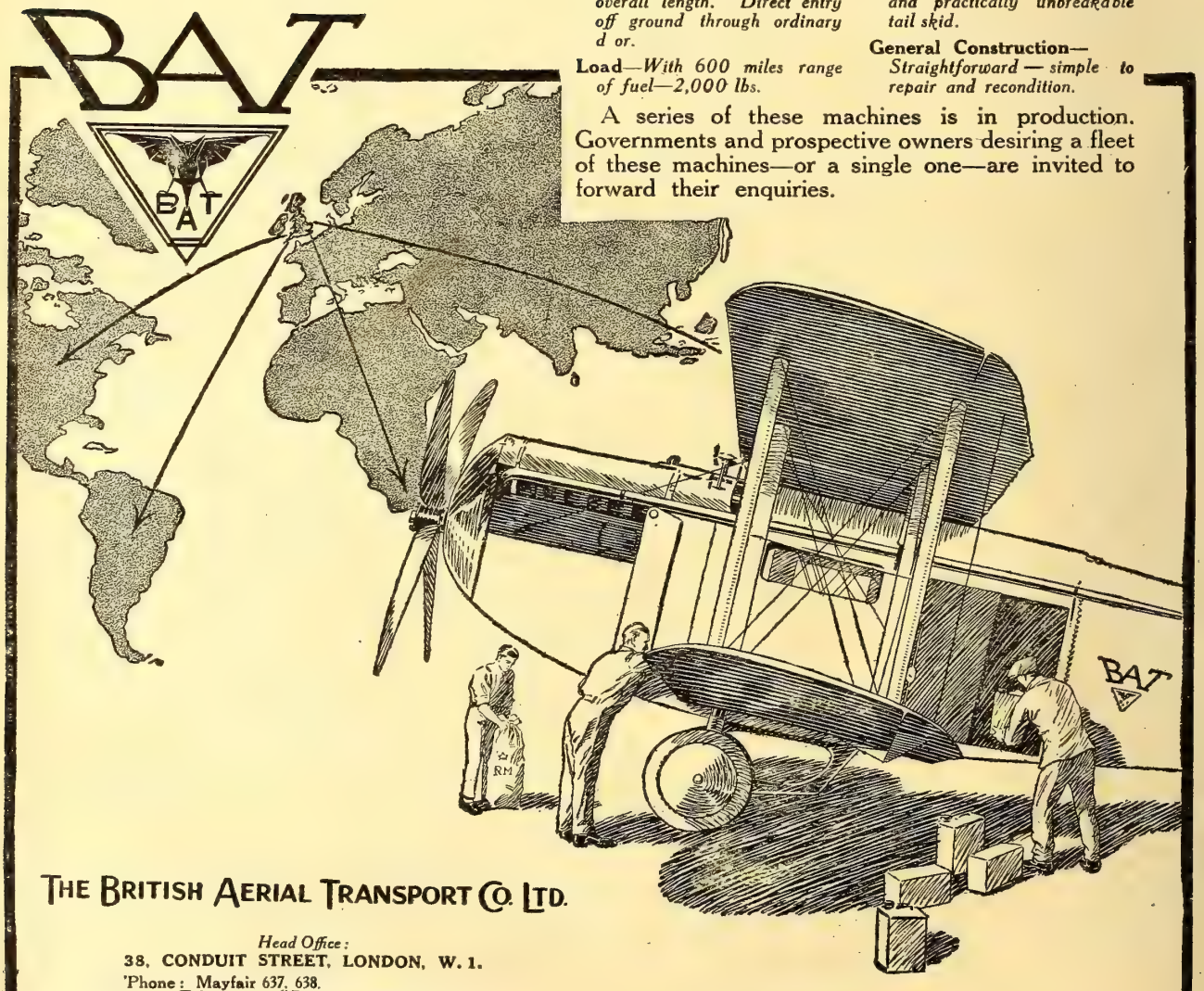

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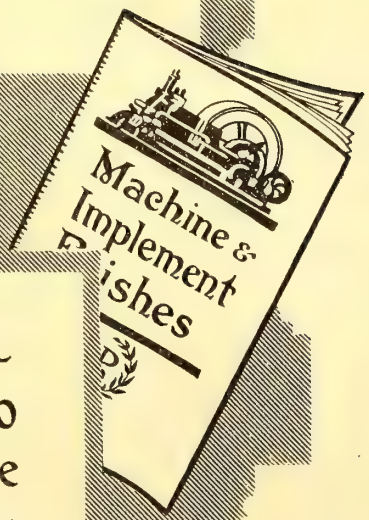

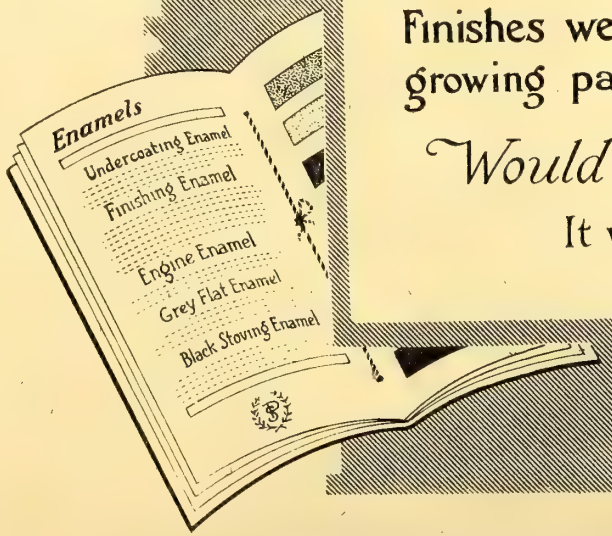

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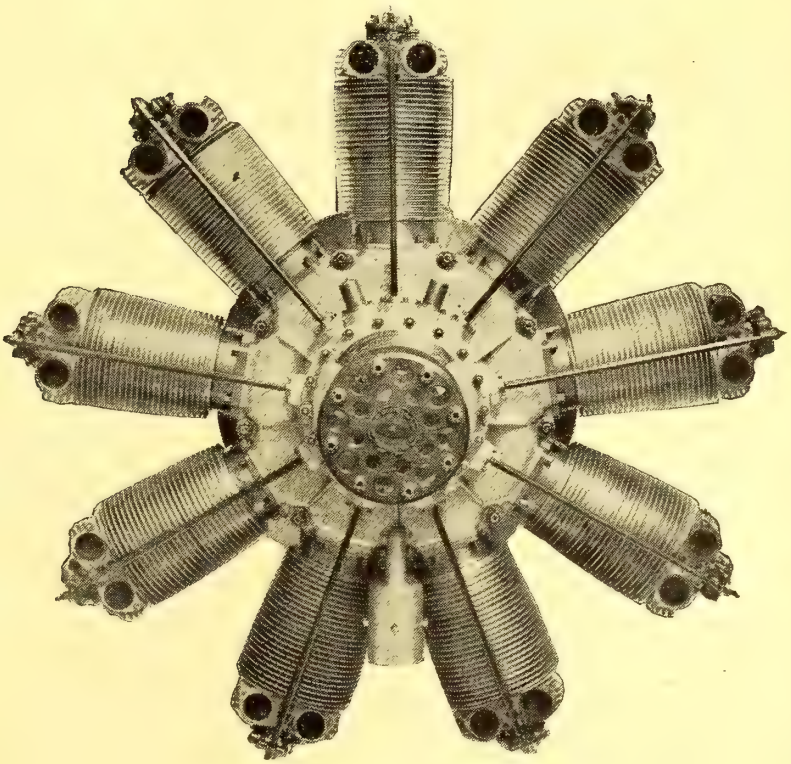

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Napier & Son, D., Ltd., 14, New Burlington Street, London, W., and at Acton, W. "Nitrifier, London" Gerrard 8926.

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Belling & Co., Montague Road, Upper Edmonton, N.18. "Belling, Edmonton." Tottenham 1984.

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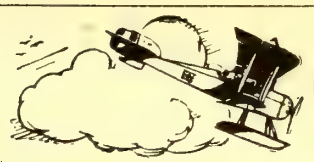

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Ebora Propeller Co., 11 & 12, Surbiton Park Terrace, Kingston-on-Thames. "Ebora, Kingston." Kingston 672.
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Also at Market Harborough, Leicestershire. "Hoptons, Market Harborough." Market Harborough 13.

Bearings (Etonia Cast Phosphor Bronze)

Brown Bros., Ltd, Gt. Eastern St, E.C.1.
Yorkshire Engineering Supplies, Ltd., Wortley, Leeds. "Yes, Leeds." Central 3927.

Blowpipes (Oxy-Acetylene)—

Acetylene Corporation of Great Britain, Ltd, The, 49, Victoria Street, Westminster, S.W.1 "Flamma, Vic, London" Vic. 4830

Imperial Light, Ltd, 123, Victoria Street, London, S.W.1. "Edibrac, 'Phone, London." Vic 3540 (3 lines).

Bolts—

Mitchell Wedgewood & Co, Campbell Works, Stoke Newington, London, N.16 Dalston 2500 (2 lines).

Books (Aero Engines)—

Dykes' Automobile Encyclopedia, Gillam, 149, Strand, W.C.2

Buildings—

Boulton & Paul Ltd Rose Lane, Norwich "Aviation, Norwich" Norwich 851
Rubery Owen & Co, Darlaston, South Staffs

Cable Coverings and Cable Controls—

The Bowden Brake Co., Ltd, Tyseley, Birmingham "Bowden, Cock's Green" Cock's Green 103 & 104

Bowden Wire, Ltd, Wealesden Junction, "Bowirelim Harles, London" Willesden 2400 (3 lines).

Herbert Terry & Sons, Ltd., Redditch "Springs, Redditch." Redditch 61.

Carburettors—

Hobson, H. M., Ltd., 76, Vauxhall Bridge Road, S.W.2 Victoria 4670.

Casein—

Nieuwhof, Surie & Co., Ltd., 5, Lloyds Avenue, London, E.C.3. "Suricodon, Fen, London." Avenue 34 and 35.

Clothing—

Burberry's, Ltd, Haymarket, S.W.1 Regent 2165.

Dunhill's Ltd., Euston Road, N.W.1. "Dunsend, London" North 3405-6.

Component Parts—

Accles & Pollock, Ltd. Oldbury, Birmingham "Accles, Oldbury." Oldbury 111 (4 lines).

Brown Bros., Ltd, Gt. Eastern St., E.C.1. Central Aircraft Co., High Road, Kilburn, N.W.6. "Aviduction, 'Phone, London" Hampstead 4403 & 4404.

Thompson Bros. (Bilston), Ltd., Bradley, Bilston, England. "Thompson Bros, Bilston" Bilston 10.

Cords, Tapes, and Threads—

MacLennan, J., & Co., 30, Newgate Street, E.C.1. And at Glasgow City 3115.

Dopes

Titanine, Ltd, 175, Piccadilly, W.1 "Tetrafree, Piccy, London" Gerrard 2312

British Cellulose Co, 8, Waterloo Place, S.W.1. "Cellutate, London" Regent 4926

The British Emaillite Co., Ltd., 30, Regent Street, S.W.1. "Ridleypren, Piccy, London" Gerrard 280.

Cellon, Ltd., 22, Cork Street, London, W.1. "Ajawb, Reg, London" Gerrard 440

Robt. Ingham Clark & Co., Ltd., West Ham Abbey, E.15. "Oleotine, Strat, London" East 955.

Engines and Parts—

Allen, W. H., & Co., Ltd., Bedford "Pump Bedford" Bedford 800

Arrol-Johnston, Ltd., Dumfries "Mocar, Dumfries" Dumfries 281-282

Beardmore Aero Eng, Ltd, 112, Great Portland Street, W.1. "Beardmore, London" Gerrard 238

The Cosmos Engineering Co., Ltd, Fishponds, Bristol

Dudbridge Iron Works, Ltd (Salmson), 87, Victoria Street, London, S.W.1 "Aeroflight, Vic, London" Vic 7026

Gordon Watney & Co., Ltd., Weybridge. "Mercedes, Weybridge." Weybridge 550 (7 lines).

Green Engine Co, Ltd, Twickenham Richmond 1203.

Gwynnes, Ltd., Hammersmith, W. "Gwynne, Hammersmith." Hammersmith 1010.

Napier & Son, D., Ltd, 14, New Burlington Street, London, W., and at Acton, W. "Nitrifier, London" Gerrard 8426.

Rolls-Royce, Ltd, 14 and 15, Conduit Street, W.1 "Rolhead, London" Gerrard 1654-5-6

The Siddeley-Deasy Motor Car Co., Ltd., Coventry. Coventry 954 "Deasy, Coventry."

Sunbeam Motor Car Co., Ltd, Wolverhampton. "Moorfield, Wolverhampton" Wolverhampton 965.

The Gnôme & Le Rhône Engine Co., Ltd., 27, Buckingham Gate, S.W.1. "Elevenfold, London. Walthamstow 811 (2 lines).

Walton Motors, Ltd., Walton-on-Thames. "Motors, Walton-on-Thames" Walton-on-Thames 220.

Electrical Accessories—

Belling & Co., Montague Road, Upper Edmonton, N.18. "Belling, Edmonton." Tottenham 1934

Brown Bros, Ltd., Gt. Eastern St, E.C.1.
Gent & Co., Ltd., Faraday Works, Leicester. "Lodestone, Leicester." National 151 (two lines)

Johnson & Phillips, Ltd, Charlton, London, S.E.7 "Juno, London" Central 2207; London Wall 1564

The Rotax Motor Accessories Co, Ltd, Victoria Road, Willesden Junction, N.W.10. "Rodynalite, 'Phone, London." Willesden 2486.

Electric Cables—

E. Kalker and Co, Coventry "Kalker, Coventry" Coventry 242

Johnson & Phillips, Ltd., Charlton, London, S.E.7 "Juno, London." Central 2207; London Wall 1564.

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The Aircraft Improvements Co., Mornington Works, Arlington Road, Camden Town, N.W.1.

Flare Lights—

Imperial Light, Ltd, 123, Victoria Street, London, S.W.1 "Edibrac, 'Phone, London" Victoria 3540 (3 lines).

Flexible Shafts—

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Fluxes—

Imperial Light, Ltd., 123, Victoria Street, London, S.W.1 "Edibrac, 'Phone, London" Victoria 3540 (3 lines)

The Auto Controller Co (Fluxite), Vienna Road, Bermondsey, Eng

Flying Boat Builders—

Gosport Aircraft Co., Gosport. "Flight, Gosport." Gosport 217

Galvanising—

Boulton & Paul, Ltd, Rose Lane, Norwich "Aviation, Norwich" Norwich 851.

Gauges—

J. A. Prestwich & Co., Northumberland Park, Tottenham, N.17.

Gears—

Moss Gear Co., Ltd., Thomas Street, Aston, Birmingham. "Mosgear, Birmingham" East 407.

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Cannon, B., & Co., Ltd, Lincoln. London Office, 110, Cannon Street, E.C.4. "Beecolin, Cannon, London" City 1206

Improved Liquid Glues Co., Ltd., Gt. Hermitage Street, E. (Croid.) "Excroiden, 'Phone, London" Avenue 4611-2

Meudine Co., 8, Arthur Street, E.C. Bank 5873

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Chas P. Kinnell and Co, Ltd, 65 & 65A, Southwark Street, London, S.E.1. "Kinnell, London." Hop 372 (2 lines).

The Thames Bank (Blackfriars) Iron Co, Ltd, Upper Ground Street, London, S.E.1. "Hot Water, Friars, London." Hop 763

Instruments—

British Wright Co., Ltd, 33, Chancery Lane, W.C.2. Holborn 1308.

Instruments (Scientific, Altimeters, etc.)—

Short & Mason, Ltd, Macdonald Road, Walthamstow, E.17. "Aneroid, Phone, Walthamstow 180.

Insurance—

Aviation Insurance Association, 1, Royal Exchange Avenue, E.C.3. London Wall 9944.

Bray, Gibb & Co, Ltd., 166, Piccadilly, W.1

Captain A. Newman (late R.A.F.), 20, Bucklersbury, E.C.4. City 4855

Harold Townend, Ltd, 13-14, Abchurch Lane, King William Street, E.C.4. "Carinsur, London" Central 156 (2 lines).

Percy Wingfield, 22, Newgate Street, E.C.1 City 4672

Leather Cloth—

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Lubricating Oil Refiners and Merchants—

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Herbert Terry & Sons, Ltd, Redditch. "Springs, Redditch" Redditch 61.

Magnetos—

The British Lighting & Ignition Co., Ltd., 264, Tottenham Court Road, W.1. "Vicksmag, Phone, London." Museum 430.

The British Thomson-Houston Co., Ltd., Lower Ford Street, Coventry. "Asteradial, Coventry" Coventry 278.

Metal Casement Manufacturers—

Henry Hope & Sons, Ltd, 95, Lionel Street, Birmingham. "Conservatory, Birmingham" Central 999 (2 lines).

Metal Manufacturers—

Clifford, Chas, & Sons, Ltd., Birmingham. "Clifford, Birmingham." Central 42-43. Avenue 1432.

Metals in General—

Samuel Mercer & Co., 198, Upper Thames Street, E.C.4 "Reconciled, Cannon, London" City 6342.

Metal Parts and Fittings—

Accles & Pollock, Ltd Oldbury, Birmingham. "Accles, Oldbury." Oldbury 111 (4 lines)

Arnott & Harrison, Ltd, Hythe Road, Willesden Junction. Willesden 2207.

Bayliss, Jones, & Bayliss, Ltd., Wolverhampton. (Bolts and Nuts.) "Bayliss, Wolverhampton" Wolverhampton 1041.

Blackburn Aeroplane & Motor Co., Ltd., Olympia, Leeds "Propellors, Leeds" Roundhay 345 (3 lines).

Brown Bros., Ltd., Gt. Eastern St., E.C.1

Mann, Egerton & Co., Ltd., 177, Cleveland Street, London, W.1 "Installing, Euston road, London" Museum 70

Rubery Owen & Co., Darlaston, South Staffs.

Sankey, Joseph, & Sons, Ltd., Wellington, Shropshire. "Sankey, Wellington, Salop" Wellington 66

The Selsdon Aero & Engineering Co., Ltd., 1, Albemarle Street, Piccadilly, W.1. "Selsero, Phone, London" Regent 1181.

Thompson Bros, Ltd, Bradley, Bilston. "Thompson Bros, Bilston" Bilston 10

Metric Bolts—

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Rubery Owen & Co., Darlaston, South Staffs

Miscellaneous—

Anderson, D., & Son, Ltd. (Roofs), Belfast "Anderson, Belfast." Belfast 4033-4034-4035

Brown Bros., Ltd., Great Eastern Street, E.C.1 "Imbrowned, Rotbroad, London" London Wall 6300.

Herbert Frood Co., Ltd., Chapel-en-le-Frith. "Frodobrake, Birmingham." Central 793

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Motor Cars—

Arrol Johnston, Ltd., Dumfries. "Mocar, Dumfries" Dumfries 281-282.

Mann, Egerton & Co., Ltd 379/381, Euston Road, London, N.W.1 "Manegecar, Euston, London" Museum 70

Standard Motor Car Co., Coventry. "Flywheel, Coventry" Coventry 530 (4 lines).

Nameplates and Labels—

The Clegg Metal Engraving Co, Ltd., Worthing. "Clegg, Worthing"

Observation Panels—

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Oils—

C. C. Wakefield & Co., Ltd, Wakefield House, Cheapside, E.C.2 "Cheery, Cent, London" Central 11305 & 13466.

Parachutes—

E. R. Calthrop's Aerial Patents, Ltd., Eldon Street House, Eldon Street, London, E.C. "Savemalivo, Ave, London." London Wall 3266-3267.

C. G. Spencer & Sons, Ltd. (See under "Balloons").

Piston Rings—

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Presswork—

Rubery Owen & Co., Darlaston, South Staffs

Terry, Herbert, & Sons, Ltd., Redditch. "Springs, Redditch." Redditch 61.

Propellers—

The Aircraft Improvements Co., Mornington Works, Arlington Road, Camden Town, N.W.1.

Blackburn Aeroplane & Motor Co., Ltd., Olympia, Leeds "Propellors, Leeds" Roundhay 345 (3 lines).

Propellers (continued).

Boulton & Paul Ltd., Rose Lane, Norwich, "Aviation, Norwich." Norwich 851.

Ebora Propeller Co, 11 & 12, Surbiton Park Terrace, Kingston-on-Thames "Ebora, Kingston." Kingston 672.

Integral Propeller Co., Ltd., "Aviprop, Hyde, London." Hendon 9 Kingsbury 102

Lang Propeller, Ltd., Weybridge. "Aerosticks, Weybridge." Weybridge 520-521.

Oddy, W. D., & Co., Leeds. "Airscrews, Leeds." Leeds 20547-8.

Westland Aircraft, Yeovil. "Aircraft, Yeovil" Yeovil 129.

Pyrometers—

The Foster Instrument Co., Letchworth, Herts "Foster Instruments, Letchworth." Letchworth 26.

Rawhide Hammers—

Ira Stephens, Whitelands Leather Works, Ashton under-Lyne. "Stephens, 709, Ashton" Ashton 709.

Rigging for Aircraft—

Cradock, Geo., & Co., Ltd., Wakefield, England "Cradock, Wakefield" Wakefield 466

Rubber Tubing & Accessories—

Hancock, James Lyne, Ltd., 200, Goswell Road, London, E.C.1 "Masticator, Isling, London." City 3812 & 3812.

Safety Belts—

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Screw-driving Machines—

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Seaplane Manufacturers—

Blackburn Aeroplane & Motor Co., Ltd., Olympia, Leeds. "Propellors, Leeds." Roundhay 345 (3 lines).

Phœnix Dynamo Manufacturing Co., Ltd., Thornbury, Bradford "Dynamo, Bradford" Bradford 3700 (7 lines).

Short Bros, Rochester "Seaplanes, Rochester" Chatham 627.

Supermarine Aviation Works, Ltd., Southampton "Supermarin, Southampton" Woolston 37.

Searchlights & Landing Lights

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Imperial Light, Ltd, 123, Victoria Street, London, S.W.1. "Edibrac, Phone, London" 3540 Victoria (3 lines).

Shock Absorbers—

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Tubbs, Lewis & Co., Ltd, 29 & 30, Noble Street, E.C.2 "Elastics, London." City 22.

Sheet Metal Pressings—

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Rubery Owen & Co., Darlaston, South Staffs.

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Imperial Light, Ltd., 123, Victoria Street, London, S.W.1. "Edibrac, Phone, London." Victoria 3540 (3 lines).

Solder Manufacturers—

Samuel Mercer & Co., 198, Upper Thames Street, E.C.4. "Reconciled, Cannon, London." City 6342.

Sparking Plugs—

Brown Bros., Ltd., Great Eastern St., E.C.1

Lodge Sparking Plug Co., Ltd., Rugby. "Igniter, Rugby." Rugby 235.

The Robinhood Engineering Works, Ltd., Newlands, Putney Vale, S.W.15. Makers of K.L.G. Plugs. "Kaelgee, Phone, London." Putney 2132-3.

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Springs—

Dart Spring Co., West Bromwich. "Dart, West Bromwich." West Bromwich 322.

Terry, Herbert, & Sons, Ltd., Redditch. "Springs, Redditch." Redditch 61 (3 lines).

Steel—

Allen, Edgar, & Co., Ltd., Sheffield. "Allen, Sheffield." Sheffield 4607.

Brown Bros., Ltd., Great Eastern St., E.C.1.

Firth, Thos., & Sons, Sheffield. "Firth, Sheffield." Sheffield 3230 to 3237.

Jonas & Colver, Ltd., Continental Steel Works, Sheffield. "Jonas, Sheffield." Sheffield 4660

Nicklin, Bernard, & Co., Birmingham. "Bernico, Birmingham." Smithwick, 224.

Spear & Jackson, Ltd., Ætna Works, Sheffield. "Spear, Sheffield." Central 4522-3-4.

Steel Tubes for Aeroplanes—

Accles & Pollock, Ltd., Oldbury, Birmingham. "Accles, Oldbury." Oldbury 111 (4 lines)

Tapes and Smallwares—

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Timber—

Hopton & Sons, George Street, Euston Square, London, N.W.1. "Hoptons, Eusquare, London." Museum 496. Also at Market Harborough, Leicestershire. "Hoptons, Market Harborough." Market Harborough 13.

Time Discipline Apparatus—

Gent & Co., Ltd., Faraday Works, Leicester. "Lodestone, Leicester." National 151-(two lines)

Tools—

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Turnbuckles—

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Tyres and Wheels—

The Palmer Tyre, Ltd., Shaftesbury Avenue. "Tyricord, Westcent." Gerrard 1214 (5 lines).

Undercarriages—

Thompson Bros. (Bilston), Ltd., Bradley, Bilston, England. "Thompson Bros., Bilston." Bilston 10.

Varnishes—

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Thomas Parsons & Sons, 315 & 317, Oxford Street, London, W.1. "Varjap, Phone, London." Mayfair 6347 (3 lines).

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Harland, W., & Son, Merton, London, S.W.19. "Harland, Wimbledon 45." Wimbledon 45 and 1395.

Naylor Bros., Ltd., Southall, Middlesex. "Naylor, Southall." Southall 30.

Washers—

Terry, Herbert, & Sons, Ltd., Redditch. "Springs, Redditch." Redditch 61.

Welding and Cutting Plant—

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Imperial Light, Ltd, 123, Victoria Street, London, S.W.1. "Edibrac, Phone, London." Victoria 3540 (3 lines).

Welding Repairs—

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Wind Shields—

Auster, Ltd., 133, Long Acre, W.C. "Winflector, London." Regent 5910

Triplex Safety Glass Co., Ltd., 1, Albemarle Street, Piccadilly, W.1. "Shatterlys, Piccy, London." Regent 1340.

Wire Gauze—

Greening, N., & Sons, Ltd, 16, Finsbury Street, London, E.C.2 "Setscrew, Finsquare, London." London Wall 1082.

Wire and Cables—

Bruntons, Musselburgh, Scotland. "Wiremill, Musselburgh." Musselburgh 28.

Cradock, Geo., & Co., Ltd., Wakefield, England. "Cradock, Wakefield." Wakefield 466 (3 lines).

Wirework—

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Woodworking Machinery—

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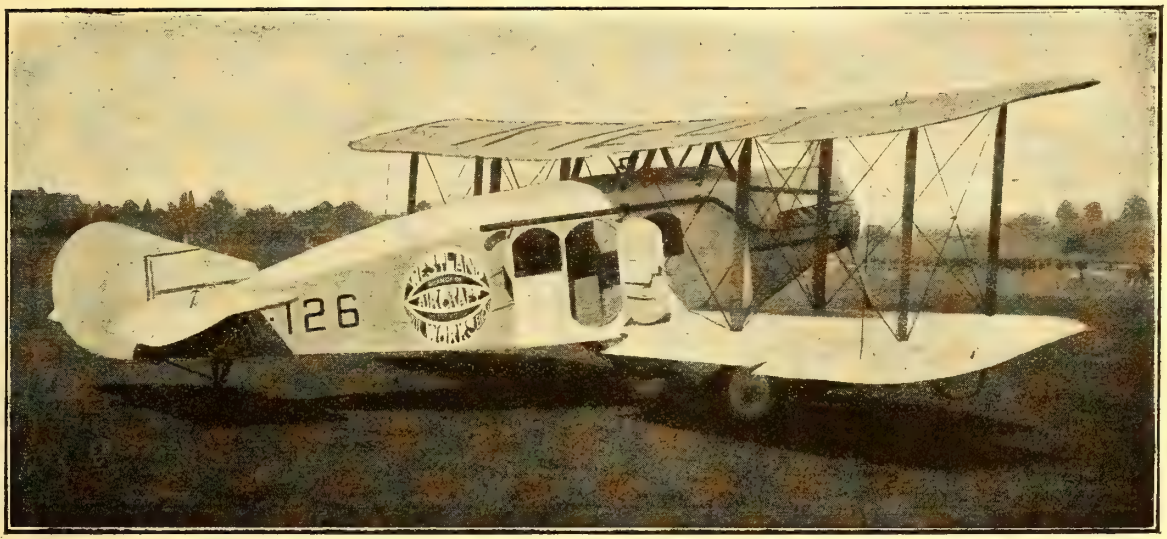

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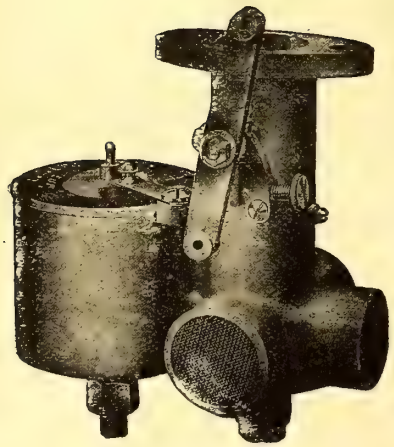

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Both machines are identical, except in regard to the floats. One machine is fitted with two short double stepped floats, fitted with "ears" at the bows, of exactly the same general type as the floats fitted to the pre-war Nieuport sea monoplanes, together with a tail float.

The second machine is fitted with long single step floats of streamlined elevation, and with no tail float. The two float arrangements are indicated on the attached General Arrangement drawing.

In so far as the machines themselves are concerned they are generally of the Nieuport 29 type upon which Lieut. Casale has put up both speed and height records recently in France. They are single bay biplanes, of equal top and bottom chord, slightly staggered forward and with a flat lower plane and a dihedral on the upper wing. The fuselage is of rounded section throughout, with the Hispano-Suiza engine entirely enclosed within the fuselage except for the valve gear casings which protrude on either side.

The radiators are of a form not hitherto familiar in this country. They are of more or less cylindrical or rather annular form, and the radiators are fitted to each machine below and entirely outside the fuselage. It is understood that this type of radiator is giving excellent results in France—particularly on high-speed machines.

At the rear end of the fuselage fixed fins, both above and below the body, and a fixed tail plane are carried followed by a balanced rudder and balanced elevators.

The tail float of the machine fitted therewith is of streamline form and of circular section, and is carried on a completely faired-in structure—whether of struts or in the form of a plank strut is not certainly known—which forms in effect an extension of the lower fin.

Altogether the two Nieuports have a very clean look, and as the land machines of similar general type are credited with an achieved speed of 265 km.p.h. (164 m.p.h.) there is little doubt that the speed of the seaplanes will not fall much below 150 m.p.h.

SPECIFICATION.

Span	8 metres
Total surface	22 sq. metres.
Length (overall)	7 m. 30
Engine	Hispano-Suiza—300 h.p.
Estimated speed	250 km.p.h. (155 m.p.h.)

The above information is due to the Royal Aero Club. According to a well-informed correspondent the Nieuport Co. have three machines, only one of which answers to the specification given, the other two having 27 and 30 sq. metres of surface, the third machine being held in reserve.

THE SPAD.

The machine, built by the S.P.A.D. for the race, is said to be a modified Spad-Herbémont type 20 machine, with a considerably reduced surface. No illustrations of the machine are to hand at the time of writing, but the specification attached is believed to be accurate, and gives the main dimensions.

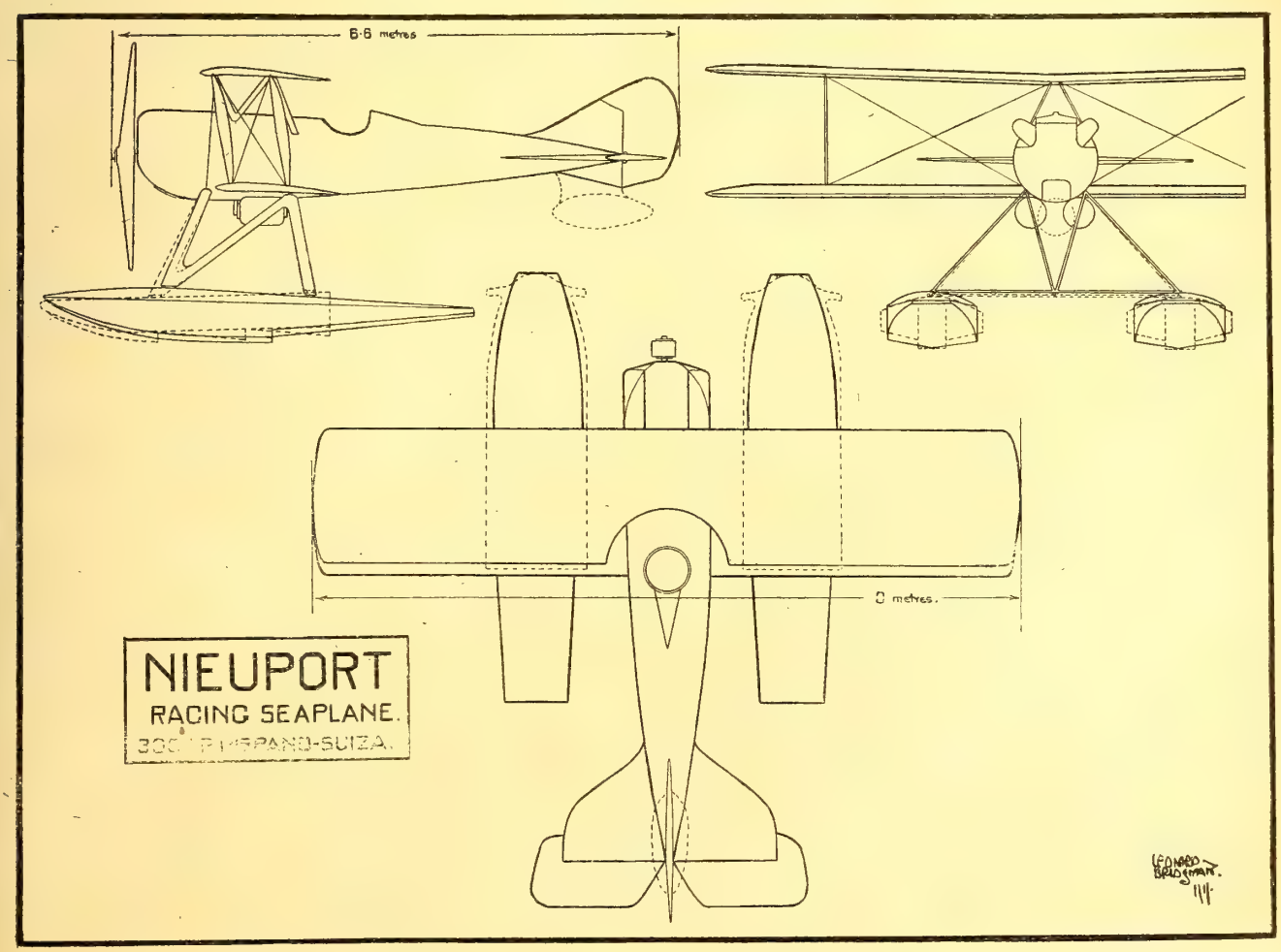
The original type 20 Spad-Herbémont machine which has been illustrated in these pages, was a small single-seater biplane, with equal top and bottom wings, and with little or no stagger, and a single interplane strut on each side—this strut being very deep in section fore and aft, and extended in this dimension at each end to carry both front and rear spar on each plane, and it may be presumed that the seaplane will retain these characteristics.

This machine is fitted with twin streamline floats of monocoque construction, which have no steps, but are fitted with rectangular metal hydrovanes to act as planeing surfaces.

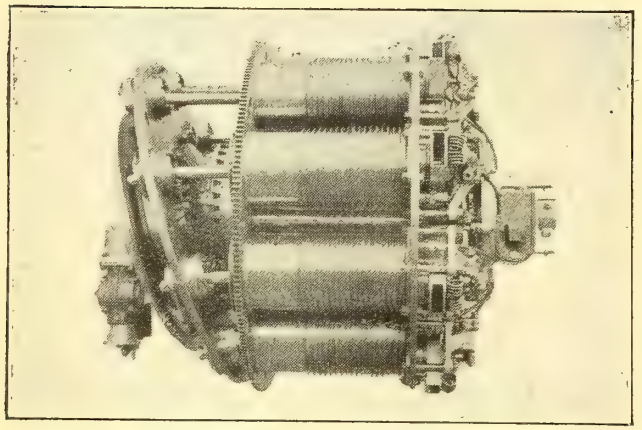
It is stated that a reserve Spad is to be held in readiness, and that Lieut. De Romanet is to act as reserve pilot—Lieut. Sadi-Lecointe being the firm's "first string."

SPECIFICATION.

Span	8 m. 690
Total wing surface	26 sq. metres
Length overall	8 m. 100
Engine	Hispano-Suiza—300 h.p.
Weight (empty)	850 kg.
Load (pilot)	85 kg.
Load (fuel)	165 kg.
Weight (full load)	1,100 kg.



AN ORIGINAL ITALIAN ROTARY.



Side View of the Perfetti-Dolara 300 h.p. rotary engine.

The Perfetti-Dolara rotary 9-cyl. 300-450 h.p. air-cooled engine, exhibited at the Taliedo Show, has been found unexpectedly efficient, so Signor Dolara tells me. So satisfactory have the novel and original features of the patent proved, that with slight changes in the valve distribution, and a second magneto, 450 h.p., will be obtainable from the same sized engine at practically the same weight.

The outstanding novelty of the design is its connecting rods and the transmission of their push in the motor itself. Big ends and crankshaft, in the ordinary sense of the expression, do not exist! Also, the whole engine is a lathe job.

A great part of the gain in efficiency is supposed to be due to the absence of all side-thrust by the pistons against the cylinder walls, the piston-rods being always at right angles to the gudgeon-pins with a barely perceptible sideways movement in the ball-socket joints where the big ends ought to be.

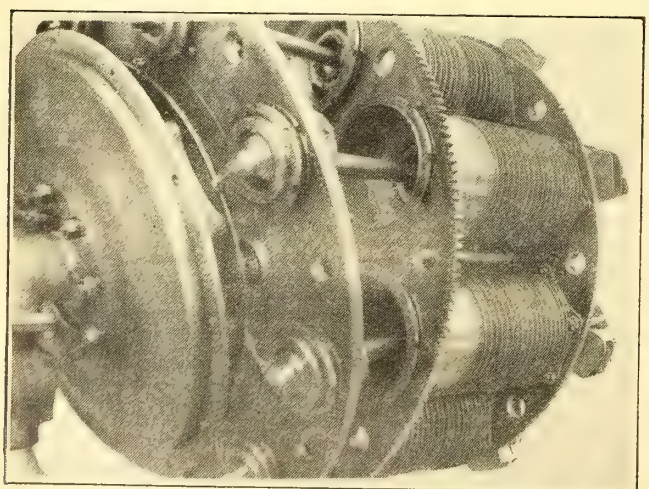
Without removing the engine from its bed the whole thing can be dismounted and the pistons taken out for inspection with the greatest ease.

On the new model 450 h.p. a patent method of fixing the motor to its bed is provided, as is also a direct-driven propeller bearing. In the engine illustrated there is the toothed ring attached to the cylinder "holding-down flanges" (so to call them) for the geared-down shaft-driven airscrew or screws.

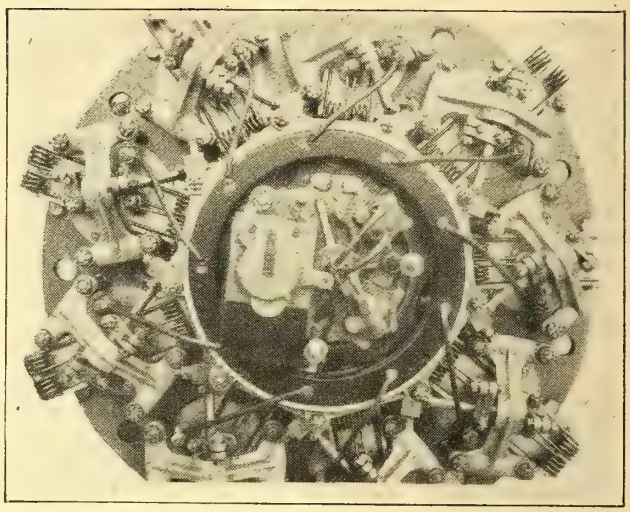
The following data show the extraordinary ratio of weight to power, etc. :—Bore 130, stroke 176, cylinder sweep out 21 litres, 1,500 revs. per min., 300 to 450 h.p., weight 280 kilos. or 300, with two magnetos. The engine looks about the size of a 90-Gnôme, and is a wonderful mixture of standard practice with startling originality. It would appear to combine the advantages of a rotary with the non-troubling nature and accessibility of a car type.

Presumably, the engine with airscrew bearing is for a propeller-driven 'bus, as the cylinder heads should face the air-blast one imagines, though the absence of side-thrust in the cylinders will cause them to run cooler than might be thought.

The inventors will be glad, after three years of testing, to find a firm willing to build the engine in series, which should come out singularly economical, being so largely a lathe job. The balancing is said to be A1.—T. S. H.



View showing the skewed disc which takes the place of a crank and the toothed ring for the drive in the Perfetti-Dolara Engine.



View showing Valve Gear and Magnetos of the Perfetti-Dolara Engine.

THE BIRMINGHAM FAIR.

A British Industries Fair is being held at Birmingham from Feb. 23rd to March 5th, 1920. The Fair will be arranged on the Leipzig model with exhibits in every available building. Exhibitors sending in their applications at the last minute may be unable to be grouped in proximity with other firms in the same trade. They are, therefore, requested to send in their applications to the Chamber of Commerce, Birmingham, as early as possible. The grouping is already mapped out, and allotment is steadily proceeding.

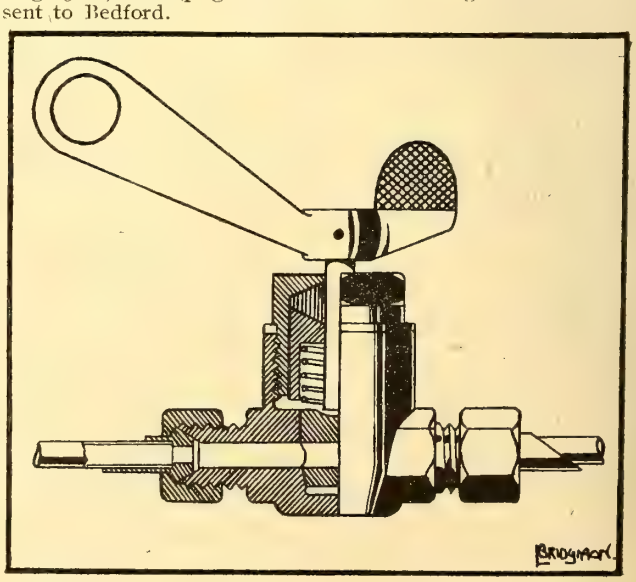
This Fair is run in conjunction with similar exhibitions to be held concurrently in London and Glasgow, but Birmingham alone has a section for aeronautical accessories.

AN IMPROVED FORM OF PETROL COCK.

The Aviation Department of Messrs. Vickers, Ltd., have designed and brought out a new form of petrol cock which is made so as to eliminate any form of leakage. As can be seen from the sketch a small helical spring, by exerting uniform pressure in the plug and a packing ring which is free to slide on the gland tend to make the plug work smoothly, and do away with the necessity of grease, which, through the action of petrol, is dissolved, thereby causing the tap to seize and score, with the result that leakage follows as a matter of course. The Vickers cock, which has been tested officially, can be supplied in sizes suitable for pipes ranging from ⅛-in. to 1-in. bore, with any type of connection, and can also be made for special purposes with three or more branches.

A REDUCTION OF STAFF.

Between 500 and 600 employees at Messrs Armstrong, Whitworth and Company's Aircraft Works at Barlow, Selby (Yorks), were paid off on Aug. 20th owing to the cancellation of airship contracts. According to the "Daily Mail" of Aug. 30th, airship gondolas fitted with engines have been sent to Bedford.



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Extract from Chapter I.

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Extract from Chap. II.

1. And when he was come unto Farn, Roy was compassed about by a great multitude.

2. And he beheld winged chariots of divers designs; thus there were the Scout, and the Dolphin, and the Martinsyde, and the Camel, even that which produceth the hump.

Extract from Chap. XXI (and last).

17. And in all thy ways consider this, that there be two things greater than any other in forming the character of him that flies; and the one is Energy and the other, it is Enthusiasm.

19. And take thou a pride in being an aviator; for hath not the great Hender said, These young men are the salt of the Earth.

20. Go thy way in courage and good cheer; and greet the Great Adventure with a song.

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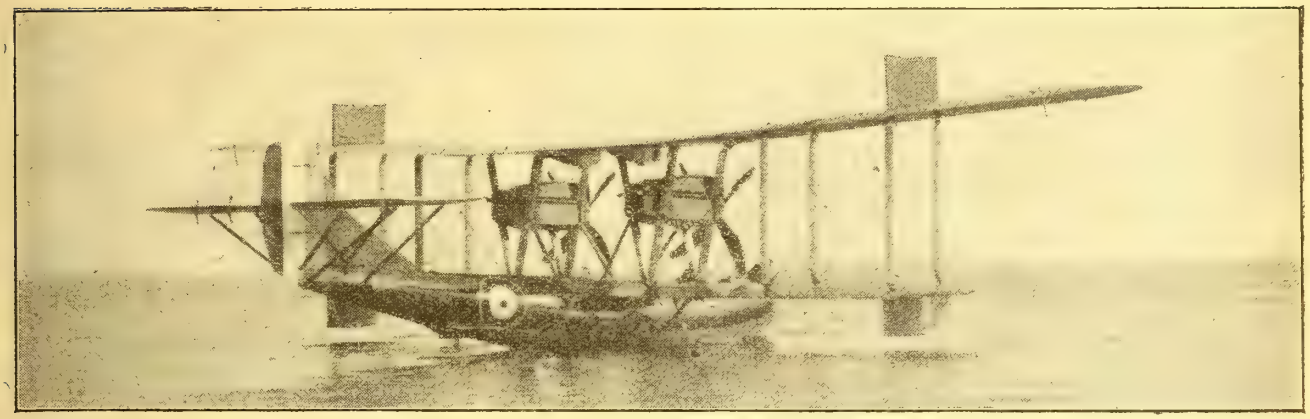
MODERN BRITISH AEROPLANES.

XII.—The Phoenix Dynamo Co., Ltd.



Three-quarter Stern View of the Phœnix-Cork Flying-boat.

The Phœnix Dynamo Co., of Bradford, were, before the war, amongst the best-known of the British electrical manufacturing firms.

With the advent of war their activities were diverted in some part to the manufacture of aircraft, in which they were eminently successful, under the direction of Mr. E. Pybus.

After the production of very successful versions of other designers' products, the firm secured the services of Mr. W. O. Manning (then Lieut.-Comdr., R.N.V.R.), and have devoted themselves to the design of large boat seaplanes.

The firm has recently amalgamated with Dick, Kerr and Co., Ltd., and has become the aviation branch of the English Electrical Co., Ltd.

THE PHŒNIX-CORK FLYING BOAT.

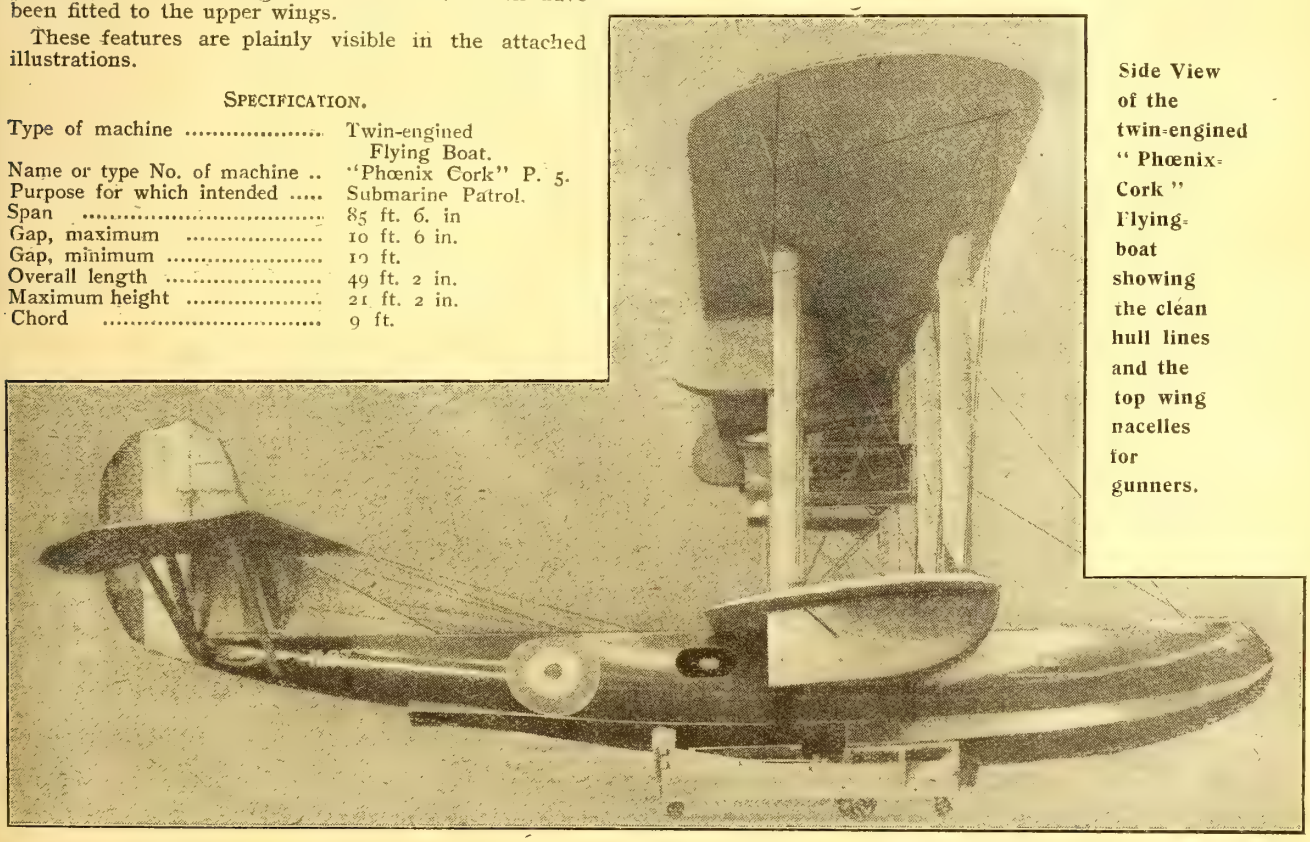
This, so far, the only product of the firm's own design, which it is permissible to describe, is a large twin-engine boat designed for sea patrol and anti-submarine work.

In general lay-out it resembles most of the successful machines of the boat type designed for this purpose, but it is notable for the extremely clean design of hull, which is circular or oval section streamline, boat-built, and mahogany planked, and for the gunners' nacelles, which have been fitted to the upper wings.

These features are plainly visible in the attached illustrations.

SPECIFICATION.

Type of machine	Twin-engined Flying Boat.
Name or type No. of machine	"Phœnix Cork" P. 5.
Purpose for which intended	Submarine Patrol.
Span	85 ft. 6. in
Gap, maximum	10 ft. 6 in.
Gap, minimum	10 ft.
Overall length	49 ft. 2 in.
Maximum height	21 ft. 2 in.
Chord	9 ft.
Total surface of wings	1,300 sq. ft.
Span of tail	25 ft.
Total area of tail	200 sq. ft.
Area of elevators	58 sq. ft.
Area of rudder	42 sq. ft.
Area of fin	31 sq. ft.
Area of each aileron and total area	42.75 each; 85.5.
Maximum cross section of body	27.75 sq. ft.
Horizontal area of body	202.5 sq. ft.
Vertical area of body	208 sq. ft.
Engine type and h.p.	"Eagle" Rolls-Royce; two 360 h.p.
Airscrew, diam., pitch and revs.	10 dia., 10 pitch, 1,080 r.p.m.
Weight of machine empty	7,000 lbs.
Load per sq. ft.	8.85 lbs.
Weight per h.p.	16.1 lbs.
Tank capacity in hours	8 at full speed.
Tank capacity in gallons	360 gallons.



Side View of the twin-engined "Phœnix-Cork" Flying-boat showing the clean hull lines and the top wing nacelles for gunners.

Performance—	
Speed low down	106 m.p.h.
Speed at 10,000 feet	94 m.p.h.
Landing speed	52 m.p.h.
Climb—	
To 5,000 feet	10 minutes.
To 10,000 feet	30 minutes.
Disposable load apart from fuel	2,000 lbs.
Total weight of machine loaded	11,600 lbs.

Armament: 5 Lewis guns and 4—230 lbs. or 2—520 lbs. bombs.
Crew, 5—Pilot, observer, wireless operator, engineer, and gunner.

PATENTS INDEX

The subjoined list of recent inventions has been specially compiled by The Aeroplane from the current Official Patents Records.

Patents Applications.

Alsopp, J. C. Clinometer for aircraft. No. 17485. July 12th.
Bradley, P. R. Fireproofing for aircraft. No. 17078. July 8th.
Calthrop's Aerial Patents, Ltd., E. R. Retaining and releasing devices for ropes, cordage, etc. No. 17095. July 8th.
Cartwright, P. R. Cross level indicator for aircraft. No. 17362. July 10th.
Dean, F. M. Combined speedometers and mileage-recorders for aircraft. No. 16978. July 7th.
Dean, F. M. Apparatus for measuring and recording speed of aircraft. No. 16979. July 7th.
Dean, F. M. Apparatus for measuring and recording angle of flight of aircraft. No. 16980. July 7th.
Gray, H. Flying-machines. No. 16998. July 7th.
Greenwood, C. V. Aircraft envelopes, etc. No. 17298. July 10.
Marshall, R. Control of aircraft. No. 17212. July 9th.
Martin, J. V. Aeroplanes. No. 17004. July 7th.
Matthews, C. G. Clinometer for aviation. No. 17047. July 8th.
Molesworth, J. D. M. Device for mooring and launching airships. No. 17457. July 11th.
North, J. D. Means for discharging liquid-fuel containing vessels carried on aircraft. No. 17406. July 11th.
Orlandi, A. Aeroplanes. No. 17350. July 10th.
Robinson, C. D. Airships, etc. No. 17180. July 9th.
Sharp, A. Structures and appliances for housing, etc., aircraft and apparatus for measuring wind-pressure on buildings. No. 17020. July 8th.
Smith, N. M. C. Tents or hangars for aircraft, etc. No. 16951. July 7th.
Tattersall, W. Struts, etc., of aircraft. No. 17266. July 10th.
Wagner, R. V. J. H. Apparatus to enable people to descend from aircraft, etc. No. 17030. July 8th.
Wright, S. W. Safety device for aircraft. No. 16970. July 7th.
Balch, E. G. Aeroplane signals. No. 17905. July 17th.
Bloxham, S. G. Manipulation of airships from their sheds. No. 17854. July 17th
Carlin, W. Y. Indicating-device for aeroplanes. No. 17626. July 14th.
Carpenter, T. Wind screens for motor vehicles and aircraft. No. 17612. July 14th.
Eales, W. H. Combined airship and aeroplane. No. 17[illegible]. July 14th.
Fraser, W. Leveller or indicator for aircraft. No. 17571. July 14th.
Holloway, W. F. Clinometer for aircraft. No. 17602. July 14th.
Howe, J. A. Clinometer for aircraft. No. 17657. July 15th.
Jamieson, E. A. Cable attachments for balloons, etc. No. 17670. July 15th.
Kruse, J. S. Flying-suit for women. No. 17839. July 16th.
Leitner, H. Variable pitch airscrews. No. 17879. July 17th.
Mooney, D. J. Metal attachment for aircraft. No. 17658. July 15th.
Murphy, J. J. Clinometer for aircraft. No. 17653. July 17th.
Shaw, W. R. D. Airbrakes for aircraft. No. 17958. July 18th.
Westaway, J. Propellers of aeroplanes, etc. No. 17723. July 15th.

Complete Specifications Accepted, Prints of which can be obtained on and after July 31st, 1919.

128971. Sept. 5th, 1917. Woosnam, A. Landing-chassis for airplanes.
128979. Sept. 8th, 1917. Aeronautical Instrument Co., and Brewer, G. Balloons.
128980. Sept. 8th, 1917. Vickers, Ltd., and Savage, H. A. Aircraft gun mountings.
128989. July 14th, 1916. Caproni, G. Chaser aeroplane.
128990. Sept. 12th, 1917. Brunton, J. D. Method of and means for forming joints in streamline and like wires for use in aircraft.
128993. Sept. 13th, 1917. Warren, A. O., Prior, W., and Prior, E. G. Manufacture of fuselage, wings, struts, and the like of aircraft.
128994. Sept. 15th, 1917. Phillips, H. W. Spars for aerial machines.
128997. Sept. 17th, 1917. Blackburn Aeroplane and Motor Co., and Copley, J. W. Attachment devices for constructional connections particularly applicable to aircraft.
128998. Sept. 17th, 1917. Blackburn Aeroplane and Motor Co., and Copley, J. W. Attachment devices for constructional connections particularly applicable to aircraft.
128999. Sept. 17th, 1917. Blackburn Aeroplane and Motor Co., Booth, H., and Copley, J. W. Operating mechanism for the rudders of aeroplane flying-machines and other aircraft.
129000. Sept. 17th, 1917. Blackburn Aeroplane and Motor Co., and Simpson, F. C. Couplings or connections for the tension wires of aeroplane flying-machines and other aircraft.
129007. Sept. 18th, 1917. Daimler Co., and Berriman, A. E. Cylinders for internal-combustion engines and the like, particularly applicable to engines used on aircraft.
129017. Sept. 21st, 1917. Brewer, G. Releasing mechanism for parachute and other apparatus carried on aircraft.
129021. Sept. 25th, 1917. Macfie, R. F. Apparatus for indicating land speed and angle of drift on aircraft, and also acting as a bomb sight thereon.
129023. Sept. 26th, 1917. Brown, E. E., and Mooney, D. J. Construction of metal frames for aircraft.
129029. Sept. 28th, 1917. Siddeley-Deasy Motor Car Co., and Green, F. M. Landing-chassis of aeroplanes and the like.
129034. Oct. 1st, 1917. Roe, A. V. Clamping devices for the ties of cross-braced structures.
129052. April 16th, 1918. Minvalla, P. E. J. Parachutes.
129071. June 4th, 1918. Killen, E. B. Landing carriages or frames for aircraft.
129119. July 5th, 1918. Mateyka, F. J. Parachute for use with aircraft.
129128. July 12th, 1918. Blackburn Aeroplane and Motor Co., and Booth, H. Regulating the cooling of internal combustion engines on aircraft, and particularly on aeroplane flying-machines.
129142. July 19th, 1918. Cairns, A. Means for propelling aerial machines.
129147. July 26th, 1918. Agar, M. F., and Sarll, L. Warren girders.
129149. Aug. 2nd, 1918. Navarro, J. G. Steering and braking mechanism for aircraft.
129161. Aug. 27th, 1918. Boulton and Paul, and North, J. D. Loading and discharging devices for aircraft.
129164. Sept. 3rd, 1918. Norrington, J. R. Buckle for airman's safety belts.
129184. Oct. 17th, 1918. McNary, J. E. Protective armour for aviation pilots and other operators.
129234. March 11th, 1919. Mooney, D. J., and Brown, E. E. Metal spars or longerons and the like for aviation.

THE DEATH OF MR. J. R. NISBET.

The death occurred suddenly from heart failure on Sunday, August 17th, of Mr. James R. Nisbet, who had been a managing director from the beginning of the business of Bowden Wire, Ltd., and its associated companies in France, Germany and elsewhere.

Mr. Nisbet was intimately concerned in the formation of the original Bowden Wire Syndicate, Ltd., to acquire the patents in the method of power transmission by means of a flexible wire invented by the late Mr. E. M. Bowden, and had taken a very close and personal interest in its developments. For some years past he had been the sole managing director of the parent concern and he took a very deep interest in all the details of the business, both manufacturing and commercial, and devoting himself untiringly and unceasingly to its success. Early this year, although far from well, he paid a visit to the United States in its interests.

Mr. Nisbet, who was in his fifty-eighth year, was also head of Hay, Nisbet and Co., Ltd., printers and publishers, of Glasgow London. In addition he devoted a large amount of his time to the legislative side of the sport and pastime of automobilism.

He was one of the earliest members of the Royal Automobile Club and of the Scottish Automobile Club and served on the committee of both. He was a vice-president and chairman of the Auto Cycle Union. He was also a vice-president of the Cycle and Motor Cycle Manufacturers' and Traders' Union and took an active part in its councils.

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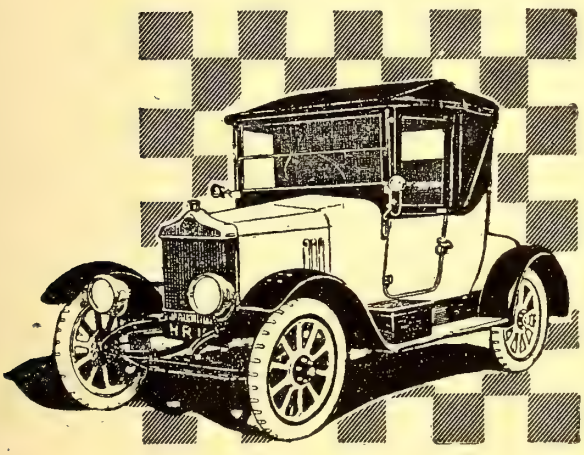

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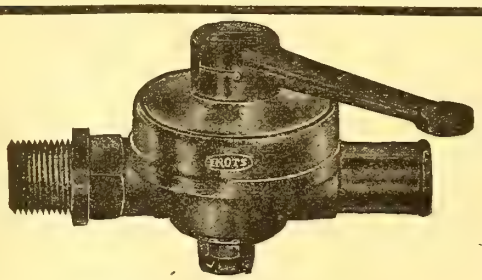

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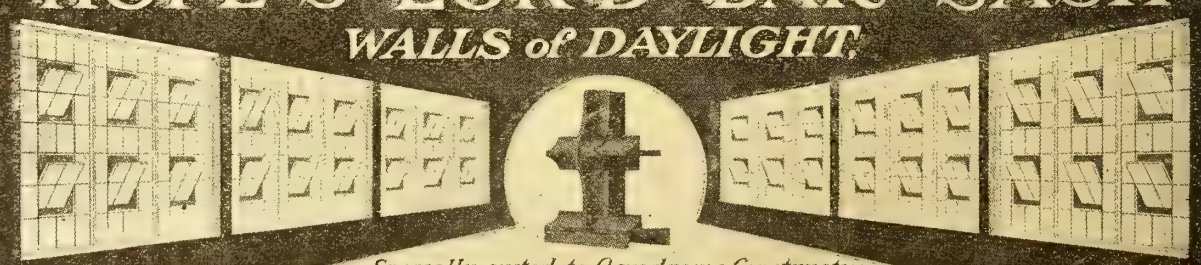

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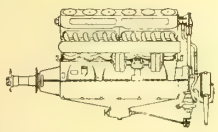

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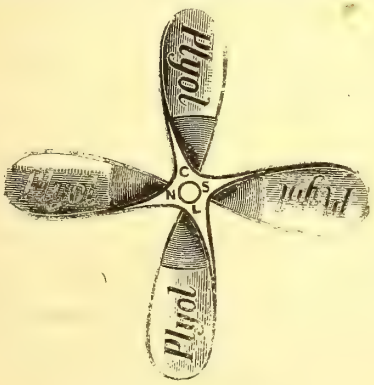

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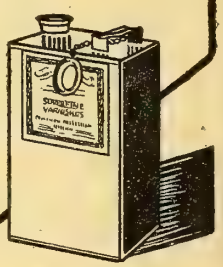

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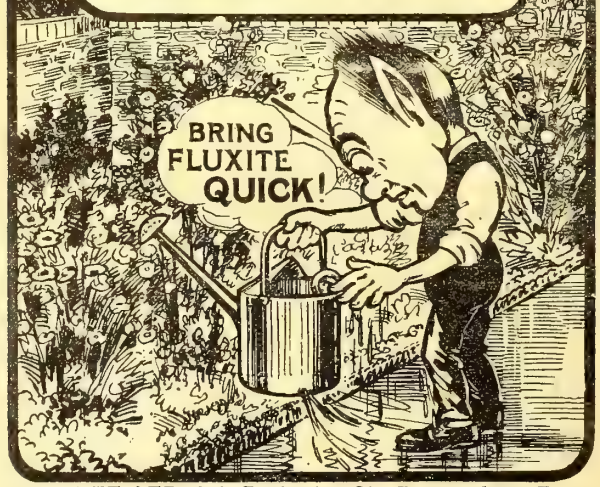

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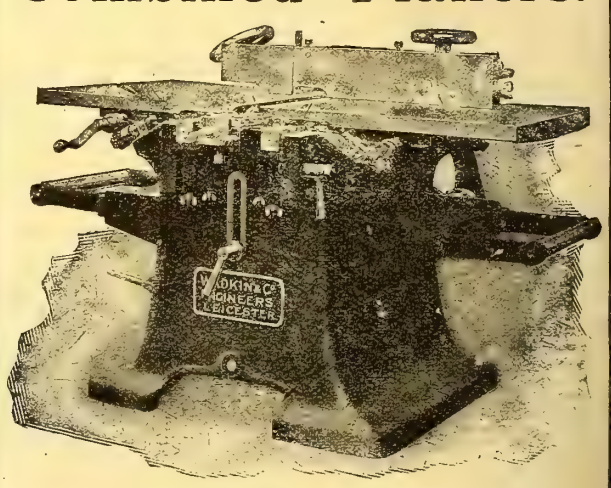

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COMMERCIAL AERONAUTICS & CIVIL AERIAL TRANSPORT

COMMERCE AND ECONOMY.

By "MEDWAY."

The editorial opinion of THE AEROPLANE as regards the economy stunt when applied to airships has already been expressed. Consequently, though I am privileged to differ with the editorial view as much as I like, I find in this case that the greater part of what I had intended to write has been anticipated.

Up to the present the only industry that really appears to have been effectively nationalised is the "stunt" industry. The Government is in effect the board of directors of a stunt factory, with Mr. Lloyd George as the managing director and principal inventor or adaptor. From the very beginning of the War we have been systematically doped with one stunt after another. Starting with "business as usual," we passed through the period of "push and go" to inquire what "daddy did in the Great War," and so on, until at the present moment, with the able assistance of certain sections of the daily Press, we have reached the Economy stunt. This, having been freely advertised in advance, has now been taken up by the government factory, which anticipates a heavy demand. The only trouble is that, in the hurry of the moment, the board of directors has completely lost sight of the real meaning and virtue of the word and quality of which it is talking so glibly.

SO-CALLED ECONOMY.

Before the war we had plenty of samples of economy, so called. For the time being we refused to spend money on the development of aeroplanes or airships. The result was a subsequent expenditure under each heading vastly greater and vastly less efficient than it need have been. Only a few days ago Mr. Lloyd George made it clear that he did not consider that all wars were over for good and all. This was when he was discussing tests of what constitutes a key industry. Let us take his four tests and consider whether the Airship Manufacturing Industry does or does not conform to them.

Test No. 1. Whether the industry was revealed to be essential for war or the maintenance of the country during war.

Comment on this point would be altogether superfluous.

Test No. 2. Whether during the War it was discovered that the industry had been so neglected that there was an inadequate supply of goods produced in the industry for the purpose of equipping ourselves for the essential task of war.

Test No. 3. Whether it was found necessary for the Government to take special steps to promote and foster that industry during the War.

Test No. 4. Whether, if that special Government support were withdrawn, the industry could maintain itself at the level of production which War has shown to be essential to the national life.

A SELF-EVIDENT TRUTH.

I had intended to comment on these four tests one by one, but when it comes to the point I find myself up against the difficulty that one cannot very well set out to prove a self-evident truth. The Airship Industry is, then, a key industry, though it has not been catalogued as such by the Board of Trade. It seems obvious that, unless we deny the possibility of any future wars, it is an industry that must be maintained. Despite this fact, the directors of the economy stunt have closed it down totally and entirely.

Let us now admit the inadmissible, and work on the assumption "that war will be no more." In that case, is the Airship Industry entirely superfluous? It is obvious enough to any thinking man that this is not so. There are plenty of jobs that cannot be performed with any degree of efficiency by any older method of transport, and can only be performed with very poor efficiency by the aeroplane. Wherever we have no prepared land route and no direct and suitable means of communication by water, the airship is the obvious pioneer to develop the beginnings of true commercial communication.

To stop airship construction at the present moment is economy on a par with what would be realised if we were to stop railway services and give up maintaining the roads, harbours, and docks. The advocates of economy seem entirely to have forgotten that economy, in the common sense of the term, is not an end in itself, but merely a means to an end. Its purpose is the creation of wealth. Just as there are more ways of killing a cat than by choking it with butter, so there are more ways of making money than by merely refraining from spending it. The gentleman who hid his talent in the ground was not regarded as the commercial, or even the moral, equal of the man who used his talent and turned one into ten, no doubt taking a certain risk of loss in the process.

AN APOPLECTIC FIT OF ECONOMY.

We are the possessors of an Empire of incalculable value. Its potential value is many hundreds of times greater than its present value. It is awaiting development. Development is impossible without expenditure, and hangs mainly on the provision of means of communication. Yet the Government, for the sake of a stunt, proposes to shut down all progress in respect of one of the most promising means of communication imaginable.

The Airship Industry, in its infant stage, if not actually nationalised, is completely under national control. The treatment it is receiving indicates the kind of risk we run if other means of communication become nationalised. At any moment any Government may be seized with a sort of apoplectic fit of economy. Every section of transport which does not look like paying within the next six months will then be ruthlessly shut down. The transport facilities that remain will be overburdened, but will show an apparent profit, for which the Government will take much credit. Meanwhile the commercial community, and through it the entire nation, will suffer losses thousands of times greater than the apparent profit secured by retrenchment.

Were we to adopt the permanent policy of regarding it as economical to refuse to incur any expenditure on communication that cannot be productive of immediate profit, we should never build a new railway or a new road in any part of the Empire. I have not a vestige of doubt but that there are many projects for railway and road building now on foot, such that a considerable loss in working for a period of years is accepted as inevitable. The capital cost of a railway is very high. The expenditure can only be justified by looking well ahead,

to the time when the railway will have developed sufficient traffic to make it pay. Meanwhile, interest must be paid upon capital. In very many cases an appreciably smaller loss would be incurred if, instead of building a railway at once, we ran commercial airship services for the first three years to develop the traffic up to such a point that the cost of constructing a road or railway would be immediately justifiable. The alternative in every such case is not between making a loss on airships and making no loss upon some other system, but between making a loss on airships and a bigger loss on the other system. In that case true economy would consist in increasing the manufacture of airships and working upon their design and construction to make them truly commercial vehicles. The thing can be done, and somebody will undoubtedly do it. Unless the present Government's policy in this connection is promptly reversed, some other country will get not merely the kudos but the sound commercial advantage of becoming the world's great producer of airships. Their production will give profitable employment to a large amount of skilled labour. It will cause money to flow into the producing country.

Appreciation of Depreciation.

At the moment the whole policy of the British Government appears to be in favour of an outward rather than an inward flow of money. Imports are unrestricted and free, and the Prime Minister has the supreme impudence to tell the British manufacturer that the depreciation of our currency is as good as a substantial import duty. One would imagine that the less the value of the pound sterling the better the Government would be pleased!

Here, in airship manufacture, we have an unexampled opportunity for those who believe in nationalisation to build up an industry, nationalised or State-controlled from birth, and to develop it for the profit of the country. The Government prefers a policy of absurd parsimony masquerading as economy, and is apparently determined to throw away an accumulation of enormously valuable experience simply for the sake of a trifling temporary reduction in expenditure.

The Press that has been vocal on the score of economy has during the past few months been equally emphatic on the importance of commercial aeronautics. It worked strenuously to get the Government to take a long-sighted view of the value of aerial communications. Success appeared to be more or less in sight. Then suddenly the new stunt is officially staged, and our national policy is reversed to conform to it.

Our great job now is to develop the value of the British Empire so as to make good the depreciation in value due to the War. This can only be done by developing our means of communication. Aerial communication will be a big factor. All experts are agreed that in certain spheres the airship is notably superior to the aeroplane. Yet it is seriously proposed to sacrifice probably thousands of millions of Empire value in order that a political opportunist may be able to point out to a grateful and unintelligent community that he has temporarily reduced its financial burden by a few hundred thousand pounds!

A ROOF AERODROME

By Captain M. G. Kiddy (late R.A.F.), Assistant Secretary, The Society of Architects.

Mr. A. W. Gattie, chairman of the New Transport Company, has proposed a Central Clearing House for London goods traffic, having a roof-aerodrome for the landing and taking-off of aeroplanes carrying mails and merchandise.

This sounds very alluring, but I for one should not care to be one of the pilots employed. I do not quarrel with Mr. Gattie's statement that a roof area of 15½ acres provides sufficient space for the landing and taking off of smaller machines of the present-day type; but these machines have not sufficient carrying capacity to justify the enormous expenditure involved in the construction of the proposed building, and it is a question whether machines having sufficient cargo-space to allow the outlay would be able to land and take off from a roof of this size.

The "wind-cornices" suggested by Mr. Gattie would not, in my opinion, solve the problem of air currents, i.e., cross-winds—rather would they tend to increase the danger by exposing the machines to sudden, and possibly violent, gusts the moment the "cornices" were cleared. It is not so much these difficulties which to my mind constitute the danger as the situation of the building itself.

A very frequent source of trouble in flying, and one which one ventures to prophesy will not lightly be overcome, is that of engine-failure just after leaving the aerodrome. Hence an aerodrome is always sited as far as possible in flat surroundings. What is going to happen if the engine fails when the machine has proceeded some 100 yards from the edge of this roof? To turn near the ground when the engine has failed is fatal, and has been the cause of death of more beginners than one cares to estimate. The only thing one can do is to glide straight down and land as best one can, *igitur* the flat surroundings, which obviate accidents. But if the surroundings are the roofs of other houses, what is the pilot to do? He will be lucky to kill nobody other than himself.

Night flying, it seems to me, will increase the danger all round. Mr. Gattie's idea is to light the surface of the aerodrome from underneath. Apart from the effect this might produce upon pilots who are not total abstainers, I should think it would be very difficult to land under such conditions, as the effect of a dazzling surface to land upon is usually that of deceiving the pilot as to the actual whereabouts of the ground. One cannot speak from experience (Heaven be thanked), but one imagines that the effect must be somewhat similar to landing upon an aerodrome lightly covered with snow upon which the sun is shining—a very uncertain business.

The question of night-signals which was raised is not so important as those who discussed it appear to imagine, and could quite easily be settled without the aid of green searchlights or similar jazz-like decorative illuminations. It is quite a minor problem by the side of the others, and caused very little trouble during the war. But in any case machines will only be able to land one at a time, the remainder, as pointed out in Mr. Gattie's statement, having to circle round until the "all clear" signal is given. But who is going to land next? I must confess I should not care to sleep in the surrounding neighbourhood with such a noise in progress every night. The only amusing part about such a state of affairs would be when two pilots tried to land at once. One can imagine that a golfer missing an easy put would be relegated to the remote shades when this took place.

No doubt Mr. Gattie's architect could design a suitable building in collaboration with an experienced pilot, but even if the constructional and technical difficulties could be overcome, central London would appear to remain a very impossible spot for such a venture. One must conclude that Mr. Gattie would do very much better to adopt as his Clearing House Hounslow, or another convenient aerodrome—that is if he is a sufficient believer in the possibilities of civil aviation to do so.

A SEAPLANE WORKS FOR SALE

The business assets of the Norman Thompson Flight Co., Ltd. (in voluntary liquidation), are for sale by tender.

The company was established in 1912 at Middleton, near Bognor, Sussex, and made the first British-built flying-boat of present-day type. They have made naval and commercial seaplanes and military and commercial aeroplanes and parts. During the war the company was a controlled firm and supplied the Government with large and small flying-boats of their own design.

The premises consist of seaplane sheds, workshops, power house, etc., and cost over £15,000. The plant and machinery cost over £13,000. The worth of the freehold land and stock-in-trade on hand is over £30,000. Particulars and orders to view can be obtained from Messrs. Leask, Clemens and Co., Alderman's House, Bishopsgate, E.C.; or Messrs. Poppleton, Appleby and Hawkins, 4, Charterhouse Square, E.C.

AN AIRCRAFT WORKS DECREASING

Final notice was given on Aug. 27th to 500 out of the 900 remaining employees at Short Brothers' aircraft works, near Bedford, which has been taken over by the Admiralty.

Very large works with a railway were laid down during the war, and at one time thousands of workers were employed on airship work. The firm opened up an estate and built many houses. The district is known as Short's Town.

London-Paris Air Express

Second Week's Record

				Offical Weather Reports.
Monday	Left London	...	12.30	Patches of low cloud over the whole route.
	Arr. Paris	...	2.48	
	Left Paris	...	12.30	
	Arr. London	...	2.45	
Tuesday	Left London	...	12.30	Strong southerly wind; clouds under 800 ft. in places
	Arr. Paris	...	3.5	
	Left Paris	...	12.30	
	Arr. London	...	2.30	
Wednesday	Left London	...	12.30	Thick fog in the morning. Low clouds and drizzling rain. Misty all day.
	Arr. Paris	...	2.50	
	Left Paris	...	12.30	
	Arr. London	...	2.25	
Thursday	Left London	...	12.34	Strong south-westerly wind. Very low clouds at times. Bad visibility in England.
	Arr. Paris	...	2.45	
	Left Paris	...	12.30	
	Arr. London	...	2.49	
Friday	Left London	...	12.30	35-40 miles per hour southerly wind in channel. Very gusty.
	Arr. Paris	...	3.0	
	Left Paris	...	12.30	
	Arr. London	...	2.50	
Saturday	Left London	...	12.30	Mist and haze generally; clouds under 500 feet in places.
	Arr. Paris	...	2.50	
	Left Paris	...	12.30	
	Arr. London	...	2.30	

The attention of Bankers, Merchants, and firms who have houses both in London and Paris is again drawn to the unique facilities offered by this service, which has run throughout the past week without a single breakdown or delay. It permits urgent documents, express goods, or passengers to be transported between London and Paris in an average flying time of 2¼ hours. The service is being operated to demonstrate that, with the use of skilled pilots and fast machines, such an express air service can now be run with sufficient reliability to afford a definite, daily convenience to the business world.

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CIVIL AERIAL TRANSPORT NOTES.

GREAT BRITAIN.

The Air Ministry announced on Sept. 5th that the report circulated in the Press a few days ago that a hitch had occurred in the signing of the International Air Convention is without foundation. It is pointed out that aerial communication between London and Brussels is permissible, provided that no goods are carried.

The Air Ministry announced on Sept. 6th that Lt.-Col. W. D Beatty and Lt.-Col. W. O. Raikes, of the Air Ministry, had started at 11.5 a.m. that day from Hounslow for Italy in a Bristol fighter machine with Col. Beatty piloting. Certain outstanding points were to be settled with the Italian authorities regarding civil aerial communication. Stops were to be made at Paris, Lyons, Fréius, and Pisa. It was expected that the machine would reach Rome at 5 p.m. on Sept. 7th.

The Berkshire Aviation Company.

The Berkshire Aviation Co. state that they hold the only two licensed flying-grounds at Derby and Nottingham—respectively Hill Meadow and Sneinton Junction Meadow. Passengers are carried there by Lts. J. D. V. Holmes and Alan J. Cobham (late R.A.F.).

In the last four months flying has been given at twenty different towns, including, besides Nottingham, Derby, and one or two smaller places, Bedford, Chesterfield, Leicester, Loughborough, Northampton, Oxford, Reading, Stoke-on-Trent, and Swindon.

Avro Northern Stations.

During the week ending Sept. 6th 551 flights were made and 1,142 passengers were taken up.

London-Paris Air Services.

The air service to Paris by Aircraft Transport and Travel, Ltd., has run daily since it started, over a fortnight ago. Only on one flight was a landing en route necessary. The pilot made a ten minutes' stop at Marquise Aerodrome to make a small adjustment, and then continued the journey.

The company expected an efficiency of 80 per cent. before they started the service. As flights have been made in both directions every day, except on one, when a 100-m.p.h. gale prevented the machine from leaving Hounslow, an efficiency of nearly 100 per cent. has been obtained.

Among the parcels and goods carried by the machines have been bankers' scrip, leather, films, photographic plates, champagne, sweetmeats, grouse, bills of lading, plans and drawings, dress material, newspapers, millinery, samples of clothing, and Devonshire cream.

Lately the company's agents in Paris have been negotiating for the regular carriage, in consignments spread over various days of the week, of as much as 600 lb. and 1,000 lb. of goods. It is proposed that certain vaccines, which must be used within 24 hours or their potency is lost, should be consigned for aerial transport.

Mr. G. H. Davis, an artist, recently flew to Paris and back on business. During the outward flight he completed two pencil sketches of the country beneath and a wash drawing of the Channel boat nearing Boulogne. The next day, on the return trip, he finished another pencil sketch and a black-and-white drawing of the cloud effects over the Channel.

LONDON—PARIS AIR SERVICES.

Date.	Type	Left Hounslow	Arr. Paris	Left Paris	Arr. Hounslow	Pass	Weather
Sept. 1st	D.H. 4a	12.30 p.m.	2.48 p.m.			1	Low clouds
	D.H. 4a			12.30 p.m.	2.45 p.m.	2	
	D.H. 16			12.30 p.m.	3.10 p.m.	4	
Sept. 2nd	D.H. 4a	12 30 p.m.	3 5 p.m				Strong south wind, cloudy
	D.H. 4a			12.30 p.m.	2.30 p.m.		
Sept. 3rd	D.H. 4a	10.55 a.m.	1.10 p.m			spar's	Mist, low clouds drizzling rain
	D.H. 9	12 30 p.m.	2.50 p.m.				
	D.H. 4a			12.30 p.m.	2 25 p.m.	2	
	D.H. 9			12.30 p.m.	2.45 p.m.	1	
Sept. 4th	D.H. 4a	12.34 p.m.	2.45 p.m.				Strong S.W. wind, low clouds, bad visibility
	D.H. 4a			12.30 p.m.	2.49 p.m.	1	
Sept. 5th	D.H. 16	12.30 p.m.	3 0 p.m			2	35-40 m.p.h. south wind, very gusty
	D.H. 9			12 30 p.m.	2,50 p.m.	2	
Sept. 6th	D.H. 9	12.30 p.m.	2 50 p.m.				Mist and haze
	D.H. 4a			12.30 p.m.	2.30 p.m.		clouds under 500 feet

Handley Page, Ltd., sent a machine to Paris on September 2nd, carrying seven passengers and goods. It left Hounslow at 12.50 p.m. This machine returned to Hounslow on Sept. 4th, and arrived at 5 p.m. During the week on these services Handley Page have carried 33 passengers and 600 lb. of goods.

Blackpool.

Capt. Lloyd (late R.A.F.), an Avro pilot, recently attempted to fly from Blackpool to Barmouth, with a passenger. They left Blackpool in fine weather, but while passing over the Merionethshire mountains in the Corwen district, they flew into a heavy mist which developed into a bad storm.

The pilot experienced great difficulty in controlling the machine, and on coming out of the mist found that they were well out at sea.

Owing to the storm over the mountains a landing had to be made at Rhyl. The journey to Barmouth was completed later.

Brighton.

During the week ending Sept. 6th 50 flights were made from the Ladies' Mile Aerodrome and 100 passengers were carried in Avro machines.

The weather was very indifferent all the week, and it was impossible to fly for some part of every day. On Saturday afternoon passengers were taken up at Chichester, and a cross-country flight from Brighton to Chichester and return with two passengers was made.

Harrogate.

Passengers were taken up during the week ending Sept. 6th in Airco machines.

Herne Bay.

At Herne Bay there are hundreds of spectators and always many passengers waiting their turn. Flights are being given around the Fleet for £3, and already many trips have been booked.

Leicester.

An aeroplane, piloted by Mr. Alan Cobham, who has been conducting passenger flights at Aylestone Park, Leicester, met with a mishap on Sept. 5th. The machine had only risen to a height of 10 ft. when the engine failed.

Mr. Cobham, and two women passengers he was carrying, received bruises and cuts. The machine ran into a thick hedge.

London.

Hounslow.—During the week ending Sept. 6th the Avros made 85 flights and took up 149 passengers. Cross-country flights were made as follows:—One to Margate, one to Weston-super-Mare, two to Brooklands, and one to Woolwich and return.

On Sept. 8th an officer of the Guards chartered an Avro at Hounslow and flew to Hythe. He started at 7 a.m. to be in time for a musketry course which commenced there that morning.

The Avro Co. is not running any regular service to the Continent, but in its capacity as "Air Taxi" is always ready to take passengers there when they want to go. Its first flight to Paris was made on Saturday, Sept. 6th, when the Avro limousine, piloted by Capt. R. T. Fagan, D.F.C., left Hounslow at 4.50 a.m. carrying two Norwegians, Mr. Robshon and Mr. Waase. A non-stop flight was made and Le Bourget was reached at 7.35 a.m.—a flight of 2 hr. 45 min.

Margate.

Avro flying at Margate has been exceptionally good this past week, and 273 passengers have been taken up, and have thoroughly enjoyed their trips. Many enthusiasts were over 60 years of age, and several under six. There were also a number of celebrities, including a well-known M.P. and his son. Tea is served on the aerodrome, which makes an afternoon at Manston a very pleasant affair.

Norwich.

On Sept. 4th over a thousand people, chiefly women, attended Mousehold Aerodrome, Norwich, to participate in the public draw for the first fifteen free flights given by the "Daily Sketch," the "Evening Standard," and the "Illustrated Sunday Herald."

Fifteen further free flights were given on Sept. 7th. Arrangements have been made also to give flights on Sept. 11th and 14th.

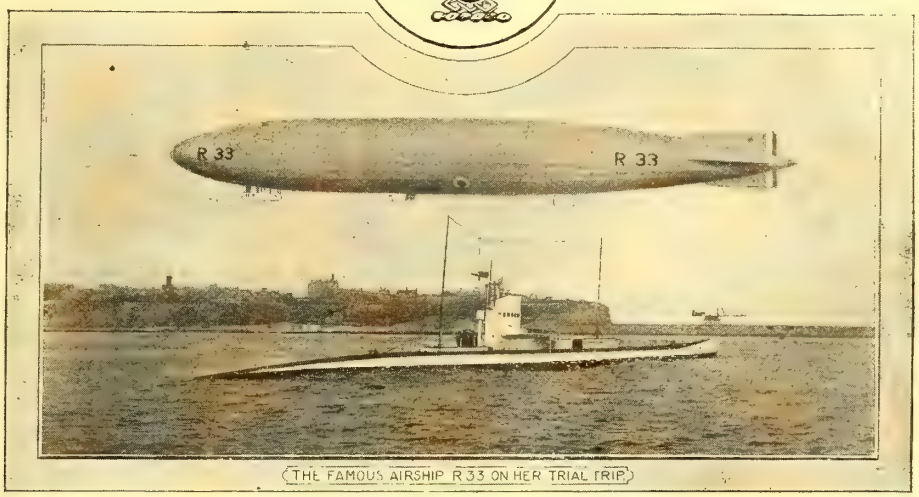
Paignton.

The Avro seaplanes here made 46 flights during the week ending Sept. 6th and carried 76 passengers. Flying was only possible on two days. Cross-country flights were made to Teignmouth and Babbacombe.

Sheffield.

The Sheffield Development Committee and Vickers, Ltd., have arranged to run an aeroplane passenger-carrying service during the Doncaster Races.

TRADE MARK



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BIRMINGHAM 1920

Chamber of Commerce, Birmingham.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

Twenty-four passengers can be carried each day in the machines, which will leave the Coal Aston Aerodrome on Sept. 9th, 10th, 11th, and 12th. The prices for the flights will be from £10 to £7 for the return journey and from £6 to £4 for the single journey. Those who pay the highest prices will have least time to wait at the racecourse before the first and after the last race.

SOUTHSEA.

From an aviation point of view, Southsea is very dull. The people, doubtless from having lived so long in a Naval atmosphere, resolutely know nothing whatever of the R.A.F., the aviation firms, or the places where one may find an aviation interest.

On inquiry it was found that no one knew the way to Calshot, except one man, of military origin, who referred to "those stiffs in the R.A.F."

For Lee-on-the-Solent one covers half Hampshire by train, and takes best part of the day to get there by train, ferry, tram, and a walk.

To return to Southsea. The town is more or less thinly placarded with advertisements for the Supermarine Company's boats, which fly, according to the bills, at Ryde, Shanklin, Southampton, etc. For Southsea one applies at South Parade Pier. When the weather is suitable, a boat flies over from Southampton and the South Parade Pier, carrying a blue and white flag. One is now awaiting suitable weather.

In a week the actual number of aeroplanes seen at Southsea were three small land machines—or they may have been float seaplanes—and, possibly, four flying-boats. All were very far out at sea and very small.

Whether these machines were Service or commercial it is impossible to say. But aviation hereabouts seems almost dead. Of course, one is not sufficiently near Southampton to see the immense activities of the Supermarine Company, and one has not seen anything of their Ryde activities. Possibly, the weather has been against much flying, as it has been squally, and a rather strong South to West wind blowing all the time. Still, the weather has been fine enough, and the sea fairly calm. After all, surely one flew in such weather during the late war?—S. F. B.

SWANSEA.

The weather was far from favourable during the week ending Sept. 6th, and there was no flying on Sept. 1st and 4th, and very little on Sept. 3rd. Altogether 122 flights were made and 214 passengers were taken up in Avro machines. Mr. F. G. M. Sparks is now the manager of the Avro Aerodrome.

WINDERMERE.

In the last two weeks the Avro seaplanes at Windermere have been chiefly engaged with carrying the "Daily News" to Douglas. They completed their contract last Wednesday. After delivering the papers to Douglas for this last time, Capt. Pixton filled up with petrol and flew over to Port Erin, and took up a few passengers there. Unfortunately, he could only manage a few, owing to lack of petrol, and he had to disappoint a great number. If he had had enough petrol he could have gone on taking passengers up indefinitely. It is possible he may visit there again before the season closes. One passenger at Port Erin took a passage back to Windermere, calling in at Douglas on the way. The weather was perfect, with not a breath of wind.

To summarise the "Daily News" flights to the Isle of Man—the Avros flew every day during August Bank Holiday week. The papers were taken from the 5.30 a.m. train at Windermere station and conveyed down to the seaplane base, where they were stowed into the machine, and a start was made at about 6.30 a.m. The seaplane usually arrived in Douglas about 8 a.m., and returned to Windermere about noon. About the time the week was finished the Steamboat Co. commenced running night boats three or four times a week, but the Avros continued the service when the boats did not run. They made 12 journeys in all, and only failed to cross three times, once due to engine trouble and twice due to gales blowing. As Capt. Pixton is the only pilot there, he had to neglect the local business somewhat, but the I.O.M. flights have been a splendid demonstration of the usefulness of the Avro seaplane.

AUSTRALIA.

According to the "Melbourne Age," a party is surveying Australia to find sites suitable for landing-grounds. Mr. Reginald Lloyd, the head of the party, has stated that Sydney is to be brought within 6½ days of London.

Mr. Broadsmith, the ex-chief engineer of A. V. Roe and Co., Ltd., has joined the Australian Aircraft and Engineering Co. He will be the direct representative of the Avro Co. in Australia. He is taking out there with him a fleet of Avro seaplanes and aeroplanes. The "Joy-Stick" states that the fleet will be the largest yet seen in the Southern Hemisphere

SOUTH AFRICA.

Major Miller (late R.A.F.) and his colleague hoped to start a service between Johannesburg and Pretoria at the beginning of this month. The standard Air Force engines, for the British machines to be used, had arrived on July 31st. Passenger-carrying flights were probably made before the regular service was started.

They also hoped to have two or three machines in Cape Town during the Peninsular season, so that the public would be educated to flying. Major Miller has said that no long services will be started until they have the confidence of the public, when they hope to form a large company entirely with South African capital.

Aerial photographic work will also be done, as there is a great future for that business in the country.

THE ARGENTINE.

Major S. G. Kingsley (late R.A.F.), of Aircraft Transport and Travel, Ltd., has been in the Argentine for some weeks. A cablegram has been received by the above-mentioned company in London to say that he has formed an Anglo-Argentine Aviation Company. No further information is yet available.

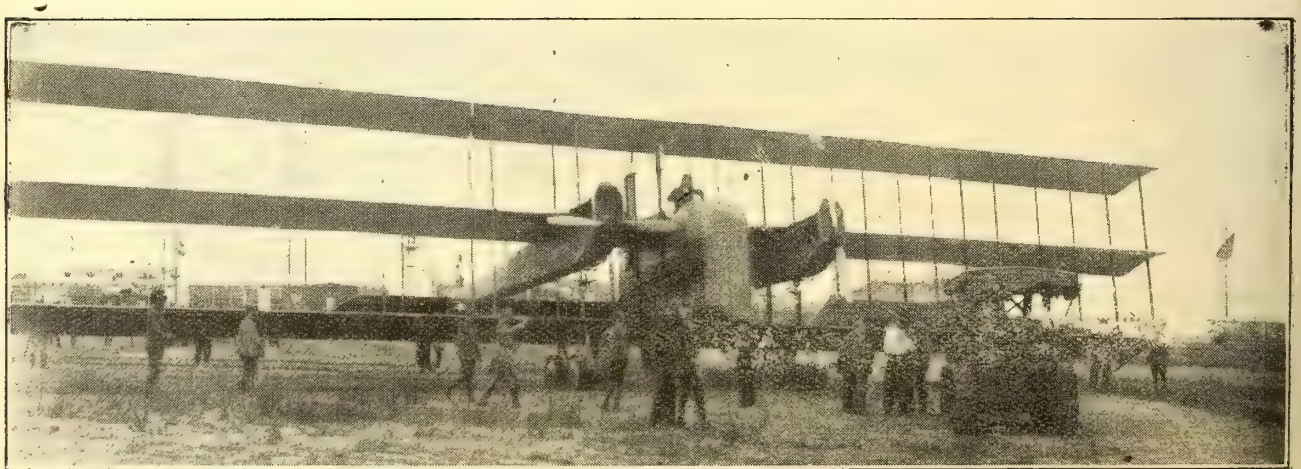
BELGIUM.

Further details are now available as to the proposed aerial service over the Belgian Congo. A mission consisting of Capt. Michaux, recently in charge of the Brussels-Paris aerial service, Lieut. Tony Orta, and M. Allard has recently been sent to the Congo by the Belgian Government. This mission is to undertake the actual organisation of the service.

Twelve seaplanes are to be employed on the service between Kinchassia and Stanleyville, a distance of about 1,050 miles. The route is divided into three sectors, and alighting stations are provided in each.

Transport at present takes 24 days to complete the distance by river. By air it is estimated that Stanleyville will be reached in three days, while seven or eight will be taken on the out-and-return journey, including the stay at Stanleyville.

Each machine will be able to carry two passengers, the charge to Stanleyville will be about £130.



Front View of the Caproni Triplane (three 400 h.p. Liberty engines) now at Amsterdam.

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NOVEL COMPETITION.

A Caudron Biplane, G3. type, in nearly new condition, complete with Gnome engine, will be presented to the first twelve pupils, who will be allowed to decide in what form a competition shall be arranged for its ownership.

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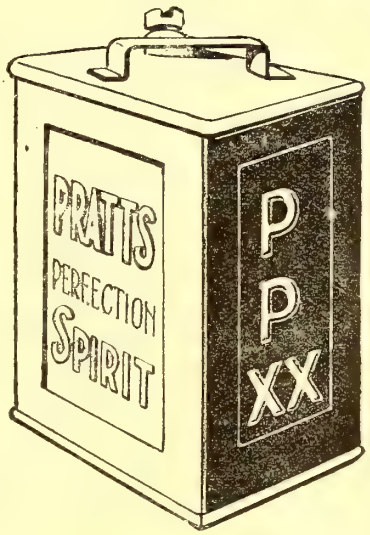

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An aerial photographic survey of the country will shortly be made.

The inclusive cost of providing the service will be about £50,000, and it is hoped that the first regular flights over the first sector will be made in February next and that the line will be in complete running order by July, 1920.

FRANCE.

The cyclone on the evening of Aug. 28th did considerable damage at Villacoublay. The large four Hispano engined Voisin biplane, type 12, was completely wrecked. This machine took the French football team to Brussels some weeks ago. Altogether, Voisin's loss from the storm amounted to about two million francs. Other firms on the aerodrome lost in proportion.—E. N.

The Coupe Deutsche, which is given for the fastest flight over a circuit starting and ending at Saint Germain, of which the turning-points are Senlis and Mélun, was won on Sept. 2nd by M. Sadi Lecointe, flying a Spad-Herbemont biplane (300 h.p. Hispano-Suiza). It is necessary for a competitor for this cup to exceed the speed of the previous holder by 10 per cent. before he can be awarded the prize.

M. Sadi Lecointe left Saint Germain (the starting-point is the Pavillon Henri Quatre of the great chateau) at 10 h. 21 min. 5 sec., and arrived back at 11 h. 9 min. 13 sec., having covered in 48 min. 8 sec. a distance of 124.28 miles at a speed of roughly 152 miles an hour.

The previous holder, M. Gilbert, flying a Deperdussin monoplane, covered the same distance in 1914 at a speed of 109 miles an hour.

The Toulouse-Casablanca aerial post, made possible by the ratifying last week of a convention between France and Spain, began its service on Sept. 1st. An aeroplane left Toulouse at 6 a.m. and flew to Casablanca *via* Barcelona, Alicante, Malaga, Tangier, and Rabat.

The official opening of the route will take place on Oct. 1st, when the passenger service will begin.

The lengths of the stages on the Toulouse-Rabat aerial service are as follows: Toulouse-Barcelona, 236 miles; Barcelona-Alicante, 298 miles; Alicante-Malaga, 314 miles; Malaga-Rabat, 212 miles. Total, 1,060 miles.

A league for the development of aerial post in Morocco has been formed in Casablanca. Several big merchants and aviators have already become members. Letters will be carried at a charge of two francs apiece.

An aerial transport service between Nice and Bordeaux will shortly be opened.

A Parisienne recently missed the night train to Cherbourg, where she was to sing the next evening. The price asked for the journey by a motor firm was £100, so she flew in an Air Transport Co.'s machine. The journey cost her £22.

M. Etienne Poulet, who is practising for a flight from Paris to Melbourne, made a series of flights at the "haute école aerienne" at Angers on Sept. 6th and 7th. He is piloting a Caudron biplane (Le Rhone engine).

M. Alexis Maneyrol attempted on Sept. 2nd to fly from Paris to Rome and back in one day on a Morane-Saulnier monoplane (160 h.p. Le Rhone). He left Villacoublay at 5.51 a.m. and landed at Rome at 12.40 p.m. At 15.40 p.m. he left Rome for Paris. He landed, owing to fog, at Pisa at 4 p.m.

Madame Jane Hervieu, who was one of the first women to adopt aviation as a profession, is leaving for the United States. She has signed a contract to act as one of the Curtiss Co.'s pilots.

M. Chevillard, whose skill as an aviator charmed the British on many occasions before the war, left Toussus-le-Noble on Sept 1st for Madrid, piloting a dual-control Farman biplane, type F.46. His instructions were to examine the Paris-Madrid route in order that plans may be made for a future aerial service between the two cities.

GERMANY.

It is stated from Munich that on Aug. 27th revenue officers flying in an aeroplane landed at Bamberg in order to arrest a smuggler. Finding he had left, they flew on to the Swiss frontier, where they awaited his arrival. He was arrested finally with 10,000 marks' worth of unstamped bank notes in his possession.

HOLLAND.

E.L.T.A. NEWS.

A correspondent, writing from Amsterdam on Sept. 2nd, sends the following news:—

The exhibition aerodrome is wetter than ever. The "Kangaroo" is the only large machine now taking up passengers.

Three machines arrived here to-day sent by the French Government—a Farman 40, a Farman 50 and a Nieuport 29. The other French aviators are Fonck, with a "Baby" Spad, and Bourgeois, with a Morane "Parasol" two-seater.

Capt. Gathergood (late R.A.F.), piloting a new Airco D.H.9.R. machine to the exhibition, flew from Hounslow to Soesterberg (25 miles from Amsterdam) in 2 hr. 10 min. on Sept. 5th. The engine is a 450 h.p. Napier. The machine had only been in the air for five minutes previous to the flight.

Capt. Gathergood states that he travelled at a speed of 134.5 m.p.h. Of the many flights which have been made from London to Holland during the E.L.T.A., this flight appears to have been accomplished in the fastest time.

A second Blackburn Kangaroo passenger-carrying biplane has arrived at Amsterdam, piloted by Capt. Wooley. The machine has been inspected by H.R.H. the Prince Consort of the Netherlands and the Dutch Minister of War. The latter's flight in the Kangaroo was his first experience in the air.

£16,000,000 has been subscribed towards the establishment of an aerial port at Ockenburg, near the Hague, according to the "Daily Express" of Sept. 3rd.

ITALY.

A Nieuport-Macchi machine landed at Varese (Como) on Sept. 4th, having made a non-stop flight from Barcelona in 5 hr. 50 min.

The Seaplane Circuit of Sicily, which takes place on Sept. 14th, will be over a course of which the following are the controls: Palermo (departure), Lefalu, Milazzo, Messina, Catania, Syracuse, Cap Passaro, Licata, Sciacca, Marsala, Trapani, and Palermo (finish). Sixteen Italian and two French entries have been received. The machines entered are mostly F.B.A.s with 160 h.p. Isotta-Fraschini engines. The French entrants are Enseignes de Vraisseau Gizard and de Cuverville.

The Italian correspondent of THE AEROPLANE writes:—Officers, men, and motorists are to prepare the way for the D'Annunzio regularity flight to Tokio. They left Spezia for Bangkok and other towns *en route* on Aug. 25th. The flight is not likely to start before October.—T. S. H.

An Italian soprano who was under an engagement to sing in Paris on Sept. 2nd missed her train at Milan. She hired an aeroplane and arrived in Paris in good time. The pilot made only one landing on the way, at Bron Aerodrome, near Lyons, where he stopped to refill with petrol.

PORTUGAL.

The "Diario de Noticias," a Lisbon news-sheet, states that it intends to offer a prize for a flight from Lisbon to Portuguese Guinea in order to encourage the development of aviation.

NORWAY.

The Handley Page machine piloted by Maj. T. Gran and carrying his wife and other passengers crashed on Sept. 6th. The machine ascended at 10.30 a.m. from the military aerodrome at Kjelles, near Lillestroem (north of Christiania), to fly to Stockholm. One of the engines stopped just after leaving the ground. Maj. Gran endeavoured to make a landing, but the machine fell between some houses and crashed badly. One wing and the undercarriage were completely smashed.

SPAIN.

A free passage has been granted by Spain to all aeroplanes belonging to French companies flying over Spanish territory between France and Morocco. A regular service between these two countries will be started very shortly.

UNITED STATES OF AMERICA.

The inauguration flight of the aerial mail service from San Francisco to Sacramento was made on July 31st. Two other De Havilland machines accompanied the mail plane, which carried as a passenger a well-known San Franciscan dancer.

The National Air Service Co. of Washington state that a regular passenger-carrying service between Washington and New York is to be started as soon as safe landing-grounds have been made.

A service between New York and Boston is also contemplated, and the Chambers of Commerce of both cities have been asked for information as to landing-grounds.

Capt. C. L. Glidden, of the Aero Club of America, has announced plans for an international trans-continental aerial Derby from New York to San Francisco. Over £20,000 will be given in prizes.

The following is extracted from a long article by Otto Praeger, the Second Assistant Postmaster-General, in the "Aircraft Journal," of August 23rd:—

A year and three months ago the regular airplane mail was launched with a little army training plane out of Washington and another out of New York, each carrying 200 pounds of letters.

To-day eight mail airplanes travel 1,900 miles each day despite the weather.

A machine carrying 13,000 letters flies from New York City at 5.0 a.m. every morning for Cleveland and Chicago. It

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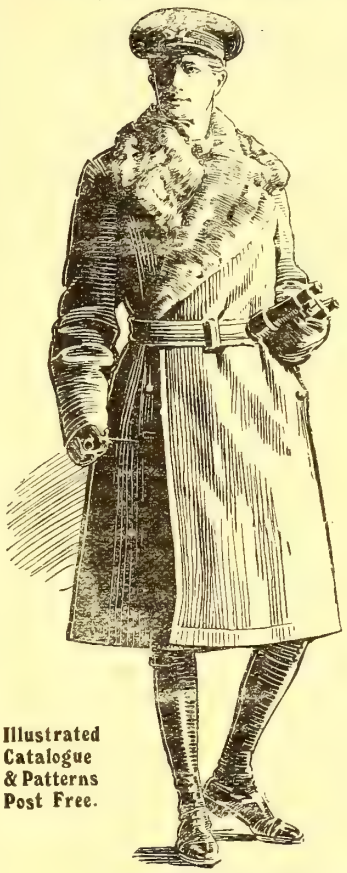

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The materials are especially woven for air-work, and withstand intense pressure from wet or wind without the aid of rubber or other air-tight agents, which, by preventing hygienic ventilation, induce condensed moisture and consequent injury to health.

The Tielocken Air-Warm by means of overlapping fronts, doubly shields every vital area of the body. Another advantage is its unique method of fastening, which consists solely of a strap-and-buckle—no buttons to fasten or lose.

Flight or Mufti Kit to Order in 2 to 4 Days or Ready-to-Wear.

Every Burberry Garment is labelled "Burberrys."

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CUT MAINTENANCE COST

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which does not rust or corrode.

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THE great extension of premises, plant and machinery effected during the war makes it possible for us to deal promptly with orders for all kinds of

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We invite enquiries.

TRADE MARK

GODBOLDS

arrives at Cleveland before 9.30 a.m., and at Chicago before 1.30 p.m. This service advances the mail to the Middle West by sixteen hours, and to the Pacific Coast twenty-four hours. A similar service is run from the East.

Since the air mail service started it has covered 272,628 miles, and has carried a total of 11,845,980 letters. If Congress will give the money we will put the air mail next year from the Atlantic to the Pacific in forty hours instead of four days, and from Boston to Havana in a little more than twenty-four hours instead of sixty hours or more by railway and boat.

The service is so costly that as yet it can be established only between the largest commercial and railway centres, where it can expedite the largest amount of mail to the largest number of people. The day will come, but it is not yet, when the air mail will operate between every important city in the United States.

When the Post Office Department inaugurated the aerial mail a delegation of military men connected with flying operations called upon me, accompanied by a colonel of the British Air Force, to dissuade the Post Office Department from attempting to run a daily airplane mail schedule, on the ground that airplanes cannot be flown in rain or fog. But we operated the entire first year, scoring a performance of 92.73 per cent., despite weather and frailties of airplane construction.

The Cleveland-Chicago stage (325 miles) has been flown daily since May 15th without a single forced landing from engine or any other trouble. The service has been carried on, with rebuilt D.H.4 biplanes with Liberty engines, through 80 m.p.h. gales, the aeroplanes flying both ways. Since the inauguration of the service only two aviators have lost their lives.

The Post Office Department has contributed directly to the advancement of aviation in (1) demonstrating the possibility of maintaining a dependable daily schedule by aeroplane all the year round; (2) giving encouragement to an inventor and causing his improved type of compass to be put into general use; (3) encouraging an inventor in the development of a self-cleaning, non-cracking sparking plug; (4) requesting the Bureau of Standards to work on a device to allow aviators to locate or accurately spot a landing ground by sound when it is perfectly invisible; (5) testing and adopting the gyroscopic turn indicator, to enable pilots to keep their machines straight in a fog; (6) by using a new alcohol fuel.

The Department is converting a D.H.4 machine into a twin-engined aeroplane capable of carrying 600 lbs. of mail. Fitted with two 150-h.p. Hispano-Suiza engines the machine travels at 103 m.p.h. with both and 80 m.p.h. with one engine. Two six-cylinder 200-h.p. Liberty engines are to be installed in this machine.

All of the planes in the air mail service are being made safe against fire by completely isolating the engine and gasoline compartments by asbestos fire walls. Each compartment is protected by pressure fire extinguisher system, and the mail itself is safeguarded by non-inflammable canvas bags.

In spite of this record of the mail service Congress is being asked to put this with the other air services under military and unified control, on the assumption that the Post Office Department cannot operate a separate air mail service as economically as it might be operated by a military organisation. An investigation of the cost of military flying as compared with the cost of the air mail operations will settle that contention conclusively.

* * *

Rice growers at Colusa are contracting with a local company for an aerial patrol to protect 15,000 acres of rice from the ravages of ducks, geese and mudhens. It is believed that the regular flight of aeroplanes over the fields at low altitude will so frighten the birds that they will leave for other parts.

A COMPLIMENT TO THE WRIGHT COMPANY.

The Director of Air Service, Washington, states that the following telegram is being sent by the Air Service to Mr. Orville Wright:—

> "The congratulations of the Air Service are extended to you on the tenth anniversary of the delivery of the first airplane to the Government of the United States, first in the world to acquire a dynamic aircraft. The Air Service appreciates to the full the ever-increasing debt owed by mankind to the Wright Brothers, whose foresight, indefatigable research and practicable application have aided world progress through the invention of a new means of communication.—MENCHER."

"It will be recalled that 10 years ago, on July 30th, the United States acquired the first airplane. The Government was the first in the world to be the possessor of an airplane, but had, however, no pilots. Later in the season the following American Army Officers were taught to fly by Wilbur Wright, 1st Lieut. Frank P. Lahm, now Colonel, and 1st Lieut. B. D. Foulois, now Brig.-General.

"On July 30th, 1909, Orville Wright and B. D. Foulois together made the second and final trial flight with the Wright machine contracted for by the Government the year before. This was a cross-country trip of five miles in each direction, with and against the wind. The speed made was 42 miles an hour. On July 27th the endurance test of one hour was made in a flight which totalled 72 minutes, with 1st Lieut. Frank P. Lahm. Lieut. Lahm has the distinction of being the first American Army Officer to fly.

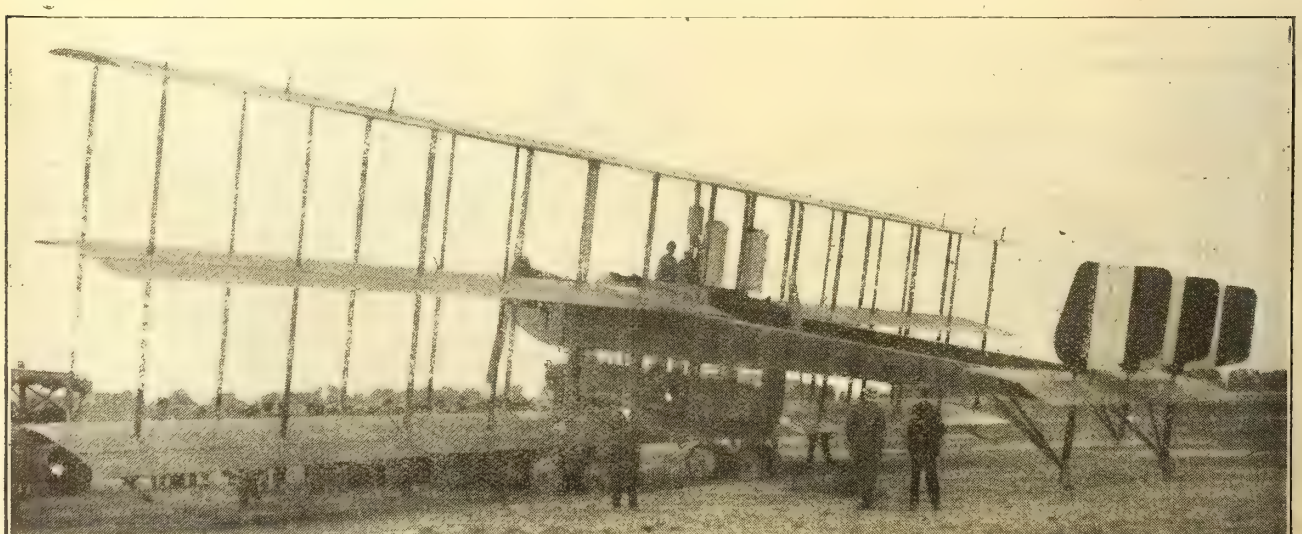
"While the Wright Brothers were negotiating in foreign countries for the sale of patent rights, they were communicated with by the United States Government, and in the winter of 1907 the Chief Signal Officer, General James Allen, advertised for bids for an airplane. Of 22 bids three were accepted. The Wright Brothers were the only ones to deliver a machine. In September, 1908, official demonstrating flights were begun at Fort Myer, near Washington, in the fulfilment of the contract, but the death of 1st Lieut. Thos. E. Selfridge, passenger, and the accident to Orville Wright, the pilot of the machine, postponed flights until 1909. Lieut. Selfridge was the first man in the world to be killed by a power-driven airplane.

"The contract price of the machine was $25,000. The maximum speed demanded was 40 miles an hour, with a bonus of 10 per cent. for each mile per hour in addition. The Wrights received $30,000 for a speed of 42 miles per hour. This was paid out of the funds of the Board of Ordnance and Fortification."

AEROPLANE ENGINES FOR SALE.

The Disposal Board of the Ministry of Munitions has for sale several 75 h.p. aero engines. It is stated that they are suitable for stationary groundwork. A 200 h.p. 8-cylinder aeroplane engine has been installed in a factory. Coal gas is being used as a fuel, and the engine is running satisfactorily.

A Belfast daily newspaper is stated to use an ex-R.A.F. engine in their printing works.



Three-quarter Back View of the Caproni Triplane (three 400 h.p. Liberty engines) now at Amsterdam.

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HANGARS

D. ANDERSON & SON, Ltd.
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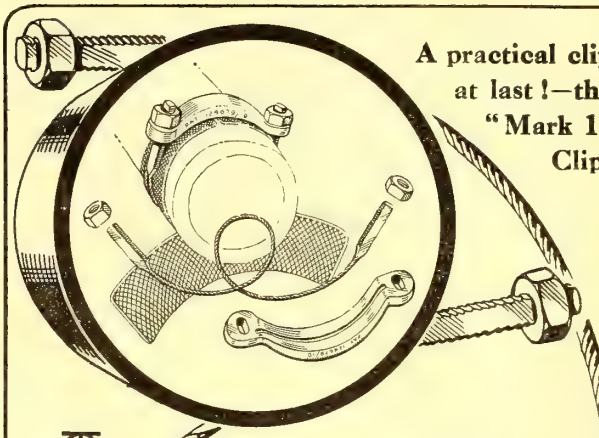
Roach Road Works, Old Ford, London, E.



A practical clip at last!—the "Mark 1" Clip.

NO LEAK at 250lbs. pressure!

At a recent test, the Simko water pipe clip held a joint at over 250lbs. pressure per square inch. This efficiency is due to the powerful contracting action of its stranded wires and prepared webbing. The simplicity of its construction, and the fact that it can be fitted and dissembled indefinitely, clearly show its advantage over ordinary clips.

Send a Post Card for descriptive pamphlet.

QUALITY SIMKO PRODUCTS

Simpson Williams & Co Sleaford, Lincs.

Y.E.S. Telegrams: "Y.E.S. LEEDS"

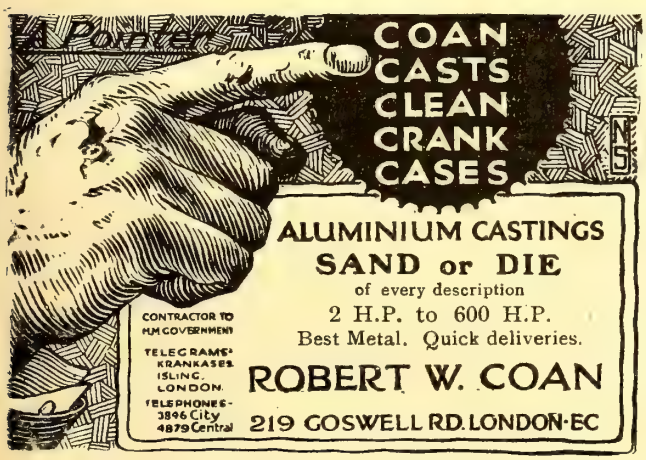
Y.E.S. PHOSPHOR BRONZES
Cast 'EATONIA' Process.

Bearings, Bushes, Gearwheels,
The most durable produced.

'EATONIA' CAST BARS are the only perfectly round and straight Bars, and the only HOMOGENEOUS CASTINGS.

Our Works contain Laboratories and Machines for all physical tests.

SOLE PRODUCERS & SELLERS,
YORKSHIRE ENGINEERING SUPPLIES, Ltd.
WORTLEY, LEEDS.



G. R.

MINISTRY OF MUNITIONS.

BY DIRECTION OF THE DISPOSAL BOARD.

FOR SALE BY TENDER.

2,177 Aviation Helmets

Tenders are invited for the helmets lying at the Royal Army Clothing Depôt, Grosvenor Road, Pimlico.

Application to view the helmets in bulk should be made to the C.O.O. at the above depôt.

Forms of tender may be had and samples seen on application to the Controller, Textiles, Leather and Equipment Section, D.B.3.b.4., Ministry of Munitions, Room 716, Caxton House, Westminster, S.W.1. Tenders returnable by 10 a.m. on 19th September.

Telegraphic address:—"Dirawmat, London."
Telephone—Victoria 8540 Ext. 263.

NOTE.—For "SURPLUS," the detailed list of surplus Government property for sale, apply at the nearest bookstall or to a local newsagent (to whom a standing order should be given). Compiled by the Director of Publicity, Ministry of Munitions, Whitehall Place, London, S.W.1. Price 3d.

AN INSTITUTE OF AERONAUTICAL ENGINEERS.

To-morrow, Sept. 11th, at 7.30 p.m., a meeting is to be held at 180, Sutherland Avenue, Maida Vale, W.9, by the embryo society known as the Institute of Aeronautical Engineers, which must not be confused with the affair which calls itself "The Aeronautical Institute."

To quote from the card of invitation, "matters of extreme importance to the aeronautical profession will be discussed and the scope and purpose of the Institute will be further determined." Mr. L. Howard Flanders will preside.

The older readers of THE AEROPLANE will remember Mr. Flanders as one of the pioneers of aviation who built a machine of his own at Brooklands, and before that was connected with the firm of A. V. Roe.

The objects of the Institute of Aeronautical Engineers are to promote theoretical and practical courses of instruction and to publish a periodical as an educational and reference work. It is proposed that all aeroplane design pupils should be taught to fly, as it is thought that "only by having flown various types of machines can the designer tell the degree of sensitiveness that is attainable."

There are to be five grades of membership—viz., Members, Associate Members, Pilots, Students, and Honorary Members. The first three will be designated M.I.Ac.E., A.M.I.Ac.E., and P.I.Ac.E. respectively.

The following letters give an indication of the reasons for calling the meeting :—

"Dear Sir,—In view of the strong trade union movement and of the Prime Minister's statement that the wishes of no body of people can be considered unless they are organised, it is high time that aeronautical engineers and pilots were organised to form one branch of the various middle-class unions that are springing up, the Society of Technical Engineers being an example.

"Such a union would ensure that pilots and others were adequately remunerated and that they received a suitable share of prize-money won in public competitions. Reasonable insurance rates for flying risks would be insisted upon, and the union would keep a record of the abilities of its members so that vacant posts would be filled by men with the requisite knowledge and experience.

"Under the existing laws such a society is an illegal conspiracy unless registered as a trade union. Consequently, I strongly urge that this society be primarily organised for the members' benefit and that it be registered under the Trade Union Act to enable it to work without fear of prosecution.

"I would suggest that as aeronautical work is of such a specialised nature all manual workers and draughtsmen be invited to join either as affiliated members with the consent of their own respective unions or separately.

"Personally, I regard this as an urgent matter, and I tried to do something on these lines in 1916, but pressure of work prevented my doing much.—(Signed)

"L. HOWARD FLANDERS."

The following is the reply to Mr. Flanders' letter from the organising secretary, Mr. Shaw :—

"Dear Sir,—I thank you for your letter. While I originally intended that the Institute of Aeronautical Engineers should deal with matters of technique rather than what I call industrial politics, you have convinced me that it should be organised to protect the various interests of designers, constructors, pilots, and aircraftsmen.

"I am therefore going to suggest that the scope of the Institute should be broadened so that it may serve the purposes which you have outlined. I therefore think it would be advisable to form the Aeronautical Defence Union under the auspices of the Institute of Aeronautical Engineers. The Institute would carry out the programme originally intended. The Union would be the Protection Society. Those who could not belong to a trade union could still be eligible for membership of the Institute, and members of the Union could proceed to the Institute for their examinations and diplomas.—(Signed) W. R DOUGLAS SHAW."

THE GOVERNMENT AND AIRSHIPS.

A meeting of those interested in commercial aviation was held in Australia House, Strand, on Sept. 8th, to discuss with representatives of the Air Ministry the question of the disposal of airships and the Government's policy for assisting aerial commercial enterprise. Representatives of all the large aircraft-producing firms were present.

As THE AEROPLANE was not allowed to be represented at the meeting it is impossible to give a verbatim report of the discussion. One is indebted to the "Times" for the following report :—

"Major-General Seely, Under Secretary of State for Air, presided. He said the Government was anxious to do the best it could for the State in the disposal of the lighter-than-air type of machine, and, at the same time, to aid commercial enterprise. The Air Ministry had been handed over a certain number of machines, and the Admiralty, having been consulted about its demands in the future, had reported that when the political situation cleared away—say in a month's time—it would be able to give a definite reply as to the number of airships and aerodromes it would require in case of emergency. The Air Ministry and the Admiralty would then combine to offer existing machines and machines in various stages of construction to those who would undertake the formation of a commercial air scheme. The assistance would include the use of wireless stations and meteorological information, and the Post Office would help in every possible way. In the case of any well-founded scheme airships would be sold at a very cheap rate. Business people would also have the advantage of sheds and trained personnel, and would have help in dealing with terminal points. The future of such a scheme was boundless, and he was sure that if they went into it in a businesslike manner, they would retain the supremacy in the air they had gained during the war.

"General Seely, answering criticism, said it would be wise for the Government to allow the firm to build any class of airship which might be deemed useful for commercial service, because any ship would be more useful to the Government, in hostile circumstances, than no ship at all. It was urgent on political grounds that the scheme should be launched as soon as possible. Air machines received from Germany would be included in the total that would be handed over for commercial purposes.

COMMITTEE TO DISCUSS DETAILS.

"Sir Trevor Dawson (Vickers Ltd.) approved the scheme in view of the promise of Government support, and suggested the formation of a committee of financial representatives to discuss details.

"Mr. Holt Thomas, Mr. Short (Bedford Aviation Company), Sir Glynn West (Armstrong, Whitworth and Co., Ltd.), and others expressed approval of the scheme, and it was decided to form the committee suggested, to meet General Seely, General Sykes (Controller-General of Civil Aviation), General Maitland, and other officials of the Air Ministry, to discuss details

"General Seely said he had the assurance of Lord Inverforth that red tape would not be allowed to hamper the negotiations in connection with the scheme. The matter was too important to brook delay. He was quite sure they would make of airship service of great good to the State, and they would have every possible chance to take the lead in the matter of airships, for the good of the Empire and mankind generally."

AERIAL KISSES.

The "Aerial Age," of America, published the following :—

"Sensational acrobatics that made Eddie Stinson, heretofore the most finished of the air pilots who have been amazing the throngs at the Atlantic City Airport, hold his breath from his "orchestra seat" a little off to one side in his own aeroplane, featured when Lt. Omer Locklear, former Army sky-skipper, mounted five times from one aeroplane to another by means of a rope ladder swinging clear in the air. Crowds below, who had been told that the lieutenant, who was the first man to jump from a plane above to the one underneath, would attempt to reverse the order, could see him standing upright on the upper wing and reaching for the ladder as one machine manœuvred by Lt. Melvin Elliott hovered over a second piloted by Lt. Shirley Short

"But it was Eddie Stinson who brought the real story of the manœuvres to the ground. 'I have seen some nice balancing and daring driving of aeroplanes, but those two pilots and Lt. Locklear showed me something new to-day,' declared Stinson, who himself was chief of aerial acrobatics in south-western army flying fields throughout the war.

"'While Lt. Locklear was swaying back and forth on top of the Short machine, Lt. Elliott swooped down from above, and so much confidence did those two drivers have in one another that the machines actually kissed one another, making it necessary for Lt. Locklear to drop and stretch out flat on top of the plane. Yet with cool daring he flipped upright again and grabbed for the ladder as they pulled away. It was the most remarkable aerial stunt. It was one of the most daring bits of game flying I have even seen.' Eddie had been up with a photographer, trailing the two planes throughout the trips.

"Crowds below knew nothing of the aerial kiss, but they saw the machines so close together that they looked as one skooting through the sky over a thousand feet in the air. Lt. Locklear, baffled by the wind, made three desperate trips across the field standing up on the wings of the aeroplane, while the throngs below nervously clutched one another fearing that he would be dashed to death at any instant. Just to show that he was still perfectly cool he proceeded to climb all over the plane as it swooped down within a hundred feet of the ground, once hanging by a precarious hold to the skid at the extreme tip of the right wing, and again hanging by his knees from the axle of the landing gear beneath the fuselage, permitting the wind to swing him back and forth head down like a pendulum."

AIRCRAFT FINANCE

CURRENT TOPICS

National Economies Affect Share Values.

It is feared that the Government's drastic economies in departmental expenditure must seriously react on the Aircraft Industry: already the shares are drifting to a still lower price-level. In the circumstances it is useless to blame the investor for developing "nerves" and throwing over such securities. It is the common belief that the manufacturing industry is still wholly dependent on Government orders. This is not so, of course, but it must be confessed that the volume of business from that source has been helpful during the transition period.

Future Uncertainties.

Anyway, the event may prove to be a blessing in disguise, in so far as the industry must work out its own salvation without delay and without expectation of a few "crumbs" from the table of the Treasury. Of course, it is a reversion to the old policy of *laissez faire*, unblushingly served up with a few trimmings. It may, however, enable commercial aviation to start with certain advantages derived from the uncompleted Government scheme. The Government cannot expect to obtain much for what it now proposes to jettison in the way of airships and stations and stores, so that the capital cost to the commercial venture would be comparatively small. There is some consolation to be derived from such a reflection, but only on the assumption that there are capitalists with sufficient confidence to seize the opportunity. The Government having paid for its experience, the newcomer should profit thereby.

Investors Expected Protection.

Such consolatory reflections, however, are negatived, or, in any event, neutralised, by the present economic position of the Aircraft Industry. The amount of capital at stake is considerable. Many people were induced to risk their money in aircraft propositions by the excellent war services so often belauded by responsible officials and by the belief that as a reward therefor a certain measure of protection would be accorded to the industry for a reasonable period after the war.

Some of the Movements.

In the case of Aircraft Manufacturing "B" Preference shares the price has fallen away to 14s. Not so long ago these were selling well over £1, and were then considered reasonably valued. After their recent recovery Handley Page Participating Preference have also suffered a setback, being not better than 15s. 3d. Waring and Gillow have many other irons in the fire than aircraft business, and for that reason have not been much affected so far. The same applies to Armstrong Whitworths and Vickers, both of which companies can afford to nurse their aircraft business until times are more propitious.

Millions That Must Be Raised.

One hopes that something concrete will result from the great aerial liner scheme discussed by its sponsors in the Press with so much enthusiasm. At the same time it must be confessed that the financing of such a venture to the tune of £2,000,000 will not prove an easy task. On the contrary, it may prove an insurmountable obstacle, for the man in the street has yet to be convinced of the economic and physical efficiency of an aerial passenger-service. The hint that the large brewery companies intend to help the scheme must strike the average person as being a little ornamentation and nothing better.

Subsidies: A Suggestion.

What is absolutely necessary in order to help the financial consummation of such an aerial transport venture is assistance from the Government. This help should take the form of a subsidy similar to that enjoyed by the big mail steamships. The fleet would constitute a reserve for military purposes just the same as the Blue Ensign.

W. J. DAVIES.

JOHN DAWSON AND CO.

John Dawson and Co. (Newcastle-on-Tyne), Ltd., aeroplane manufacturers, Newcastle-on-Tyne, and Wallsend.

A largely attended meeting of the creditors of the above was held on Aug. 9th, at the Institute of Chartered Accountants, Moorgate Street, E.C. Mr. H. B. C. Baldwin, C.A., of 29, Lincoln's Inn Fields, W.C., stated that the shareholders of the company had passed resolutions in favour of voluntary liquidation, and he had been appointed to act as the liquidator.

The figures, which he was submitting, would have to be regarded as entirely approximate, and a considerable time would elapse before a complete statement of affairs could be prepared. The liabilities totalled £105,865, being made up as follows: Preferential creditors £2,122, secured creditors £28,592, unsecured creditors £50,164, and contingent claims £25,885. The book value of the assets was £108,563, and, in certain circumstances, he felt he was justified in assuming that they would realise £91,872, or a deficiency of £13,993.

The principal secured creditor was the London, City and Midland Bank, whose claim aggregated £27,361. The security held by the Bank consisted of the deeds of the Wallsend property, which was a large and well-equipped factory. There was a debenture registered for £30,000. The debenture was held by the Ministry of Munitions, but nothing was due on it, as the company had fulfilled all the conditions laid down in connection with its issue.

A creditor said it was rather curious that the debenture was given on April 10th of the present year, and that as soon as the necessary three months had elapsed the company went into liquidation.

Mr. Baldwin said that was not the correct view to take. The company had a large contract with the Air Board, who refused to find any more money. The directors said that unless more money was found they would be unable to carry out the contract, and it was decided to give the debenture to secure any further advances made by the Air Board.

The advances were subsequently wiped out by the work done by the company. Mr. Humphrey, the governing director of the company, had been included as a contingent creditor for £10,701, and at least £8,000 of that amount represented cash advanced to the company. The other two directors were each contingent creditors for considerable amounts, but he was unable to give details of the claims. Messrs. Napiers, Ltd., were also contingent creditors for £5,000.

Under the Articles of Association the governing director had power to fix his own remuneration up to £4,000 a year, and also that of the other members of the Board. The remuneration of Mr. Humphrey had been fixed at £2,500 a year, while that of the other two directors had been agreed at £1,500 per annum. Messrs. Luke, Turner and Co. were claiming £3,200 in respect of a cancelled contract in respect of aircraft.

Mr. Baldwin further stated that attempts had been made to sell the assets of the company to another concern which was taking up the manufacture of furniture. A second business would also be transferred to the new company. A prospectus had been prepared and a firm of promoters approached. The promoter thought it was a proposition that could be brought out. The issue of the new company was to have taken place on July 28th, but was deferred in consequence of the disturbed state of the labour market. It was, however, believed that the matter could be proceeded with in the near future. From the new concern it was proposed that the present company should receive £45,000 in cash for the Wallsend factory in Lawrence Road, while £8,500 in

shares would be handed over for the preliminary work which had been done. The company possessed other assets of a substantial nature.

The company was formed in January, 1917, to manufacture Handley Page and D.H. spares, and during the first twelve months it did well. Last year the A.I.D. came down on the company and insisted on the organisation being largely increased. An enormous number of inspectors were taken on, and the overhead expenses increased to a very large extent. During the last three months of last year the unproductive wages represented no less than 75 per cent. of the wages bill.

A petition had been presented to the Court for the compulsory winding-up of the company for the voluntary liquidation to be continued under a supervision order. The hearing of the petition had been adjourned pending the holding of that meeting of the creditors. The company possessed a magneto of its own which was believed to be of value. It was hoped to sell the magneto rights to a syndicate or another firm engaged on similar work. There was an enormous stock on the premises, but most of it belonged to the Government. The company entered into a contract to build a large bombing machine. The arrangement was that the company should manufacture a machine, and if it came to within 10 per cent. of all that was claimed for it John Dawson and Co. would have a licence for the manufacture of the aeroplane. It was in connection with that machine that the contingent claim of Messrs. Napier's for £5,000 arose.

Mr. O. Sunderland, of the Motor Trades Guardian Association, proposed that application should be made to the Court for the appointment of Mr. E. H. Hawkins, of Messrs. Foppleton, Appleby and Hawkins, 4, Charterhouse Square, E.C., as joint liquidator of the company.

Mr. A. Houstoun seconded the motion, which was agreed to on a show of hands, and a committee of five of the principal creditors was also nominated.

WHITEHEAD AIRCRAFT.

LIST OF CREDITORS.—(Continued from last week.)

	£
General Electric Co., Ltd.	5
Gadsdons	5
Gillespie Partners, Ltd.	3
Green, G. W., and Co., Ltd.	49
Grove Chemical Co., Ltd.	6
Hobday Bros., Ltd.	65
Hickey and Son, J.	2
Hoffman Manufacturing Co., Ltd.	2
Heggett, Young and Co.	6
Hawkins Bros. and Co.	14
Halden, J., and Co., Ltd.	7
Hyde Archer and Co., Ltd.	139
Hanwell Bros. and Co., Ltd.	3
Hayden, W. H. and Co., Ltd.	7
Hawkins, A., and Sons	4
Houghtons, Ltd.	23
Hanworth Park Estate	378
Hancock, J. L., Ltd.	145
North, J., Hardy, and Son, Ltd.	156
Hall and Hall	9
Heenan and Froude, Ltd.	35
Hudson, Ermunds, and Co., Ltd.	20
Hunt, M.	147
Hattersley, C., and Sons, Ltd.	230
Hall, B. J., and Co., Ltd.	5
Hart Accumulator Co., Ltd.	2
Harrison and Cook	10
Harris, T. H., and Sons	3
Herbert Frood Co., Ltd.	8
India Rubber Products Co., Ltd.	28
Imperial Light, Ltd.	3
Isleworth Rubber Co., Ltd.	15
Ingham, R., Clark and Co., Ltd.	337
Jeyes Sanitary Compounds Co., Ltd.	48
Joseph Jonas and Colver, Ltd.	3
Jennings, F. A.	15
Jennings, G., Ltd.	11
Parkes Drug Stores, Ltd.	7
Parker, J. A.	6
Pneumatic Rubber Stamp Co.	4
Pouder, H., and Co.	7
Pinchin, Johnson and Co., Ltd.	21
Petrie, D.	10
Parker and Co.	47
T. M. Probert and Son	2
Perry and Co., Ltd.	2
Power Gas Corporation, Ltd.	145
Pearn, F., and Co., Ltd.	150
The Pyrene Co., Ltd.	5
Reynolds and Co.	39
Rollett, M., and Co.	13
Rubery, Owen and Co.	60
Reynolds, J. A., and Co., Ltd.	5
Richmond Garage	9
Ragusa Asphalte Co.	114
Ramsey, S., and Co.	2
Rissen, J., Ltd.	20
Rejax, Ltd.	15
Rhodes, J., and Sons, Ltd.	71
Rubeck, Thew and Co.	5
Rylands and Sons, Ltd.	9
Remington Typewriter Co., Ltd.	7
Robinson, T., and Son, Ltd.	365
Redpath, Brown and Co., Ltd.	93
Ransome, A., and Co., Ltd.	5
Leo Ripault and Co.	4
Randall Bros.	81
Rushmores, Ltd.	14
Sagar, J., and Co., Ltd.	5
Smith and Sons	13
Sybry, Searles and Co., Ltd.	3
Smart, A., and Sons, Ltd.	12
Sheppard, F.	4
Spenser Whatley, Ltd.	12
Sumerling and Co., Ltd.	3
Sampson, T.	3
Salmon, Whitfield and Co.	7
Salomon, A., and Co.	8
Spear and Jackson, Ltd.	8
Smither and Sons, D.	6
Progressive Engineering Co.	3
King, J. C., Ltd.	7
Kalisky, S.	5
Knowles, J., and Co.	45
Kelly's Directories, Ltd.	3
Lee and Sons, A., Ltd.	9
Lancashire Dynamo and Motor Co., Ltd.	79
Line, J., and Sons, Ltd.	219
London and North Western Railway Co.	2
Lamben Sheet Metal Co.	24
Llandilo Saw Mills, Ltd.	201
London and South Western Railway	7
London and South Western Railway	148
Lilley, H., and Sons	150
London Warming and Ventilating Co., Ltd.	116
Mallandain, A. E.	30
Mendine Co.	235
Maclennan and Co.	61
Melhuish, R., Ltd.	4
McDowall, Steven, and Co., Ltd.	7
Messrs, Ltd.	33
Morgan Crucible Co., Ltd.	45
Matthews and Yates	35
McArthur and Co.	23
Middlesex Foundry, Ltd.	10
Meerloo Engineering Co., Ltd.	25
Messers, Ltd.	12
Mountford, F. (Birmingham), Ltd.	13
Milham, H.	7
Mitchell Bros.	15
Marsh, E. R., Ltd.	5
Motor Radiator Manufacturing Co.	567
Maw, S., Son and Sons Ltd.	2
Nurse, C., and Co., Ltd.	28
Nettlefold and Sons	137
Newton Fire Extinguisher Co., Ltd.	36
Newton, J. M., and Sons, Ltd.	7
Nicholls and Clarke, Ltd.	11
New Pegamoid, Ltd.	115
Norris, Henty and Gardners, Ltd.	1758
Northern Machine Screws, Ltd.	163
National Time Recorders Co., Ltd.	24
National Aeroplane Factory	9
O'Brien, Thomas and Co	3
Oakey, J., and Sons, Ltd.	5
Oppenheimer, A., and Co.	5
Palmer Tyre Co.	1462
Parke, Davis and Co.	2
Peach, H. H.	91
Simplex Conduits, Ltd.	8
The Sentinel Waggon Works, Ltd.	8
Summers, G. F.	3
Sanitary and Water Fittings Co.	7
Selman and Son	3
Smith, W.	2
Smith, Parrrey and Co., Ltd.	72
Siemens Bros. and Co., Ltd.	27
Smith, F., and Co.	3
Sly, Dibble and Co., Ltd.	10
The Sun Electrical Co., Ltd.	53
Tollit and Harvey	23
Terry, N., and Sons, Ltd.	80
Thomas, W.	193
Tapling, T., and Co., Ltd.	12
Twigg and Beeson	4
Thomas, W., and Son	9
Underwood Typewriter Co., Ltd.	37
Union Petroleum Co.	51
Vickers, J. W., and Co., Ltd.	42
Wadkin and Co.	8
Woodside Engineering Co., Ltd.	376
Weardon and Guylee	2
Waterloo and Sons, Ltd.	11
Wills and Chaplin	12
Wall, G. P.	23
Williamsons, Ltd.	6
Wiggins-Davies, T.	7
Worsley, M.	17
White, A., and Sons, Ltd.	18
Willcox, W. M., and Co.	109
Walters, W., and Sons	2
Wall Paper Manufacturing, Ltd.	12
Williams, J., and Co., Ltd.	2
Young and Marten, Ltd.	51
Yost Typewriter Co., Ltd.	5
Zenith Carburetter Co., Ltd.	19
Howeson, O. E.	7211
Falcon Airscrew Co.	680
Nettlefold and Son	627
Auster, Ltd.	400
Drummond Col.	1305
Austin, E., and Sons	145
Falcon Airscrew Co.	425
Robinson, T., and Son, Ltd.	350
Woodbridge and Son	20
Llandilo Saw Mills	6
Richmond Electric Light Co.	18
Aluminium Corp.	48
Oriental Tube Co.	14
Ellis, A. A.	9
Earle, Bourne and Co.	57
Triplex Safety Glass	3
Greening, N., and Sons	26
Simplex Conduits, Ltd.	12
Gridley and Co.	48

BEARDMORE MOTORS, LTD.

BEARDMORE MOTORS, LTD.—Private company. Registered Sept. 2nd. Capital £100,000 in £1 shares. To take over the business carried on by Aidee Motor and Engineering Co., Ltd., and to carry on the business of manufacturers of and dealers in motor-cars, carriages, vehicles and boats, aero engines, aeroplanes, motor-launches, etc. The subscribers (each with one share) are:—H. L. Smith, 62, Grosvenor Road, Canonbury, N.5, clerk; H. W. Eason, 149, Tufnell Park Road, N.7, clerk. The first directors are:—Sir Wm. Beardmore, Bt., J. G. Girdwood, P. M. Luther, and C. H. Allsworth. The two first-named are nominees of William Beardmore and Co., Ltd., and the two last-named are nominees of the Aidee Motor and Engineering Co., Ltd. Remuneration £250 per annum. Solicitors: Nicholson, Graham and Jones, 24, Coleman Street, E.C.

RECEIVERSHIPS (Appointment or Release).

AERO TANKS, LTD.—A. Charlesworth, of 20, Copthall Avenue, E.C., and W. R. Gaff, Capel House, E.C., as receivers on July 26th, 1919.

EXTRACTS FROM "THE LONDON GAZETTE."

GREAT BRITAIN.

MILITARY.

FROM THE "LONDON GAZETTE."

WAR OFFICE, Sept. 1st.

REGULAR FORCES.—INFANTRY.—Essex R.—J. R. Massey (temp. Sec. Lt., R.A.F.) to be temp. Sec. Lt., Jan. 4th.

WAR OFFICE, Sept. 2nd.

REGULAR FORCES.—INFANTRY.—North'd Fus.—Maj. I. M. Bonham-Carter, O.B.E., is placed in the h.p. list, and retains his present employment with the R.A.F., Sept. 3rd

OVERSEAS FORCES.—CANADA.—NOVA SCOTIA R.—Temp. Capt. V. Hodson ceases to be secd. for duty with the R.A.F., April 2nd (substituted for "Gazette" notification of July 24th, incorrectly describing rank as Maj.).

CAN. ENGRS.—Temp. Capt. H. S. Quigley, M.C., D.C.M., ceases to be secd. for duty with the R.A.F., July 3rd (substituted for "Gazette" notification of Aug. 11th, incorrectly specifying date as July 5th).

W. ONTARIO R.—The following officer retires in the British Isles:—Temp. Maj. A. E. McKeever, D.S.O., M.C., ceases to be secd. for duty with the C.A.F., Aug. 16th.

WAR OFFICE, September 4th.

REGULAR FORCES.—Attd. to the Gen. Staff.—Station Accountant Officers (CL. GG.).—Sec. Lt. H. D. Giblett, R.A.F., and to be temp. Capt., Gen. List, while so empld., Aug. 15th.

INFANTRY.—Bedf. R.—S. D. Harrower (temp. Lt., R.A.F.), June 20th.

ROYAL ARMY CHAPLAINS DEPARTMENT.—The Rev. H. Beauchamp, temp. Chapln. to the Force, 3rd Cl., relinquishes his commn. on transfer to the R.A.F., July 25th.

WAR OFFICE, September 5th.

REGULAR FORCES.—Royal Regiment of Artillery.—R.G.A.—The following are restd. to the estabt.:—Supern. Capt. R. Hilton, M.C., D.F.C., July 7th.

FOOT GUARDS.—S. Gds.—Capt. and Bt. Maj. J. E. Tennant, D.S.O., M.C. (attd. R.A.F.), resigns his commn., Sept. 6th

INFANTRY.—R.W. Surr. R.—Lt. A. M. Bennett (attd. R.A.F.) resigns his commn., Sept. 6th.

WAR OFFICE, September 6th.

REGULAR FORCES.—INFANTRY.—Service Battalions.—Welsh R.—Temp. Lt. J. Garvin resigns his commn. on appt. to R.A.F., Sept. 14th, 1918.

ROYAL ARMY SERVICE CORPS.—To be actg. Capt.—Temp. Lt. A. W. J. Lyons, from R.A.F., to be temp Lt., May 30th, seny. April 15th, 1917.

AIR FORCE.

AIR MINISTRY, Aug 29th.

R.A.F.—The following temporary appointments are made:—Brig.-Gen. Staff.—Col. (actg. Brig.-Gen.) B. H. H. Cooke, C.M.G., C.B.E., D.S.O., is graded for purposes of pay and allowances as Maj.-Gen. while officiating in command of an area, Feb 27th.

Staff Officers, 1st Class (P.)—Col. A. M. Bent, C.M.G., C.B.E., is graded for purposes of pay and allowances as Brig.-Gen. while officiating as Brig.-Gen., Staff, Feb. 27th; (T.) Maj. T. G. Hetherington, C.B.E., is graded for purposes of pay and allowances as Col. while officiating as Col., Staff, from Feb. 18th to July 31st.

Staff Officer, 3rd Class (P.).—Capt. E. F. Wilkinson, July 23rd.

FLYING BRANCH.—Capt. C. H. Elliot-Smith is graded for purposes of pay and allowances of Maj. while employed as Maj. (A.), May 1st.

Capt. R. S. Smith relinquishes the grading for purposes of pay and allowances as Maj. (K.B.), July 20th (substituted for notification in "Gazette" of Aug. 1st).

Capt. B. C. Clayton to be Capt. (A.) from (T.), May 15th.

The following Lts. are graded for purposes of pay and allowances as Capts. while employed as Capts. (A.):—H. G. Davis, D.F.C., S. G. Frogley, G. C. Gardiner, D.F.C., H. Hillier, D.F.C., A. E. Morgan, W. S. Reid, May 1st.

The following relinquish the actg. rank of Capt. on ceasing to be employed as Capts.:—Lt. H. F. Nicholls, D.F.C., July 29th; Lt. W. F. J. Harvey, D.F.C., July 30th; Lt. G. L. Hobbs, M.C., Aug. 8th.

Sec. Lt. H. A. Castaldini is graded for purposes of pay and allowances as Lt. while empld. as Lt. (O), May 1st

Sec. Lt. J. T. O'Brien-Saint to be Sec. Lt., from unemployed list, prec. next below Sec. Lt. C. A. White, July 23rd.

The following relinquish their commissions on ceasing to be employed:—Sec. Lt. C. L. Douthwaite (E. Yorks. R., T.F.), March 12th; Lt. W. G. Fluke, D.S.O. (Lt., S. Staffs. R.), May 12th; Capt. H. S. Parsons (Capt., Can. Forces), June 19th; Sec. Lt. (Hon. Lt.) F. McRae (Capt., Can. Forces), July 13th; Sec. Lt. C. E. Eddy (Lt., Gen. List S. African Forces), Aug. 5th; Lt. (Hon. Capt.) H. G. L. Mayne (Capt., K.O.S.B.), Aug. 9th; Lt. (Hon. Capt.) C. H. L. Coney (Capt., N. Staffs. R.), Aug. 11th; Lt. J. Cave (Lt., Manitoba R.), Sec. Lt. H. A. Crommelin, Aug. 13th; Lt. J. Sharp (Lt., S. Ir. Horse), Aug. 15th. Transferred to unemployed list:—Capt. B. P. G. Hunt, Jan. 28th; Lt. G. L. Webster, Jan. 29th; Sec. Lt. J. R. R. Rankin, Feb. 8th; Lt. H. R. Aird, Feb. 17th; Lt. L. C. Tonkin, Feb. 23rd; Sec. Lt. N. Cooper, D.F.C., March 15th; Lt. (actg. Capt.) L. H. Jones, March 31st; Lt. (Hon. Capt.) (actg. Capt.) G. H. B. Wilson, April 5th, substituted for notification in "Gazette" of June 6th; Lt. S. Jolley, M.C., Sec. Lt. (Hon. Capt.) R. T. Pearson, M.C., Lt. (Hon. Capt.) C. Le Strange, April 11th; Sec. Lt. (Hon. Lt.) J. S. Maguire, April 15th; Sec. Lt. C. E. M. Howard, April 17th; Sec. Lt. J. W. Gennard, April 18th; Capt. J. B. Crompton, Sec. Lt. J. E. Jellison, April 19th; Sec. Lt. N. A. Jamieson, Sec. Lt. H. W. Phillips, Sec. Lt. (Hon. Lt.) T. A. Lloyd-Rees, M.C., Sec. Lt. G. Russell, Sec. Lt. A. W. Sawyer, April 29th; Sec. Lt. R. S. Johnson, May 2nd; Maj. A. K. H. O'Brien, May 4th; Lt. A. F. Cotton, May 14th; Lt. J. S. A. Willis, May 16th; Sec. Lt. O. H. Campbell, May 20th, substituted for notification in "Gazette" of May 13th; Sec. Lt. R. C. Jones, May 21st; Lt. J. Creigton-Jones, May 26th; Lt. Wm. Hughes, June 2nd; Sec. Lt. T. J. H. May, June 5th; Lt. J. S. Hodges, June 7th; Sec. Lt. C. Brooks, June 9th; Sec. Lt. Wm. Emery, June 10th; Sec. Lt. (Hon. Lt.) A. B. Radford, June 12th; Lt. D. A. Hansard, June 13th; Lt. L. E. O. Lounds, June 16th; Lt. F. W. Morter, A.F.C., June 25th; Sec. Lt. E. E. Morrison, July 1st; Sec. Lt. L. C. Cox, Sec. Lt. T. D. Fitzsimon, Lt. R. E. Taylor, substituted for notification in the "Gazette" of July 29th, July 12th; Sec. Lt. J. W. Rhodes, July 23rd; Lt. G. H. Armstrong, A.F.C., July 28th; Lt. G. C. Judd, July 31st; Sec. Lt. C. A. Box, Aug. 2nd; Sec. Lt. E. A. Rogers, Aug. 3rd; Lt. C. F. Nathan, M.C., Aug. 5th; Capt. J. F. Jones, O.B.E., D.S.C., Capt. A. T. Moore, O.B.E., Aug. 6th; Sec. Lt. G. Chellingworth, Aug. 9th; Sec. Lt. J. Harris, Aug. 12th; Lt. G. E. Shearmur, Aug. 13th; Sec. Lt. C. H. Howitt, Lt. E. E. Lockwood, Aug. 14th; Lt. E. W. Hart, Lt.-Col. J. C. Porte, C.M.G., Capt. R. R. Soar, D.S.C., Aug. 15th; Sec. Lt. G. A. Davis, Aug. 16th; Lt. A. G. Donald, Aug. 17th; Sec. Lt. R. J. Palmer, Aug. 18th; Sec. Lt. W. L. Alston, Lt. J. A. Jamieson, Lt. G. G. Macphee, Lt. J. Palmer, Sec. Lt. R. D. Vaughan, Aug. 20th; Lt. R. J. Layard, Lt. W. H. Pollard, Aug. 22nd; Sec. Lt. E. H. C. Steeds, substituted for notification in the "Gazette" of Aug. 22nd; Lt. S. MacK. Sproat, substituted for notification in the "Gazette" of Aug. 22nd; Lt. D. Davidson, Sec. Lt. R. E. Norrish, Aug. 28th.

Capt. E. K. H. Turnour (Lt., R.N.) resigns his commission, and is permitted to retain the rank of Capt., Aug. 30th.

The following Lts. relinquish their commissions on account of ill-health, and are permitted to retain their rank:—J. E. Howell, Aug. 20th; W. S. Featherstonhaugh, Aug. 21st.

Lt. L. H. Mackay (Scottish Rifles) resigns his commission, and is permitted to retain his rank, Aug. 30th

Lt. M. J. P. Scully (R. Inniskilling Fus.) is cashiered by sentence of a General Court-Martial, Aug. 11th.

Sec. Lt. D. E. Culver relinquishes his commission on account of ill-health contracted on active service, and is permitted to retain his rank, Aug. 19th.

The surname of Lt. G. W. Gauld is as now described, and not "Gould," as stated in the "Gazette" of April 25th.

The surname of Sec. Lt. R. P. Coton is as now described, and not "Caton," as stated in the "Gazette" of May 27th.

The initials of Sec. Lt. C.A. Muir are as now described, and not "T. A.," as stated in the "Gazette" of June 3rd.

The surname of Lt. H. S. Wellby is as now described, and not "Welby," as stated in the "Gazette" of May 27th.

The surname of Lt. J. G. Prestwich is as now described, and not "Prestwick," as stated in the "Gazettes" of July 1st and June 24th.

The initials of Sec. Lt. J. T. O'Brien-Saint are as now described, and not "J. D.," as stated in the "Gazette" of July 4th.

The initials of Lt. S. Y. Grant are as now described, and not "S. W.," as stated in the "Gazette" of April 25th.

The notification in the "Gazette" of Aug 27th, 1918, concerning Flt. Cadet H. W. Williams is cancelled.

The notification in the "Gazette" of March 28th concerning Lt. (actg. Capt.) E. Swale, D.F.C., is cancelled.

The notification in the "Gazette" of April 4th concerning Lt. (actg. Capt.) M. G. W. Stewart, D.F.C., is cancelled.

The notification in the "Gazette" of May 20th concerning Capt. C. G. Davis, M.C., is cancelled.

The notification in the "Gazette" of June 3rd concerning Lt. H. L. Young is cancelled.

The notifications in the "Gazette of June 24th concerning Sec. Lt. J. S. McGeown and Sec. Lt. H. R. Hayden are cancelled.

The notification in the "Gazette" of July 11th concerning Sec. Lt. T. C. Stranger is cancelled.

The notification in the "Gazette" of July 18th concerning Sec. Lt. (Hon. Lt.) M. C. Sexton is cancelled.

The notification in the "Gazette" of July 29th concerning Lt. W. C. Siddaway is cancelled.

ADMINISTRATIVE BRANCH.—Lt.-Col. (actg. Col.) A. W. C. McFall relinquishes the actg. rank of Col. on ceasing to be employed as Col., Aug. 1st.

Maj. (actg. Lt.-Col.) D. Mackenzie relinquishes the actg. rank of Lt.-Col. on ceasing to be employed as Lt.-Col., Aug. 1st.

Capts. to be actg. Majs. whilst employed as Majs., without pay and allowances of that rank:—R. W. Dawes, J. L. Walshe, July 31st.

Capt. L. M. Boddam-Whetham to be Capt., from (S.O.), Aug. 7th.

Capt. A. F. Marlowe is graded for purposes of pay and allowances as Capt. whilst employed as P.T.O., April 10th.

Lt. H. F. Fuller to be actg. Capt. whilst employed as Capt., July 18th.

The following Lts. are graded for purposes of pay and allowances as Capts. whilst employed as Capts.:—(Hon. Capt.) P. Colbeck, M.B.E., (Hon. Capt.) R. T. H. Watson, May 1st; R. J. L. Gerard, from May 1st to June 5th; C. H. Tancred, from May 1st to May 26th.

Sec. Lt. H. F. Hendry to be Lt., March 2nd.

The following relinquish their commissions on ceasing to be employed:—Lt.-Col. (actg. Col.) W. P. Alexander, and is permitted to retain the rank of Col., Aug. 1st; Lt. D. H. Bell, M.C. (Lt., Queen's Own Cam. Highrs.), Sec. Lt. (Hon. Capt.) T. G. Horn (Capt., Extra Regimentally Employed List), Aug. 12th.

Transferred to Unemployed List:—Sec. Lt. H. M. Towlson, March 11th; Capt. H. Sherwood, April 27th (substituted for notification in the "Gazette" of July 11th); Sec. Lt. R. H. Curtis, June 3rd; Lt. C. Marsden, Aug. 2nd; Sec. Lt. R. Thomson, Aug. 7th; Maj. M. E. Lane, Aug. 14th; Lt. H. G. Dadley, D.C.M., Capt. (actg. Maj.) A. Young, O.B.E., Aug. 15th; Lt. T. P. Jenkins, Aug. 21st; Lt. E. W. Bassil, Capt. B. W. Batchelor, Aug. 22nd.

Lt. R. L. G. May (Lt., Royal Fus.) resigns his commission, Aug. 27th.

Lt. W. R. Ashwell (Leic. R., T.F.) relinquishes his commission on account of ill-health contracted on active service, Aug. 28th.

Lt. W. B. Judd (Lt., Dur. L.I.) is cashiered by sentence of a General Court-Martial, Aug. 7th.

Sec. Lt. W. S. Greasley relinquishes his commission on account of ill-health, and is permitted to retain his rank, Aug. 22nd.

The surname of Lt. D. M. K. Marendaz is as now described, and not "Masendaz," as stated in the "Gazette" of May 6th.

The surname of Sec. Lt. C. W. Slarke is as now described, and not "Starke," as stated in the "Gazette" of May 27th.

The initials of Sec. Lt. J. L. O'Hagan are as now described, and not "J. R.," as stated in the "Gazette" of May 20th.

The notification in the "Gazette" of July 22nd concerning Sec. Lt. R. C. Rosser is cancelled.

TECHNICAL BRANCH.—Maj. R. C. Lane to be Maj., Grade (B.), from (S.O.), July 31st.

Capt. W. E. L. Seward, M.C., to be graded for purposes of pay and allowances as Maj. while employed as Maj., Grade (A), May 1st.

The following Lts. are graded for purposes of pay and allowances as Capts. whilst employed as Capts., Grade (A.):—E. S. Cohen, A. E. Lindon, W. Sutherland, J. A. V. Welsh (substituted for notification in the "Gazette" of July 22nd), May 1st.

The following Lts. are graded for purposes of pay and allowances as Capts. whilst employed as Capts., Grade (B.):—J. Durward, F. M. I. Watts, M.B.E., May 1st; L. L. W. Smythe, from (Ad.), from May 1st to 27th (substituted for notification in the "Gazette" of July 8th).

Sec. Lt. (Hon. Lt.) P. L. Lindup to be graded for purposes of pay and allowances as Capt. whilst employed as Capt., Grade (A.), May 1st.

Sec. Lt. H. Barnes-Moss to be graded for purposes of pay and allowances as Capt. whilst employed as Capt., Grade (B), May 1st.

Lt. H. A. Adams to be Lt., Grade (A), from (S.O.), May 12th (substituted for notification in the "Gazette" of May 30th).

Lt. A. A. Davis to be Lt., Grade (B), from (O), July 27th, 1918 (substituted for notification in the "Gazette" of Aug. 30th, 1918).

Sec. Lt. (actg. Capt.) W. W. Hamond to be Lt., and to retain the actg. rank of Capt until April 30th.

Sec. Lt. M. P. Graddon to be Lt., Oct. 27th, 1918.

Sec. Lt. G. A. Gillings to be Lt., without pay and allowances of that rank, Nov. 17th, 1918.

Sec. Lts. to be actg. Lts. whilst employed as Lts., Grade (A) :— E. J. Wilkins, from Nov. 10th, 1918, to April 30th (substituted for notification in the "Gazette" of Sept. 17th, 1918); L. Hawkins, from (Ad.), from June 16th, 1918, to April 30th (substituted for notification in the "Gazette" of Sept. 17th, 1918).

Sec. Lts. to be graded for purposes of pay and allowances as Lts. whilst employed as Lts., Grade (B) :—Hon. Lt. G. H. Heys from (Ad.), J. E. Tyrrell, Hon. Lt. N. W. Walmsley, May 1st.

Transferred to Unemployed List :—Sec. Lt. F. L. Sutcliffe, Jan. 31st; Sec. Lt. A. H. Waterman, March 15th; Sec. Lt. (actg. Lt.) A. H. James, April 18th (substituted for notification in the "Gazette" of July 15th); Lt. H. R. Hare, April 19th; Lt. R. F. Tindall, May 19th; Sec. Lt. A. V. Jay, May 28th; Sec. Lt. P. D. Wilson, June 7th; Capt. F. C. Jenkins, July 6th; Lt. R. Leedal, July 31st; Sec. Lt. F. H. Jefferies, Aug. 3rd; Lt. T. M. S. Jenkins, Aug. 8th; Sec. Lt. F. C. Lyne, Aug. 10th; Sec. Lt. C. L. Underwood, Aug. 12th; Lt. G. E. F. Elliott, Aug. 14th; Lt. V. G. Darrington, Sec. Lt. (Hon. Lt.) R. Kearton, Aug. 15th; Sec. Lt. J. T. Brown, Aug. 16th; Sec. Lt. N. W. B. Bovey, Aug. 18th; Capt. W. M. Lange, Aug. 19th; Capt. H. O. Fry, Capt. T. R. Garrigan, Aug. 20th.

The surname of Sec. Lt. A. Gall is as now described, and not "Gill," as stated in the "Gazette" of June 24th.

The surname of Sec. Lt. W. F. Bevis is as now described, and not "Beirs," as stated in the "Gazette" of May 6th.

The Christian names of Sec. Lt. Robert Boyd Cheery are as now described, and not as stated in the "Gazette" of May 9th.

The notification in the "Gazette" of Aug. 15th concerning Sec. Lt. W. Brown is cancelled

MEDICAL BRANCH.—Maj. G. D. Bateman, O.B.E, to be Lt.-Col., Nov. 21st, 1918.

Lts. to be Capts. :—H. B. B. Green, Aug. 12th; S. A. Nield-Faulkner, Aug. 14th.

R. W. Ryan is granted a temporary commission as Capt., Aug. 22nd.

Transferred to Unemployed List :—Lt. G. H. Johnson, July 1st; Maj. W. G. Mitchell, July 16th; Capt. P. O. Moffat, Aug. 9th; Lt. G. Bourne, Aug. 14th; Capt. A. Leitch, Aug. 15th; Lt. J. G. Bird, Aug. 24th.

Capt. C. P. Strong relinquishes his commission on account of ill-health, and is permitted to retain his rank, Aug. 22nd.

DENTAL BRANCH.—Lt. L. G. Smith to be Capt., July 1st.

MEMORANDA.—Sec. Lt. (Hon. Lt.) P. J. Burns to be Hon. Capt., June 19th.

The following Cadets are granted hon. commissions as Sec. Lts. :— 178766 G. C. Allen, 179308 H. W. Ackroyd, 179326 H. W. Andreas, 175846 K. C. Aers, 176913 T. E. Archer, 178021 E. W. Blumley, 178096 F. O. Buss, 178513 T. A. Booth, 178569 J. R. Baillie, 178612 C. E. Barry, 179331 D. Bagnall, 176917 A. E. Burgess, 177951 A. H. Barnes, 178233 C. Bowlins, 178235 J. Boyd, 178337 E. J. Buckley, 178459 H. Burt, 177918 F. S. Colwell, 178042 N. C. Clark, 178363 S. M. Chisholm, 178617 T. Crosthwaite, 178771 G. B. Charlton, 128461 T. A. Clarke, 177656 C. P. J. Churton, 177769 W. H. Cooper, 177770 G. Cooper, 177916 C. R. Churns, 177917 R. J. A. Chandler, 177920 J. K. Conder, 178411 L. J. Cheshire, 178462 T. C. Coombe, 177775 R. H. Davison, 178524 E. R. Davy, 178622 J. P. Douglas, 178932 R. W. Davies, 175250 A. E. Davidson, 175737 B. C. Dion, 176652 F. W. Dibden, 177736 H. Daton, 178347 A. E. Don, 178415 A. R. Ellis, 178576 G. E. Edge, 178248 F. Fouler, 178350 S. R. Farrow, 178526 R. N. Frazer, 188203 R. C. Finlay, 177489 H. Forsythe, 177739 D. E. Francis, 178100 O. Furn, 178464 H. Frampton, 178354 E. J. George, 178355 W. M. Griffiths, 178465 C. W. Glendinning, 179038 T. S. Griffiths, 178416 C. C. Green, 178422 J. L. Hyland, 178469 H. C. Hawker, 178471 R. G. Hunt, 178581 G. W. Haig, 128640 F. W. Hollingworth, 176964 W. A. Hodgson, 177928 W. F. Henson, 178533 E. F. W. Hendrick, 137637 C. W. Ince, 177968 W. A. P. Jackson, 179053 J. J. Jones, 175649 C. J. Jones, 177889 C. E. Johns, 178363 B. A. Jamieson, 177969 F. P. Koester, 178476 H. Kitney, 178479 W. Leonard, 177433 G. C. B. Lloyd, 177536 J. Leggett, 177744 S. Lawson, 177745 W. F. Leach, 177788 J. Lawrence, 178425 D. S. Leonard, 177862 R. B. London, 177792 G. T. C. McGowan, 178268 A. A. McPherson, 178481 E. H. Maton, 178483 W. G. May, 175939 D. J. McDonald, 177793 J. Marshall, 177896 F. H. Maslin, 177933 E. F. Mumford, 177934 A. J. Matheson, 178316 W. A. Naylor, 170819 J. Naismith, 176109 A. T. Norris, 177638 R. E. Newman, 178374 W. Norris, 178486 B. Nessney, 177863 H. O'Neill, 178428 S. V. Offley, 178454 W. F. Oldridge, 178490 E. Page, 179259 H. G. H. Phipps, 179280 W. W. C. Peterson, 175144 A. C. D. Prall, 176361 F. Parker, 177832 W. H. G. Pick, 177902 R. S. Partridge, 177938 P. M. Pennyfather, 178489 G. T. F. Pearce, 178023 W. A. J. Reyell, 178206 G. P. Rowland, 178387 M. Rowley, 178433 G. M. Rose, 178389 E. D. Smith, 178400 G. Simpson, 178493 B. P. Smith, 177231 G. A. Sanderson, 177842 T. H. Searle, 178282 C. P. V. Tanner, 178285 A. L. Taylor, 178287 S. P. Thompson, 178436 R. A. R. Try, 178438 D. P. Tennant, 175666 I. Thomas, 176834 R. J. Taylor, 177472 J. Todd, 178439 N. Vyvyan, 178500 J. W. Vincent, 177240 S. W. Windsor, 177996 C. E. Wormald, 178837 A. E. White, 178093 J. F. Yorke, 178094 G. C. Young, 178506 S. E. Young, 128987 J. E. Young, Jan. 20th.

Capt. (actg. Maj.) W. C. Murray (temp. Dental Surgn., R.N.V.R.) relinquishes his commission on ceasing to be employed, Aug. 31st.

Transferred to Unemployed List :—Sec. Lt. E. Parkinson, May 22nd; Maj. O. G. G. Villiers, D.S.O., from (S.O.), June 30th; Sec. Lt. G. O. G. Burnett, Sec. Lt. E. E. Cannon, Aug. 14th; Lt.-Col. H. Campbell, D.S.O., O.B.E., from (S.O.), Aug. 15th.

AIR MINISTRY, August 29th.

The following officers and other ranks of the Royal Air Force (including *personnel*, Women's Royal Air Force) have been brought to the notice of the Secretary of State in respect of the valuable services they have rendered in connection with the war, and a note to this effect will accordingly be made in the Official Records :—

(Continued.)

9310 Actg. Sgt. A. C. Squirrell, 1995 C.M. R. A. Stacey, 2242 S.M.1 (T.) J. Stallard, 209141 Sgt.-Mech. A. A. Stanbridge, 19205 Sgt. F. Starkey, 79229 Sgt. H. Stebbings, 14117 Flt. Sgt. H. Stephenson, 206716 Sgt. Mech. A. Stevens, 75405 L.A.C. F. D. Stewart, 223141 Actg. Cpl. Mech. L. C. Stewart, 17318 Ch. Mech. W. F. Stewart, 29209 Ch. Mech. W. H. Storr, 138 Mas. Mech. R. Street, 13974 Flt. Sgt. C. W. J. Streetly, 214871 Sgt. P. E. Stubbs, 40841 Actg. Sgt. J. C. Suter, 293339 Actg. Clk.2 W. H. Swan, 105283 L.A.C. J. V. Sykes, 72704 Sgt. F. Sylvester, 6515 Flt. Sgt. J. W. Sylvester, 18200 Flt. Sgt. R. Syme, 0198 S.M.1 F. W. Symons.

93483 Flt. Sgt W. H. Tarrant, 8864 A.M.1 H. Tatton, 300257 Actg. Sgt. A. J. Taylor, 313274 Ch. Mec. H. Taylor, 313928 Cpl. Mech. H. Taylor, 8949 Ch. Mech. H. R. K. Taylor, 10263 Member Miss L. A. Taylor, 187229 Flt. Clk. L. R. Taylor, 48741 Sgt.-Maj. R. A. Taylor, 11925 Flt. Sgt. D. G. Templeman, 17676 Sgt. Maj.1 H. Theobald, 221849 Flt. Sgt. D. R. Thom, 9244 Flt. Clk. G. E. Thomas, J.2207 Ch. Mech. (R.L.) H. Thomas, 209142 Ch. Mech. R. H. Thomas, 5444 Flt. Sgt. W. Thomason, M.M., 70611 Flt. Clk. A. J. Thompson, 206239 Flt. Sgt. A. S. Thompson, 401974 L.A.C. (actg. Cpl.) C. Thompson, 187172 Actg. Sgt. T. P. Thompson, 1418 Flt. Sgt. W. Thompson, 21055 Flt. Clk. J. A. Thomson, 218306 Sgt. Mech. H. G. Tiller, 306 Ch. Mas. Mech. D. G. Tindale, 8290 Member Miss E. E. Titterington, 314070 C.P.O. C. Todd, 205711 Cpl. E. Tonkin, 225546 Cpl. C. H. Tonks, 16063 Actg. Ch. Mech. W. J. Toozes, 205707 Cpl. F. W. Torlot, 23344 Ch. Sec. Ldr. Miss F. A. Travis, 42894 Flt. Clk. P. V. Tree, 6656 Ch. Sec. Ldr. Miss L. M. Trusler, 302778 R.S.M. F. Truss, 1124 Ch. Sec. Ldr. Miss K. Tubb, 201547 Flt. Sgt. E. H. Tunnell, 112167 L.A.C. J. M. Turnbull, 17474 Sgt.-Maj.2 W. G. Turner, 207068 Sgt. Mech. W. C. Turpin, 206004 Sgt. E. W. P. Tyrrell.

24954 Flt. Sgt. O. A. Usher.

35573 Flt. Sgt. J. Vale, 10012 Member Miss N. Van Loock, 12264 Flt. Clk. F. Venner, 220393 Cpl. A. H. Vickers, 8136 Actg.. Spt. Ldr. Miss H. Vinogradoff.

200582 Ch. Mech. W. Wadlow, 313282 Actg. Flt. Sgt. J. Wailling, 407677 Flt. Sgt. F. Waite, 1212 Sgt.-Maj.1 H. J. Wakeling, Can. 73645 Cpl. C. V. Wakely, 1714 Sgt.-Maj. C. G. Walker, 409837 Ch. Mech. D. J. Walker, 4322 Flight Sergeant F. S. Walker, 56011 Sergeant Mech. H. Walker, 214013 Cpl. S. Walker, 37624 Flt. Sgt. E. J. Walsh, 78674 Sgt.-Maj.1 J. Wannop, S.R.18 Sgt.-Maj.1 H. W. Warboys, 2169 Member Miss F. E. Ward, 8824 Member Miss L. M. T. Ward, 25760 Actg. Flt. Sgt. A. A. Warner, 314425 Flt. Sgt. F. W. H. Warren, 2157 T. Sgt.-Maj. E. C. Watson, 26286 Sgt. F. B. Watson, 65835 Sgt.-Maj.1 C. E. Watts, 29192 Sgt. G. E. Watts, 57648 Sgt. W. E. Wears, 58717 Flt. Sgt. B. S. Webb, 408636 Flt. Sgt. A. P. Webley, 3095 Sgt. Mech. A. Webster, 2436 Sgt.-Maj.2 W. Webster, 9525 Member Miss M. Weeks, 11929 Cpl. E. Wenband, 25142 Flt. Sgt. F. L. Wheeler, 37586 Ch. Mech. W. Whitaker, 1946 Ch. Sec. Ldr. Mrs. A. White, 212750 Sgt. D. D. White, 123534 L.A.C. L. S. Whitehead, 202542 Flt. Sgt. F. H. Whiteley, 230687 A.C.1 A. W. Whiting, 21210 Clk.1 L. A. Whitty, 203768 Cpl. G. F. Wicks, 11621 Sgt.-Maj. L. M. Wiertz, 1913 Ch. Sec. Ldr. Miss B. Williams, 6234 T. Sgt. Maj. H. A. Williams, 70714 A.M.1 H. C. Williams, 228763 Sgt. Clk. J. W. Williams, 51092 Flt. Sgt. R. J. Williams, 75269 Sgt. W. E. Williams, 8707 Flt. Sgt. S. Wiliamson, 19111 Sgt.-Maj. F. Willis, 313297 Flt. Sgt. F. G. Wilmot, 18810 Sgt. Mech. E. Wilmot, 14279 Ch. Mech. J. A. Wilson, 1437 L.A.C. R. W. Wilson, 47157 A.M.1 A. A. Wiltshire, 226532 Sgt. H. Winchester, 1098 Sgt.-Maj.1 S. V. Winney, 12236 Ch. Sec. Ldr. Miss E. A. Winspear, 210392 Actg. Clk.1 T. R. Winter, 9719 Sgt.-Maj.1 E. A. Withers, 232830 A.M.2 A. T. Wood, 14758 Flt. Sgt. E. Wood, 7296 Sgt.-Maj.1 H. Wood, 7823 Sgt. S. A. J. Wood, 31 Sqr. Ldr. Mrs. V. N. M. Wood, 36738 Sgt.-Maj. A. W. Woodgate, 263679 Cpl. H. Woodhead, 2878 Ch. Sec. Ldr. Miss C. I. Wooding, 5759 Sgt. C. Woolrow, 112745 L.A.C. G. F. Woolaston, 1744 Ch. Sec. Ldr. Miss R. Woolfe, 29076 Sgt.-Maj.1 R. N. H. Workman, 201765 Sgt. J. Wrenn, 13057 Sgt.-Maj.1 C. H. Wright, 4374 Ch. Sec. Ldr. D. M. Wright, 8472 Actg. Sgt.-Maj.2 F. N. Wycherley.

214401 Sgt. T. E. Yates, 6735 Flt. Sgt. S. Young.

CIVILIAN STAFF.

The following members of the civilian staff employed by, or serving in connection with, the Air Ministry, have been brought to the notice of the Secretary of State in respect of valuable services rendered in connection with the war :—

Mr. H. H. Adams (Thornton Heath), Mr. W. E. Boyce (Paddington), Mr. H. H. Chapman (West Croydon), Dr. W. C. Collins, M.D. (Chester), Mr. J. Cooke (Upper Holloway), Mr. U. Cooke (Biggin Hill), Mr. F. J. T. Cooper (Balham), Mr. V. Cozens (Newlyn), Mr. C. W. Crosbie (Bedford), Mr. H. C. Dwelly (Stoke Newington), the Rev. G. Frazier-Upton (A./Chaplain) (Coventry), Mr. J. S. Grosvenor (Kingston-on-Thames), Mr. V. C. Mountfort (Streatham Hill), Mr. W. R. Parker (Lewisham), Mr. R. C. Pearce (Battersea, S.W.), Mr. F. S. Rae (Battersea Park), Mr. G. R. Richardson (Surbiton), Mr. H. Russell (Upper Walthamstow), the Rev. W. G. Spurrell, M.A. (Actg. Chaplain) (Pembroke), Mr. S. Stephens (Cattewater), Mr. C. E. Stevens (Uxbridge), Mr. H. M. Stretch (Romanlea, Berks.), Dr. H. M. Thomas, L.R.C.P., M.D. (Fishguard), Mr. W. Williams (Streatham Hill).

Mrs. D. M. Alban (Blackheath), Misses F. A. Anscombe (West Kensington), J. Armstrong (Palmers Green, N.), Mrs. L. Aston (Uxbridge), Misses E. H. Attwood (Canada), K. Barry (Thornton Heath), Mrs. Bedford (Barnes), Misses A. Bennett (Wanstead), E. D. Bircumshaw (Wimbledon), A. Boisseau (Canada), Mrs. C. E. Bond (Leyton, Essex), Mrs. A. R. Broughton (Canada), Misses F. E. Branchflower (Leytonstone), B. J. Burch (Salisbury, Wilts), O. Callender (Surbiton), O. E. Cardew (East Dulwich), B. R. Chapman (Hyde Park, W.), N. W. A. Chard (Crawley, Sussex), E. V. Cheney (East Ham), G. Clarke (Kensington, W.8), D. A. E. Cole (Portman Square, W.), I. Collins (Canada), G. M. Dellagana (Brondesbury Park), D. E. Dunn (Bloomsbury, W.C.), M. Dwyer (Canada), Mrs. M. Elderton (Canada), Miss K. Farber (Canada), Mrs. G. G. Finn (Barnes, S.W.), Misses I. W. Fitzwilliam (Jermyn Street W.), K. F. Forsdyke (Broomwood Road, S.W.), F. Francis (Brompton Road, S.W.), B. Gearge (Canada), B. Gibbon (Ripon, Yorks.), E. M. Gibbons (Sutton, Surrey), E. M. Glendenning (Hampstead, N.W.), G. M. Godsal (St. Mary's Mansions, W.), Mrs. F. M. Gooch (East Ham), Mrs. N. Gordon (Canada), Mrs. E. E. Green (Ealing), Mrs. D. Greenall (Reading), Misses L. Groom (Wallington), D. Hale (S. Lambeth), M. Hannant (Canada), H. Harding (Highbury, N.), E. Harker (Canada), Lady Harrowby (Grosvenor Place, W.), Misses H. I. Hartley (W. Hampstead), F. L. Hayward (Surbiton), L. A. Heritage (Streatham), Mrs. E. G. Hingston (Brompton Road, S.W.), Mrs. M. M. Hodgson (Streatham), Mrs. E. Hogan (Canada), Miss G. M. Hood (Kingston-on-Thames), Mrs. F. C. Holloway (61, Lexham Gardens, W.), Misses B. E. M. Huobard (Naughton, Suffolk), E. Hughes (Chelsea, S.W.3), A. B. Hyam (New Cross), M. I'Anson (Walthamstow), A. L. Jarvis (Canada), Mrs. M. Johnson (Canada), Misses N. M. Jones (Golder's Green), G. J. Keogh (Forest Gate), Mrs. M. Kimpton (Canada), Mrs. A. E. King (Shepherd's Bush), Misses E. E. King (Hampstead, N.W.), E. M. King (Canada), G. E. Knight (Gloucester Road, W.1).

Misses C. Lamb (West Hampstead), D. C. Lawman (Upper Tooting, S.W.), L. E. Lawrence (Westminster), C. McChesney (Ealing), E. J. McClellan (Canada), D. McCoy (Stamford Hill), E. Macdonald (Canada), L. G. McGuffin (Canada), P. MacKinnon (Grays, Essex), Mrs. T. McRae (Canada), Misses C. Macklin (East Ham), M. Maloney (Canada), E. Marshall (Canada), E. F. M. Marwood (Wandsworth), M. A. Mathew (Westminster), H. May (Canada), M. L. Meehan (Canada), Mrs. A. M. Megaw (Cleveland Gardens, W.), Misses K. Melville (Canada), D. I. Millard (Hornsey), Matron Miss V. G. Milman (Blandford), Mrs. L. E. Milroy (Hanover Square, W.), Mrs. M. G. Mogridge (Wimbledon Park), Mrs. G. Montagne, (Brixton Hill), Misses L. M. H. Nash (Hampstead), B. M. Nelson (Canada), Mrs. G. Norman (Bayswater, W.), Misses H. E. Norman (London, E.), M. Nott-Bower (Richmond), A. O'Brien (Canada), O. M. Ormsby (Canada), P. W. Osborne (Streatham), D. Parry (Finsbury), Mrs. L. M. Parsons (Canada), Mrs. G. E. Pearce (Forest Gate, Essex), Mrs. C. Perry (Marylebone, N.W.1), Misses G. E. Rafter (Canada), A. Ratcliffe (Canada), Mrs. D. W. Read (Streatham), Misses M. Roberts (Tooting, S.W.), G. L. Roberts (Welwyn, Herts), E. B. Sandford (Paddington), A. Sandys (Yatesbury), N. Schofield (S. Croydon), D. F. Snow (Canada), Mrs. J. Spencer (Mornington Crescent, N.W.), Mrs. L. M. Stacey (N. Kensington), Miss E. Steele (Canada), Mrs. J. I. Strachan (Muswell Hill, N.), Misses K. M. Tackaberry (Canada), A. Tandy (Sheffield), V. R. Thompson (Dublin), Mrs. M. A. Thierry (Oxford Gardens, W.), Misses D. Threlkeld (Canada), V. S. Torckler (E. Molesey), C. W. Turner (London, E.17), Mrs. A. M. Upton (Myatt's Park, S.E.), Miss I. Vallee (Canada), Mrs. M. Vandyke (Canada), Miss C. M. Vincent (Stoke Newington), Mrs. L. A. Vine

(Hampstead), Mrs. G. Webster (Canada), Mrs. M. Weiss (Canada), Misses C. A. J. West (Streatham, S.W.), L. L. White (Highbury, N.), Mrs. A. Whitecross (Wimbledon Park), Misses D V. Wiffin (Southfields, S.W.), H. M. F. Windle (Chelsea), H. Woodruff (Canada).

AIR MINISTRY, Sept. 2nd.

R.A.F.—The following temp. appointments are made at the Air Ministry :—Staff Officer, 2nd Class (P.).—Sqdn Ldr. J. H. Liddendale, from (S.O.), 1st Class, Sept. 1st.

Staff Officer, 3rd Class (Air).—Lt. R. V. Bramwell-Davis, Sept. 1st, vice Lt. R. C. Cox.

The following temp. appointment is made :—Staff Officer, 1st Class (P.)—Lt.-Col. C. T. Maclean, D.S.O., M.C., Aug. 19th (substituted for the notification in "Gazettes" of Aug. 19th and 26th).

The following temp. appointment is made (graded for purposes of pay at Air Ministry rates) :—Staff Officer, 2nd Class (T.).—Capt. R. G Parry, D.S.O., and to be actg. Maj. whilst so employed, Aug. 9th.

The notification in "Gazette" of Aug. 15th concerning Capt. V. Buxton is cancelled.

FLYING BRANCH.

Maj. (actg. Lt.-Col.) F. W. Lucas to be Maj. (A'ship) and relinquishes the actg. rank of Lt.-Col. on ceasing to be employed as Lt.-Col., Aug. 2nd.

Lt. R. H. Stocken is graded for purposes of pay and allowances as Capt. whilst employed as Capt. (A.), May 1st.

Lt. G. H. Langley is graded for purposes of pay and allowances as Capt. (without flying pay) whilst employed as Capt. (A.), May 1st.

The following Sec. Lts. (late Gen. List, R.F.C., on prob.) are confirmed in rank as Sec. Lts. (A.) :—C. W. Kerr, July 5th, 1918, G. E. Leaman, Aug. 31st, 1918, G. L. Ross, Sept. 1st, 1918.

P.F.O. R. H. Barker (late R.N.A.S.) is granted a temp. commission as Sec. Lt. (A.), July 18th, 1918.

The following relinquish their commissions on reversion to I.A.R.O. : Lt. E. A. Floyer, M.C., March 17th, Lt. F. C. C. Yeats-Brown, Aug. 13th.

The following relinquish their commissions on ceasing to be employed :—Sec. Lt. C. F. Williams (Sec. Lt., R. Highrs.), April 1st. Lt. (Hon. Capt.) W. T. Wood (Capt., Nova Scotia R.), April 14th, Lt. F. C J. Whigham (Lt., Sask. R.), April 27th, Sec. Lt. W. W. Honywood (Lt., Lrs.), June 6th, Lt. D. W. Davis (Capt., Sask. R.), June 11th, Lt. F. J. Gill (Lt., K.R.R.C.), June 30th; Lt G. L. Shephard (Lt., E Ont. R.), July 9th, Lt. J. V. Bowring (Sec. Lt., S. Lancs R.), July 30th, Sec. Lt. T. S. Duddy, M.C., D C.M. (Sec. Lt., Durh. L.I.), Aug. 11th, Sec. Lt. (Hon. Lt.) H. W. Pearson (Lt., Can. M.G.C.), Aug. 12th, Maj. C. H. Stringer (Capt., R. Irish Lrs.), Aug. 13th, Lt. F. A. Garwood (Lt., Bedf. R.), Aug. 19th, Lt. F. Hotrum (Lt., Can. M.G.C.), Aug. 22nd.

Transferred to unempld list :—Lt. H. Arkell, Feb. 7th (substituted for notification in "Gazette" of March 11th); Capt. H. R. Aird, Feb. 17th (substituted for notification in "Gazette" of Aug. 29th); Lt. C. Hayward, May 4th; Sec. Lt L. G. Crossby, May 21st.

The following Lts. relinquish their commns. on account of ill-health and are permitted to retain their rank :—C. Kennard (contracted on active service), March 30th (substituted for notification in "Gazette" of Jan. 7th); A. R. Metelerkamp, June 22nd (substituted for notification in "Gazette" of May 23rd); R. M. Tate (contracted on active service), Aug. 22nd; G. H. Jacob (caused by wounds), Aug. 27th.

The following relinquish their commns. on account of ill-health :—Lt. C. Geen (Lond. R.), July 28th (substituted for notification in "Gazette," March 11th); Sec. Lt. R. H. Harlow.

Sec. Lt. W. V. Wright resigns his commn., Jan. 27th (substituted for notification in "Gazette," Nov. 8th, 1918).

Sec. Lt (Hon. Lt.) C. M. Moore to take rank and prec. as if his appointment as Sec. Lt. bore date Feb. 7th.

The surname of Sec. Lt. L. P. Boudler is as now described, and not "Boulder," as stated in "Gazette," May 30th.

The surname of Sec. Lt. (Hon. Lt.) R. S Blucke is as now described, and not "Blacke," as stated in "Gazette," April 15th.

The initial of Sec. Lt. W. Long is as now described, and not "L. W.," as stated in "Gazette," April 15th.

The surname of Sec. Lt. F. Gouthro is as now described, and not "Guthro," as stated in "Gazette," April 15th.

The initials of Lt. (Hon. Capt.) A. W. B. S F. Bloy are as now described, and not as stated in "Gazette," July 29th.

The initials of Lt. H. G. Lomberg are as now described, and not as stated in "Gazette," July 29th.

The initials of Lt. W. T. S. Lewis are as now described, and not "W. T.," as stated in "Gazette," April 1st

The initials of Sec. Lt. K. H. Ashton are as now described, and not "K.," as stated in "Gazette," April 29th

The notification in "Gazette," Jan. 31st, concerning Sec. Lt. W. J Griffiths is cancelled.

The notification in "Gazette," April 1st, concerning Lt. E. C. Hoar is cancelled.

The notification in "Gazette," April 15th, concerning Lt. (Hon. Capt.) W. T. Wood is cancelled.

The notification in "Gazette," April 18th, concerning Sec. Lt. J. Hamilton is cancelled.

The notification in "Gazette," May 1st, concerning Lt. H. A. Hannay is cancelled.

The notification in "Gazette," June 6th, concerning Lt. F. C. J. Whigham is cancelled.

The notification in "Gazette," July 11th, concerning Lt. F. Adams is cancelled.

The notification in "Gazette," July 15th, concerning Sec. Lt. J. G. Crossley is cancelled.

The surname of Lt. C. M. Holbrook is as now described, and not "Holbrooks," as stated in the "Gazette" of Aug. 19th.

The notification in the "Gazette" of July 18th concerning Lt. G. L. Shepherd (Lt., W. Ont. R.) is cancelled.

The notification in the "Gazette" of Aug 5th concerning Sec. Lt. C. R. Fraser is cancelled.

ADMINISTRATIVE BRANCH.

Lt.-Col. (actg. Col.) F. H. G. Playfair relinquishes the actg. rank of Col. on ceasing to be empld. as Col., Aug. 1st.

Capt. H. C. Jones is graded for pay and allowances as Maj. whilst empld. as Maj., May 1st.

Capt. R. L. S Raffles to be Capt., from (S.O.), Aug. 16th.

Lt. A. W. Rouse to be actg. Capt. whilst empld as Capt., from March 9th to April 30th

The following Lts. are graded for purposes of pay and allowances as Capts. whilst empld. as Capts. :—A. W. Rouse, May 1st; H. L. McNaughton, July 2nd.

The following Sec. Lts are graded for purposes of pay and allowances as Capts. whilst empld. as Capts. :—C. W. Probets, May 1st; W. R. Castings, May 11th.

Lt. T. T. Pickup to be Lt., from (S.O.), Aug 14th.

Sec. Lt. T. F. Aitchison to be actg. Lt. whilst empld. as Lt., from Nov. 2nd, 1918, to April 30th.

The following Sec. Lts. are graded for pay and allowances as Lts. whilst empld. as Lts. :—T. F. Aitchison, C. W Braddy, May 1st

Sec. Lt. (Hon. Lt.) L. S. Dell (Lt., R.F.A.) relinquishes his commn. on ceasing to be empld., July 2nd (substituted for notification in the "Gazette" of June 27th).

Transferred to unempld. list :—Lt. E. C. Hoar, Feb. 23rd; Lt. H. A. Hannay, May 15th; Sec. Lt. E. W. Thomson, July 12th (substituted for notification in the "Gazette" of July 29th); Lt. M. J. Dalton, July 26th (substituted for notification in the "Gazette" of March 11th).

Lt. P. A. Katte is dismissed the Service by sentence of a General Court-Martial, Aug. 13th; Sec. Lt. (Hon. Maj.) J. L. McLean (R.A.S.C., T.F.) relinquishes his commn. on account of ill-health, Aug. 31st.

The initials of Lt. W. B. Maitland, D.S.O., are as now described, and not "D. B.," as stated in the "Gazette" of April 25th.

The rank of Lt. J. C. Bain is as now described, and not "Sec. Lt. (Hon. Lt.)," as stated in the "Gazette" of April 18th.

The initial of Sec. Lt. J. Mann is as now described, and not "T.," as stated in the "Gazette" of May 6th.

The notification in the "Gazette" of July 15th concerning Sec. Lt. W. H. Dibben is cancelled.

TECHNICAL BRANCH.

Lt. R. J. Sladden, M.B.E., D.C.M., to be actg. Capt. whilst empld. as Capt., Grade (A), from Feb. 15th to April 30th.

Lt. R. J. Sladden, M.B.E., D.C.M., is graded for purposes of pay and allowances as Capt. whilst empld. as Capt., Grade (A), May 1st.

Lt. W. S. Harms is graded for purposes of pay and allowances as Capt. whilst empld. as Capt., Grade (B), May 1st.

Lt. H. E. Hazlehurst relinquishes the grading for purposes of pay and allowances as Capt. on ceasing to be empld. as Capt., Aug. 21st.

Lt H. Hoad to be Lt., Grade (A), from Grade (B), Aug. 12th.

Lt. R. A. Knott to be Lt., Grade (B), from (A'Shp.), Aug. 18th.

The following Sec. Lts. are graded for purposes of pay and allowances as Lts. whilst empld. as Lts, Grade (A) :—S. E. Castle, Dec. 24th, 1918; E. O. Brown, Feb. 1st.

Sec. Lts. to be Lts. :—(Hon. Lt.) H. Allsebrook, April 2nd, 1918 (without pay and allowances prior to June 21st, 1918); J. Mytton, March 27th.

Sec. Lt E. W. Hooton-Smith relinquishes the grading for purposes of pay and allowances as Lt. on ceasing to be empld. as Lt., Aug. 16th.

Maj. S. J. Lacey, O.B.E. (Shipwright Lt. Comdr., R.N.), relinquishes his commn. on ceasing to be empld., March 29th (substituted for notification in the "Gazette" of May 6th).

Transferred to unempld. list :—Sec. Lt. (Hon. Lt.) W. H. Parker, May 6th (substituted for notification in the "Gazette" of May 20th); Sec. Lt F. Adams, June 13th

Sec. Lt. W. H. Hallett-Carpenter relinquishes his commn. on account of ill-health, and is granted the rank of Capt., Aug. 23rd.

Lt. T. J. Stannage relinquishes his commn on account of ill-health, and is permitted to retain his rank, July 18th (substituted for notification in the "Gazette" of March 25th).

The initials of Sec. Lt. (actg. Lt.) H. D. Oliver are as now described, and not "D.," as stated in the "Gazette" of April 4th.

The notification in the "Gazette" of Aug. 19th concerning Lt. G. A. Harrison is cancelled.

MOTOR BOAT BRANCH

Lt. G. A. Harrison is transferred to unempld. list, July 23rd.

PHYSICAL TRAINING BRANCH.

Lt. K. S. Hunter (Lt., Dn. Gds.) resigns his commn., Sept. 3rd.

MEDICAL BRANCH.

Capt. (actg. Maj.) A. P. Bowdler to be actg. Lt.-Col. while so empld., Aug. 1st.

Lts. to be Capts. :—H. F. Squire, June 18th; J. J. O'Mullane, July 15th; E. H. L. Le Clezio, July 29th; N. Rumboll, Aug. 14th; V. A. T. Spong, Aug. 19th.

The following Capts. relinquish their commns. on account of ill-health, and are permitted to retain their rank :—T. E. Mulvany, Aug. 13th (substituted for notification in the "Gazette" of Aug. 15th); E H. Hogg, Aug. 22nd.

Capt. A. Gleeson (Capt., R.A.M.C.) relinquishes his commn. on account of ill-health contracted on active service, June 5th.

CHAPLAINS BRANCH.

Rev. H. Beauchamp, M.C. (T./Chapln. to the Forces, 3rd Class, R.A.D.C.), is granted a temp. commn. as Chaplain with the relative rank of Capt. (R.C.), July 26th

MEMORANDA.

The following Cadets are granted hon. commns. as Sec. Lts. :—181036 G. Campbell, Jan. 6th; 177149 A. E. Ayling, 177912 W. E. Allkins, 179187 R Bowman, 176861 K. Blackborough, 177563 J. T. Burchell, 177731 S. Berry, 177786 C. W. M. Brown, 177850 A. A. Binning, 178405 T. H. F. Burdett, 178517 L. L. Barnard, 178807 R. Coffin, 179097 C. H. Campbell, 175909 H. W. Cook, 177733 G. S. Caston, 177752 A. H. T. Castell, 177768 T H. Cotton, 177809 H. Chantry, 177812 G. D. Cleland, 178237 F. W. Crosier, 178412 J. R. Cross, 178633 P. H. Catrick, 137631 W. S. Duncan, 177735 A. Dean, 177774 J. F. Duckworth, 177884 F. A. Dunwoody, 178348 L. W. Dickinson, 177922 C. M. Ellerby, 178244 H. Evans, 137730 R. Fenn, 175053 F. Fairbrother, 177781 L. Findlay, 177816 H. H. Fast, 177925 C L. Freeman, 178046 F. C. Fieldsend, 179340 C. P. Garner, 176088 E. G. Gough, 176399 R. S. Greethead, 176414 R. J. Griffiths, 176771 J. P Gevers, 176903 J. Gibson, 177052 F. W. Goddard, 177740 S. Geddes, 177926 E. A. A. Graves, 178049 A. H. Gould, 178418 F. E. B. Gourley, 178467 C G. Godfrey, 178754 T. W. Garden, 179304 F. S. Humbey, 137635 A. L. Hill, 176675 P. E. Hornby, 177783 W. C. Holmes, 177887 H. E. Hammett, 178582 S. R. Holt, 179101 H. Harris, 178628 R. Jones, 117930 B. N. Jackson, 118116 E. A. Jefferson, 177112 C. W. M. Jenner, 178473 T. V. Jakob, 178537 F. W. Jones, 175395 D. W. T. Jenkins, 175648 G. F. Johnson, 178540 S. Kitchinson, 176421 W. E. Knowles, 178542 W. Loew, 178477 H. Lyon, 178630 J. Lockheart, 175892 M. Marston, 175906 H. F. Musson, 176263 J. Middleton, 176696 A. G. McPherson, 177790 H. G. Martin, 177859 A. E. Moon, 177892 S W. Marsland, 177931 A. E. Mulford, 178371 T L. E. Morley, 178484 G Maynard, 178587 H. B. Mason, S/21125 J. Marnock, 176941 H. W. McCutcheon, 178265 R. G. McDonagh, 178607 R. N. S. Morgan, 177794 W S. Norris, 177839 G B. North, 177900 F. C. W. Nott, 177936 G. D. Newman, 178516 R V. W. Newton, 177867 E. H. Owen, 178697 L. H. Orford, 176364 S F. D. Perrott, 178273 H. C. Pearce, 178274 J. P. Petley, 177545 N. E. S. Pilcher, 179071 G. F. Ricks, 177341 F. C. Ridoubt, 177755 F. G. Richardson, 178385 R R. Rennie, 177758 T. P. Shaw, 177870 J. Shenton, 177905 A. H. C. Sheffield, 176373 J. B. Simpson, 176830 L. Staniforth, 172586 J. Tulley, 177131 J. H. Williams, Jan. 20th; 179701 R. E. Brittain, 142280 H. Barry, 178040 S. L. Clarke, 175512 C. L. Eggington, 179791 F. Fisher, 177732 J. Crowcott, 178755 W. M. Heap, 178470 D. J. D. Henderson, 178362 W. E. Hardy, 179345 F. G. Hamilton, 179740 L. L. Hanks, 179843 J. E. Hurst, 175126 H. R. Harris, 179346 P. Holden, 179403 J. V. Howie, 175603 F. T. W James, 179351 J. G. Johnston, 178360 J. E. Jones, 178629 R. Kerr, 179743 A C. J. Kelly, 137576 A. M. R. Letts, 179746 E. V. S. Lacey, 176733 P. L. Morgan, 177377 R. P. Martin, 179360 H. E. Murray, 179406 D. R. McFarlane, 183352 G. L. Mathieson, 179448 D. I. R. Martin, 177749 D. R. McKay, 17925 C. F. North, 178997 G. Powley, 179069 R. P. Powrie, 179103

A. V. Phillips, 179370 G. K. Robertson, 177551 G. M. F. Sollar, 178450 H. A. Smith, 179110 T. Stewart, 179283 A. W. Starey, 179374 J. H. Smith, 137112 J. Sturdy, 179084 W. M. Scott, 179221 R. H. Skinner, 179321 G. G. Sanderson, 179372 E. Smith, 179761 S. H. Smith, 179177 H. J. Trethewy, 178279 W. B. Taylor, 178962 F. D. Turner, 179416 G. A. Taylor, 177805 J. H. Williams, 177678 E. Wilkinson, 178444 R. Williamson, 179033 S. Walker, 179183 J. C. Wood, 179384 A. E. R. Willis, 179385 H. S. Walker, 179518 E. J. Whitefield, 179765 H. W. Wilson, 179268 H. A. Warburton, 179382 E. Wright, 179583 W. T. Wilson, 179485 L. R. Williams, Jan. 28th; 179186 W. J. Adams, 179391 J. Barber, 178231 T. H. E. Betts, 177885 R. Day, 175181 A. W. Evans, 177591 S. W. Gough, 178918 C. E. Gill, 178078 R. A. Hambling, 178985 R. C. J. Holding, 137702 D. E. Jowitt, 178739 E. F. Keal, 177462 W. Leck, 179355 W. Littler, 137413 F. Lord, 137759 L. T. Lees, 179209 H. G. Mills, 179753 F. H. Masser, 137710 F. J. Peters, 128908 J. W. Roberts, 179974 L. H. Radcliffe, 179411 C. Rhodes, 25653 D. Rowe, 175461 J. C. Renwick, 179081 T. Somerville, 179262 H. Sargood, 179288 G. W. Strathmann, 175623 M. W. Stubbs, 178404 F. I. Teckwell, 178303 B. H. West, 179430 H. S. Wedgbury, 175303 R. Walne, Jan. 29th; 176802 D. F. Potter, March 9th

Lt.-Col. E. H. Griffith, O.B.E. (Maj. (Lt.-Col.), retd. pay), relinquishes his commn. on ceasing to be empld, and is permitted to retain his rank, Aug. 19th.

Capt. G. S. Ridgway (Lt., R.N.) relinquishes his commn. on ceasing to be empld, July 1st.

Temp. Hon. Lt. W. Bryson relinquishes his commn. on ceasing to be empld., April 30th.

AIR MINISTRY, September 5th.

R.A.F.—PERMANENT COMMISSIONS.—The notification appearing in "Gazette," Aug. 1st, appointing the following officers to permanent commns. is cancelled:—Lt.-Col. R. G. Cherry, M.C., Lt.-Col. W. H. C. Mansfield, D.S.O., Maj. K. R. Binning, M.C. (A.), Maj. R. A. Chalmers, O.B.E., A.F.C. (A.), Maj. G. Henderson (A.), Maj. C. M. Murphy (A.), Maj. H. A. Van Ryneveld, D.S.O., M.C. (A.), Capt. F. R. P. Barrington (A.), Capt. C. Cooper (A.), Capt. R. B. C. M. T. de Poix (S.O.), Capt. E. de C. Hallifax, D.S.O. (A. and S.), Capt. D. R. Hanlon (A.), Capt. G. H. A. Hawkins (S.O.), Capt. F. P. Holliday, D.S.O., M.C. (A.), Capt. H. W. G. Jones, M.C. (A.), Capt. E. L. Oliver, M.C. (A.), Lt. E. O. L. Bell (Ad.), Lt. M. A. Benjamin, M.C. (S.O.), Lt. G. B. Booth (Ad.), Lt. C. S. Fulton (S.O.), Lt. G. W. N. R. Haynes (A.), Lt. C. H. Noble-Campbell, A.F.C. (A.), Lt. C. D. Skinner (A.), Lt. B. S. Wilcox, D.F.C. (A.).

The initials of Lt. W. J. King are as now described, and not W. J. N. as in "Gazette," Aug. 1st, and his classification is "T." and not "S.O." as in "Gazette," Aug. 1st.

The surname of Capt. W. R. D. Acland (A.) is as now described, and not Ackland as in "Gazette," Aug. 1st.

The surname of Lt. C. F. B. Bassill (T.) is as now described, and not Basil, as in "Gazette," Aug. 1st.

The surname of Capt. E. A. Beaulah (S.O.) is as now described, and not Beulah as in "Gazette," Aug. 1st.

The surname of Capt. H. F. Delarue (A. and S.) is as now described, and not Delarne as in "Gazette," Aug. 1st.

The surname of Lt. M. H. Findlay, D.S.C., D.F.C. (A.), is as now described, and not Findley, as in "Gazette," Aug. 1st.

The surname of Lt. L. E. M. Gillman (S.O.) is as now described, and not Gilman, as in "Gazette," Aug. 1st.

The surname of Capt. E. J. Hodsoll (S.) is as now described, and not Hodsell as in "Gazette," Aug. 1st

The surname of Lt. R. E. Keys, D.F.C. (A.) is as now described, and not Keyes, as in "Gazette," Aug. 1st.

The initial of Lt. J. McBain, D.F.C. (A.), is as now described, and not "L." as in "Gazette," Aug. 1st.

The initials of Lt. A. B. Raymond-Barker (A.) are as now described, and not "B." as in "Gazette," Aug. 1st.

The initials of Capt. C. S. Richardson, M.B.E. (Ad.) are as now described, and not as in "Gazette," Aug. 1st.

The classification of Lt. D. S. Robertson is "O.," and not "A.," as in "Gazette," Aug 1st.

The initials of Maj. R. P. Whitehead (A and S.) are as now described, and not "R.," as in "Gazette," Aug. 1st.

The initial of Lt. J. Whitford (A.) is as now described, and not "I." as in "Gazette," Aug. 1st.

The surname of Lt. A. T. Wynyard-Wright (S.O.) is as now described, and not "Wynward-Wright" as in "Gazette," Aug 1st.

The surname of Lt. W. J. Millen (A.) is as now described, and not "Millan" as in "Gazette," Aug. 1st.

The surname of Lt. A. G. Peace (A.) is as now described, and not "Pearce," as in "Gazette," Aug. 1st.

The surname of Maj. E. L. Millar, M.B.E. (A.), is as now described, and not "Miller," as in "Gazette," Aug.1st

The following temp. appointment is made at the Air Ministry:—Staff Officer, 3rd Cl.—(P.).—Flight Lt. G. W. Dobson, O.B.E., Aug. 31st, from S.O.2, vice Flight Lt. H. S. Neville.

The following temp. appointment is made:—Staff Officer, 3rd Cl. (Q.).—Flying Officer C. E. Hodgson, M.B.E., from S.O.2, Aug. 15th.

The surname of Sqdn. Ldr. J. H. Lidderdale is as now described, and not "Liddendale" as stated in "Gazette," Sept. 2nd.

FLYING BRANCH.—Sec. Lts. to be Lts.:—H. F. Griffith, May 8th, 1918; P. Segrave (since killed), Oct. 26th, 1918; Hon. Lt. T. S. Campbell, Nov. 9th, 1918.

The following relinquish their commns. on ceasing to be empld.:—Lt. F. R. McCall, D.S.O., M.C., D.F.C. (Capt., Alberta R.), June 23rd; Sec. Lt. (Hon. Lt.) G. F. Antell (Lt., Can. Ord. Corps), June 30th; Sec. Lt. A. Woolsey (Lt., Northants R.), July 16th; Sec. Lt. (Hon. Lt.) P. W. Fox (Lt., Brit. Columbia R.), Aug. 28th.

Transferred to the unempld. list:—Sec. Lt. E. V. Boyd, Sec. Lt. W. G. Burns, Sec. Lt. W. B. Fry, Feb. 1st; Lt. R. F. W. Sheraton, Feb. 2nd; Sec. Lt. G. A. R. Hill, Feb. 14th; Sec. Lt. F. W. Elliott, Sec. Lt. T. B. Shepherd, Feb. 28th; Lt. W. R. K. Skinner, March 2nd; Sec. Lt. C. G. H. C. Thomas, March 4th; Lt. A. W. Sharp, March 5th; Sec. Lt. D. Rose, March 6th; Sec. Lt. G. F. Mack, March 8th; Sec. Lt. C. A. Craig, March 15th; Lt. G. B. S. Thompson, March 17th; Lt. W. M. Smith, March 21st; Lt. R. H. Marshall, March 31st; Lt. A. Moore, April 3rd; Sec. Lt. R. F. Hammond, Sec. Lt. S. D. Hutchinson, April 10th; Sec. Lt. R. G. Scott, Sec. Lt. J. W. Jakes, Lt. H. Tasker, April 13th; Lt. H. J. Sparks, M.C., April 16th; Sec. Lt. M. Tison, April 17th; Sec. Lt. W. D. Straight, Lt. L. J. A. Tapper, April 18th; Sec. Lt. G. G. Dow, Sec. Lt. G. H. Lunn, Lt. W. B. Sullivan, April 19th; Sec. Lt. (Hon. Lt.) R. Bowman, Lt. (actg. Capt.) W. L. Douglas, Sec. Lt. R. Kelly, Sec. Lt. A. D. Kemp, Sec. Lt. R. A. Rutter, Lt. L. H. Scott, M.C., Sec. Lt. J. S. Shortt, Sec. Lt. W. W. R. Watson, April 20th; Sec. Lt. W. H. Thomas, April 21st; Lt. C. W. Thomas, April 24th; Sec. Lt. H. F. Turner, April 25th; Sec. Lt. M. G. Stewart, April 26th; Sec. Lt. F. R. Chapman, Sec. Lt. C. W. Gill, Sec. Lt. F. R. James, Sec. Lt. H. Stirrup, April 29th; Lt. C. E. Ogden, May 1st; Lt. S. Hill, Sec. Lt. A. B. Newman, Lt. B. E. Turney, May 2nd; Sec. Lt. C. A. Lovell, Sec. Lt. H. C. Sparks, May 8th; Sec. Lt. J. Town, May 10th; Capt. F. H. E. Kolligs, Lt. F. G. M. Sparks, May 12th; Sec. Lt. V. P. B. Thomas, Sec. Lt. C. W. Sutcliffe, Sec. Lt. L. C. Taylor, May 15th; Sec. Lt. C. L. Hicks (substituted for notification in "Gazette," June 17th); Sec. Lt. W. P. Loomis, Lt. T. V. Lord, Lt. E. C. Robinson, Sec. Lt. M. C. Sherwood (substituted for notification in "Gazette," May 20th), May 20th; Lt. H. S. Terrell, May 26th; Lt. E. A. Elliott, May 27th; Sec. Lt. R. A. H. Shelford, May 31st; Sec. Lt. (Hon. Capt.) L. R. Hibbert, Lt. E. D. Jennings, June 4th; Sec. Lt. A. Taylor, June 7th, Lt. G. G. Williams, June 8th, Sec. Lt. J. Graham, D.F.C., June 11th; Sec. Lt. C. E. Tearne, June 12th; Sec. Lt. W. J. Griffith, June 13th, Lt. S. J. Clinch, Lt. F. A. Trotter, July 1st; Lt. W. Green, July 9th; Lt. S. E. Buck, Sec. Lt. G. C. Cole, Lt. R. H. S. Eason, Sec. Lt. A. J. Gagon, Sec. Lt. H. M. Small, July 12th; Sec. Lt. F. C. Greene, July 13th; Lt. H. R. Gardner, July 17th; Sec. Lt. E. L. FitzSimmons, July 25th; Sec. Lt. W. Graham, July 28th; Lt. R. Brown, Lt. A. E. I. Clifford, Capt. R. S. Sorley, D.S.C., July 29th; Lt. H. F. Jenkins, July 31st; Pilot Officer J. G. S. Lennstrand, Pilot Officer J. W. New, Flt. Lt. M. H. Turner, Aug. 1st; Pilot Officers C. Turner, Aug. 2nd; R. R. Laver, Aug 5th; A. E. Eagle, H. J. Evans; Flying Officers L. J. P. Green, J. R. Millie, D.F.C., W. E. Palk, D.F.C., Aug. 6th; Flt. Lt. W. L. Jordan, Flying Officer F. Pascoe, Pilot Officer A. R. Thatcher, Flt. Lt. T. G. Thornton, M.C., D.F.C., Sqdn. Ldr. C. S. Wynne-Eyton, D.S.O., Aug. 7th; Flying Officers J. J. Meredith, W. C. Mortimer-Phelan, A. G. Peasland, Aug. 8th; C. G. Capel, E. J. A. L. Kemp, J. G. McEwan, Aug. 9th; Flying Officer H. Daniel, M.C., A.F.C., Pilot Officers J. R. Frean, L. R. Grice, O. A. P. Heron, D.F.C., A. H. McRoberts, Aug. 10th; Flying Officers W. F. Kendall, T. L. Tebbit, Aug. 11th; A. Marriner, Aug. 12th; Pilot Officers W. A. Mercer, (Hon. Flying Officer) L. J. Pugh, Aug. 13th; Sqdn. Ldr. R. A. Chalmers, O.B.E., A.F.C., Pilot Officer (Hon. Flying Officer) R. A. B. Pope, M.C., Pilot Officer D. M. Smith, Aug. 14th; Flying Officer H. G. Jackson, Aug. 15th; Pilot Officer B. Hinkler, Flying Officer F. E. Rix, Aug. 18th; Flt. Lt. M. Le Blanc-Smith, D.F.C., Flying Officer A. W. Whitmore, Aug. 20th; Pilot Officer A. T. Shelley, Flt. Lt. J. C. Slessor, Pilot Officer B. Sykes, Aug. 21st; Pilot Officer G. W. Fields, Flying Officer G. G. Fonseca, Flying Officer W. S. Frackelton, Flying Officer C. Lillicrap, Pilot Officer T. J. Maloney, Pilot Officer T. R. Sharpe, Aug. 22nd; Flying Officer N. H. N. Fletcher, Pilot Officer S. N. Hart, Flying Officer T. L. Palmer, Flt. Lt. S. F. Vincent, A.F.C., Pilot Officer C. W. Waller, Pilot Officer L. A. Williamson, Aug. 23rd; Flying Officer N. B. Lovemore, A.F.C., Aug. 25th; Flying Officer I. O. Gaze, Sqdn. Ldr. (actg. Wing Cmdr.) F. W. Lucas, O.B.E., Aug. 26th; Pilot Officer L. S. Ash, Pilot Officer E. V. Brown, Pilot Officer A. S. Rutherford, Pilot Officer (Hon. Flying Officer) L. R. Wheeler, Aug. 28th, Pilot Officer J. Burr, Flying Officer B. de Salaberry, Flying Officer P. M. Hodder, Flying Officer W. G. Ivamy, Pilot Officer H. T. McKinnie, Flying Officer J. A. R. Mason, A.F.C., Pilot Officer N. J. Nock, Aug. 29th; Flying Officer S. I. Gribble, M.C., Sept. 2nd; Pilot Officer E. I. Mayne, Sept. 3rd; Pilot Officer J. G. J. McDermott, Flying Officer R. McPhee, Sept. 4th.

Lt.-Col. G. Wellesley, M.C. (G. Gds.), relinquishes his commn. on account of ill-health, Sept. 3rd.

Lt.-Col. J. E. Tennant, D.S.O., M.C. (Capt., Brev. Maj., Scots. Gds.), resigns his commn., Sept. 6th.

Capt. J. C. L. Barnett, M.C. (Oxf. and Bucks L.I., T.F.), relinquishes his commn. on account of ill-health, Sept. 3rd.

Lt. R. T. Percival relinquishes his commn. on account of ill-health contracted on active service, and is permitted to retain his rank, Aug. 23rd.

Lt. Lord C. C. Douglas (K.O.S.B.) relinquishes his commn. on account of ill-health caused by wounds, Sept. 4th.

The following Lts. resign their commns.:—Hon. Capt. F. W. Hartridge (Capt., R.A.S.C.), A. M. Bennett (Lt., R. W. Surr. R.), Sept. 6th.

The surname of Lt. T. M. Johns is as now described and not "Jones" as stated in "Gazette," Aug. 8th

The notification in "Gazette," Feb. 18th, concerning Lt. J. Freman (Lt., Brit. Col. R.) is cancelled.

The notification in "Gazette," May 20th, concerning Sec. Lt. A. K. Barter is cancelled. The notification in "Gazette," June 3rd, to stand

The notification in "Gazette," June 6th, concerning Sec. Lt. J. H. Yalden is cancelled. The notification in "Gazette," April 26th, to stand.

ADMINISTRATIVE BRANCH.—Lt. R. Kane is granted the hon. rank of Capt., Sept. 23rd, 1918.

Sec. Lt. H. B. Brown to be Lt., Nov. 24th, 1918.

The following Sec. Lts. (late Gen. List, R.F.C., on prob.) are confirmed in rank:—C. R. Campbell, Aug 24th, 1918, W. Simmonds, Nov. 1st, 1918; L. F. Joyner, April 17th.

Sec. Lt. J. Cameron to be Sec. Lt., from (A.), July 15th, 1918.

Sec. Lt. W. Knight to be Sec. Lt., from (K.B.), April 17th.

Transferred to the unempld. list:—Sec. Lt. A. D. Turner, Jan. 10th; Sec. Lt. G. S. Turner, Jan. 30th; Lt. C. C. Gardner, March 18th; Sec. Lt. A. N. Ryles, April 1st; Sec. Lt. G. Thomson, April 9th; Sec. Lt. J. King, April 14th; Lt. J. Rymer, April 17th; Lt. B. Burton, May 2nd; Sec. Lt. A. Tullock, May 14th; Capt. W. H. Taylor, June 3rd; Sec. Lt. F. W. J. Tooley, June 13th; Sec. Lt. E. F. Tyler, June 18th; Capt. E. L. Oliver, July 4th (substituted for notification in "Gazette," July 18th); Sec. Lt. J. R. Searle, July 25th; Flying Officer W. J. Harvey, Aug. 1st; Flt. Lt. C. P. L. Firth (Worc. R.), Aug. 2nd; Flying Officer (Hon. Flt. Lt.) C. H. Lewis, Aug. 3rd; Pilot Officer W. G. Nicholas, Aug. 4th; Flying Officer E. C. Batchelor, M.C., Aug. 15th; Capt. S. A. Laird, Aug. 17th; Flying Officer I. M. Fry, Flt. Lt. G. E. Morris, Pilot Officer J. C. Rowell, Aug. 18th; Pilot Officer J. H. Drayton, Pilot Officer E. Hoy, Flying Officer T. W. A. Jackson, Aug. 19th; Pilot Officer H. H. Creighton, Aug. 22nd; Pilot Officer R. R. Trout, Aug. 23rd; Pilot Officer G. H. Allender, Aug. 27th; Pilot Officer (Hon. Flying Officer) F. W. Day, Aug. 28th.

Sec. Lt. (actg. Capt.) C. W. Probets resigns his commn. and is permitted to retain his rank, Sept. 4th (substituted for notification in "Gazette," July 22nd).

The notification in "Gazette," Nov. 8th, 1918, concerning Sec. Lt. F. Moss is cancelled.

The notification in "Gazette," July 18th, concerning Sec. Lt. C. W. Sutcliffe is cancelled.

TECHNICAL BRANCH.—Sec. Lt. (Hon. Lt.) V. H. Tait to be Lt., without pay and allowances prior to July 1st, 1918, April 2nd, 1918 (substituted for notification in "Gazette," Feb. 18th).

Sec. Lt. E. L. M. Emtage to be Lt., July 12th, 1918 (substituted for notifications in "Gazette," Jan. 3rd and Aug. 19th.

Sec. Lt. W. J. Scott to be Lt., April 29th.

Sec. Lts. to be Lts. without pay and allowances of that rank:—Hon. Lt. J. Robertson, April 2nd, 1918; A. W. Mansfield, June 1st.

Sec. Lt. H. B. Brown to be Sec. Lt., Grade (A.), from (Ad.), Aug. 17th, 1918.

Sec. Lt. J. L. Irving to be Sec. Lt., Grade (A.), from (O.), Jan. 20th.

Sec. Lts. (Ad.) to be Sec. Lts., Grade (B):—J. E. Neary Feb. 20th; W. Hawksworth, May 30th.

Pilot Officer J. S. Ferguson to be Pilot Officer, Grade (B), from (Ad.), Aug. 6th.

Sec. Lt. F. C. Rayson to be Sec. Lt., Grade (B), from (A'ship), July 17th.

Transferred to unempld. list:—Sec. Lt. (Hon. Lt.) T. P. S. Summerson, Feb. 21st; Capt. (actg. Maj.) C. H. D. Poppett, O.B.E., April 2nd;

Sec. Lt. (actg. Lt.) B. F. T. Hare, April 17th (substituted for notification in "Gazette," June 24th); Lt. E. A. Baker, M.C., Sec. Lt. A. Gregory, April 18th; Sec. Lt. H. C. King, May 7th; Capt. G. A. Turner, May 11th; Lt. H. G. Thornton, June 12th; Lt. (Hon. Capt.) V. F. Davies, June 19th; Capt. S. M. Harding, July 1st; Sec. Lt. P. C. Heming, July 2nd; Lt. W. F. Thrutchley, July 8th; Capt. C. E. Ruah, July 24th; Flying Officer G. M. Edmonston, Flt. Lt. E. Stroud, Aug. 2nd; Flt. Lt. J. H. Taylor, Aug. 3rd; Flying Officer A. W. McClellan, Aug. 6th; Flying Officer D. H. Blaikie, Sqdn. Ldr. A. Partridge, Aug. 12th; Pilot Officer C. B. Dolphin, Aug. 13th; Pilot Officer F. A. Dickinson, Aug. 17th; Pilot Officer (Hon. Flying Officer) P. Rourke, Aug. 18th; Flying Officer W. J. Cooper, Flying Officer S. T. Fradd, Aug. 19th; Flt. Lt. J. Hollingworth, Flt. Lt. J. G. Schon, M.C., Aug. 20th; Flt. Lt. C. C. Carlisle, Aug. 21st; Flt. Lt. W. A. Andrews, Aug. 22nd; Flt. Lt. J. C. C. Affleck, Pilot Officer A. A. Dolphin, Aug. 23rd; Flt. Lt. W. G. Everingham, Aug. 24th.

The initials of Capt. R. P. J. McCoy are as now described, and not "R. P. T." as stated in "Gazette," Aug. 22nd.

The surname of Capt. A. A. Bryce-Buchanan is as now described, and not "Bryce-Burdon," as stated in "Gazette," April 1st.

The notification in "Gazette," May 23rd, concerning Sec. Lt. R. E. Pudney is cancelled

The notification in "Gazette," June 3rd, concerning Sec. Lt. (Hon. Capt.) E. R. Loder is cancelled.

MEDICAL BRANCH.—T./Capt. A. E. Panter is granted the actg. rank of Maj. whilst specially empld., Aug. 1st.

Flying Officer G. Hughes is transferred to the unempld. list, Aug. 13th.

The initial of Capt. O. Gleeson (Capt., R.A.M.C.) is as now described, and not "A." as stated in "Gazette," Sept. 2nd.

DENTAL BRANCH.—T. H. Jones is granted a temp. commn. as Flying Officer, Aug. 30th.

Lt. G. H. W. Randall is transferred to unempld. list, April 2nd.

CHAPLAINS BRANCH.—Rev. M. J. Dunne (late temp. Chapln. to the Forces, 4th Cl., R.A.C.D.) is granted a temp. commn. as Chapln. with the relative rank of Capt (Roman Catholic), Aug. 2nd.

Asst. Principal Chapln. (Wesleyan).—The Rev. A. S. Bishop is granted a temp. commn. as Chapln. with the relative rank of Capt., April 26th, seny. Jan. 1st, and is granted the relative rank of Maj. whilst empld. as Asst. Principal Chapln. (Wesleyan).

MEMORANDA.—The following Overseas Cadets are granted temp. commns. as Sec. Lts., with effect from Feb. 15th, and relinquish such commns. with permission to retain the rank, from the day following termination of the standardised voyage in the case of those claiming immediate repatriation and from the day following demobilisation in England in all other cases:—212676 S. F. Anderson, C.M.G., D.S.M.; 152750 P. McShane, S6469 W. P. Turner.

The following Cadets are granted hon. commns. as Sec. Lts.:—7547 O. T. Curtis, 635996 F. W. Cotton, 42717 H. B. Fellowes, 202346 J. Little-Johns, 3204 M. A. K. Smith, 16828 A. J. Spacey, 203217 M. W. Todd, 2152 T. A. Williams, 62904 J. Wiseley, Jan. 4th; 45376 J. H. Baird, 42855 A. M. Brown, 7664 J. Ediss, Jan 5th; 47837 E. Adams, 92517 F. Banham, G/29791 W. T. M. Branson, S/29943 C. W. Benstead, 251026 W. L. Clifford, 12599 D. Easson, 21121 J. Forbes, 250422 M. I Green, H270958 F. R. Grundy, 30319 L. R. Hilsdon, 48043 W. B. McMillan, 33138 C. Rhodes, 840633 A. E. Wolverton, Jan. 11th; 176848 C. E Foulds, Jan. 12th; MI/1009 W. W. Bletchetti, 1843 B. De Putron, 373761 R. J. Frost, M/205005 W. W. Gough, 23785 F. K. Howes, 178945 C. C. Welsh, Jan. 13th; 177403 J. E. Furlong, Jan. 15th; 176790 S. Knowles, 176801 D. Nichol, Jan. 16th; 52185 A. M. Lee, 7337 F Shaw, 23980 E. Treashure, Jan. 17th; 178520 E. M. Butcher, 177082 L. P. Bridal, 177693 C. A. Henson, 197621 E. R. Lewis, 177287 D. J. C. Prizeman, 177185 J. Patrick, 177244 E. C. Rolfe, 177549 P. Sinclair, 178495 J. Sharp, 177182 V. E. Stockwell, 176949 H. Warre, 178505 R. H. T. Young, Jan. 10th; 47501 H. Lennon, Jan. 26th; 178900 C. J. Barker, 178234 T. H. Burke, 179702 P. H. Brown, 179712 F. W. Bleeze, 179777 S Blenkin, 178413 W. E. Chinn, 176757 B. R. Dickinson, 176898 J. E. H. Davis, 176367 R. G. Elms, 179724 H. S. Ellingworth, 176871 J. A. Greetham, 177307 J. M. Graham, 177860 C. A. Jowitt, 179305 F. H. Jacobs, 177786 B. J. Knowles, 178869 J. A. Long, 179356 G. Lewis, 179748 L. Lord, 178757 H. G. Marshall, 179363 D. H. L. May, 179165 W. G. Marsack, 179279 L. Nothard, 177869 H. Piccaver, 176911 V. C. R. Pope, 178487 N. L. Pilling, 178901 A. A. Pepler, 177979 G. A. Renwick, 178386 A. C. Richards, 178449 S. Reid, 179072 G. A. Richards, 179073 D. O. Ridoubt, 179109 J. Rankin, 179320 J. Robinson, 178086 H. J. Smith, 178643 F. Shiner, 178931 R. A. Swinard, 179003 A. H. Sykes, 179554 W. C. Strathou, 179082 C. V. T. Sutton, 179010 W. Tomlinson, 179006 F. Torkildson, 179256 E. L. Tomkins, 178563 A. D. Williams, 173264 E. L. Watkins, 179519 F. W. Westcott, 179558 G. Waller, 178967 E. A. Yarneld, Jan. 29th; 177271 L. W. Hyland, 178964 R. Warden, 179270 R. F. Williams, January 30th; 177729 W. A. Booth, 177924 L. H Fisher, 176904 I. G. Gascoigne, 173421 F. C. Hayes, 137566 W. H. Henderson, 177861 W. H. Knight, 26531 N. A. T. Martin, 175092 R. W. Sheppard, 179414 D. L. Simpson, Feb. 8th; 176089 J. L. Gregory, Feb. 9th; 178407 C. E. Butler, 178343 J. H. Cowan, 117421 W. J. Chaston, 178246 A. W. Eldred, 177817 J. Font, 128641 E. J. Hodges, 177207 G. D. Ireland, 170368 H. Rodger, 246519 A. J. Young, Feb. 11th; 4359 G. Atter, Feb. 14th; 1351 J. O. Henderson, 178870 S. J. Millen, 176976 M. J. Phillips, 178698 A. J. Peacey, 178629 T. W. Patterson, 197192 E. Robinson, 156308 S. T. Sherlock, 265181 E. A. Tiley, 176733 A. W. C. Villiers, 176719 J. S. Worters, 176718 R. A. Ward, Feb. 18th; 176181 B. S. Ingledew, 176269 F. J. McClean, Feb. 19th; 169598 G. Appleyard, Feb. 24th; M/10515 L. E. Alston, Feb. 25th; 434571 A. E. Gattley, 63408 J. Newton, Feb. 28th; MS/4373 M. W. Bartlett, 128752 G. M. Edwards, March 4th; 117205 R. Kay, 173281 A. D. Myers, March 11th; 177099 J. Clayton, 137613 H. Stott, March 18th; 175038 G. A. F. Bucknall, St.K951 E. Day, 175701 S. Hudson, 137774 W. V. R. Nicholl, 137779 C. L. O'Callaghan, 137285 W G. Pirrie, 137489 P. G. Rogers, March 21st; 155149 W. B. Britter, 43294 H. Brace, 8518 A. C. Cooper, 63214 C Dickinson, 370340 H. C. Doubleday, 947861 W. W. Fitchen, 170123 A. J. Hall, 35043 C. Hall, 307 F. A. Humphreys, 20860 F. A. Jordan, 6904 W. V. Piggott 135379 W. S. Rees, 137038 S. Tickle, April 1st; 128932 J. Wallace, April 4th; 117080 L. Doherty, 71418 E. Ross, April 8th; 940534 J. I. Blackburn, 137092 D. S. Richardson, April 28th.

Lt.-Col (actg. Brig.-Gen.) C. C. Marindin, C.B.E., D.S.O. (Maj. (Bt. Lt.-Col.), R.G.A.), relinquishes his commn. on ceasing to be empld., Sept. 1st.

Transferred to unempld. list:—Capt. C. B. Baker, May 2nd; Pilot Officer T. A. Bayly, July 17th; Flt. Lt. H. N. Nowell, Aug. 7th; Pilot Officer J. M. Fraser, Aug. 10th; Flt. Lt. H. F. Barge, Pilot Officer J. A. S. Cooke, Pilot Officer E. Hanley, Pilot Officer T. S. Laird, Aug. 14th; Pilot Officer C. S. Buckingham, Aug. 15th; Flying Officer W. H. Date, from (S.O.), Flt. Lt. H. M. Earnshaw, from (S.O.), Aug. 18th; Flt. Lt. (actg. Sqdn. Ldr.) C. L. Bullock, O.B.E., from (S.O.), Aug 19th; Pilot Officer T. E. Fisher, Pilot Officer E. Fortin, Aug. 22nd; Flt. Lt. H. S. Neville (S.O.), Aug. 31st.

PERSONAL NOTICES.

NAVAL.

BIRTH.

ENGLAND.—On Sept. 2nd, at Penlee, Lee-on-Solent, the wife of Squadron Leader T. H. England, D.S.C., A.F.C., R.A.F.—a daughter.

MILITARY.

DEATH.

LEE.—On Sept. 1st, killed in a flying accident, Brigadier-General Lee, C.M.G., son of Major W. F. Lee, Grove Hall, Knottingley.

MARRIAGE.

COOKE—HALL.—On Aug. 20th, at Weybridge, Sapper Cooke, N.Z. Engineers, was married to Miss Winifred Hall, W.R.A.F.

ENGAGEMENTS.

HAWKINS—SPENCER.—The engagement is announced between Alfred Cyril Spencer Hawkins (late R.F.C.), only son of Mr. and Mrs. Alfred Tolhurst Hawkins, of 42, Portland Place, W., and Beryl Sefton, younger daughter of Mr. and Mrs. Alfred Spencer, of 70, Inverness Terrace, Hyde Park, W.

RIDDELL—BULLER.—The engagement is announced of Capt. Patrick Cameron Oliver Riddell (late the Wiltshire Regiment and R.A.F.), elder son of the late Patrick Riddell and Mrs. Riddell, Noirmont, Weybridge, to Alice Moubray, younger daughter of the Rev. Spencer R. A. Buller, R.D., and Mrs. Buller, the Rectory, Weybridge.

SOUTHGATE—FOLKARD.—A marriage has been arranged, and will shortly take place, between Lieut. F. W. Southgate, late R.F.C., third son of Henry Southgate, Needham Market, Suffolk, and Angela, elder daughter of Mr. and Mrs. Folkard, Addiscombe, Surrey.

BIRTHS.

BARTON.—On Aug. 28th, at Victoria Road, Bushey, Herts, to the wife of Sydney Barton (late R.F.C.)—a son (Douglas Searle).

HAMILTON.—On Aug. 31st, at Heighington, Lincolnshire, the wife of Mr. E. V. C. Hamilton, Worcestershire Regt. and R.A.F., of a son (John Colley Colclough).

WATTERS.—On Sept. 4th, at 19, Drumsheugh Gardens, Edinburgh, the wife of Capt. W. Watters, late the Border Regt. and R.A.F., of a daughter.

AIR FORCE.

DEATHS.

HARBORD.—Lieut. Lionel Anthony Harbord, R.A.F., who died on Aug. 21st at Airpark, Lahore, India, was the husband of Sophy Harbord. He was 49 years of age.

EVERSDEN.—Capt. Robert Ernest Eversden, R.A.F., late 1-1st Suffolk Yeo., was accidentally killed on Aug. 15th at the aerodrome at Ekaterinodar, S. Russia, while serving with General Denikin's Mission. He had been on active service since 1915, in the Dardanelles, Egypt, Palestine, and German East Africa. Capt. Eversden was the son of Catherine Eversden, of Ley Hill, Chesham, Bucks, and was 24 years of age.

MORRIS.—Lieut. Herbert Stanley Morris, R.A.F., whose death was announced last week, came to this country in October last, and joined the R.A.F. as a Flight Cadet, and was, prior to being posted to Netheravon, a pupil in aviation with 29 Squadron, R.A.F., Croydon. He was born in South Africa 30 years ago; he was educated at the Cape University, and specialised in Indian, Roman, and Dutch Law, and held the position of Magistrate at Suva, the capital of Fiji.

At the inquest at Maidenhead on Aug. 15th Capt. R. S. Aitken, R.A.F., stationed at Netheravon (Wilts), said that on Aug. 14th he instructed Mr. Morris to go up for landing practice. He was only to go round and round the aerodrome. No one knew why he had come to Maidenhead. He went quite on his own account. Mr. Morris had an average experience as a flier. Witness examined the wrecked machine. It was a "Bristol Fighter." In his opinion, the machine before the flight was in perfect order. He thought Mr. Morris tried to find a place to land, shut off the engine, and lost flying speed, and then either spun down spirally or nose-dived to the ground. It was one of the commonest of flying accidents. The inquest was adjourned.

NELSON.—On Aug. 6th, at Craven Cottage, Eastbourne, Molly, the dearly loved wife of Capt. C. H. Nelson, R.A.F.

ENGAGEMENTS.

ANDERSON—YEO.—The engagement is announced between Lieut. David Stewart Anderson, R.A.F., son of the late Mr. C. D. Anderson, and nephew of Mr. R. Woolley Walden, J.P., and Phyllis Jessie, only daughter of Mr. and Mrs. James Yeo, Woodhurst, Warlingham, Surrey.

BATES—HASKETT-SMITH.—The engagement is announced between Lieut. Harry Bates (late R.A.F.), son of the late Mr. Tom Bates and Mrs. Bates, of Dewsbury, Yorkshire, and Kathleen Antonia, only daughter of Mr. and Mrs. H. F. Haskett-Smith, of Teignmouth, S. Devon, and granddaughter of the late Capt. Haskett-Smith, of Weston, Bath.

BEEVOR—MINTY.—The engagement is announced of Ralph Branthwayt Beevor, late 28th Squadron, R.A.F., eldest son of Mr. and Mrs. Ralph J. Beevor, of Reymerston, St. Albans, and grandson of the late Sir Thomas Beevor, Bt., and Phyllis Margaret Ashburner, eldest daughter of Mr. and Mrs. H. O. Minty, of Nessfield, St. Albans.

FANE—BACON.—The marriage arranged between Capt. Gerard Fane, D.S.C., R.A.F., and Miss Rhoda Bacon will take place on Wednesday, October 1st, at 2.15, at St. Andrew's Church, Raveningham, Norfolk.

LYON—STORY.—The engagement is announced of Mr. W. A. Lyon, R.A.F., youngest son of the late Dr. Robert Lyon and of Mrs. Lyon, 10, Baskerville Road Wandsworth Common, and Sylvia Ellen, younger daughter of Capt. and Mrs. E. U. Story, Cherry Garden House, Folkestone.

MASKELL—KNIGHTS.—A marriage has been arranged and will take place at an early date (leave permitting) between Flight Lieut. A. S. Maskell, R.A.F., of "Benicree," Glencairn Park Road, Cheltenham, and Nellie, daughter of Mr. and Mrs. W. B. Knights, of "Basil House," York Road, Great Yarmouth.

SNOW—LIVESAY.—The engagement is announced of Capt. A. Courtenay Snow, R.A.F., only son of Mr. and Mrs. John Snow, Penllwyn Park, Carmarthen, and Dorothy Elizabeth Bligh, youngest daughter of Mrs. Livesay, Eaglehurst, Alverstoke, Hants.

MARRIAGES.

ALDERSON—DOIG.—On Aug. 18th, at Swanage, Lieut. A. G. D. Alderson, R.A.F., son of the Rev. A. D. Alderson, of Tockwith, York, was married to Edith Mary, eldest daughter of Mr. David Doig, of Rosslyn House, New Barnet.

DICK—MARSH.—On Sept. 6th, at All Souls' Church, Loudoun Road, N.W., by the Rev. W. P. Hanks, M.A., D.D., Walter Fleming Dick, late Lieut., R.A.F., only surviving son of Mr. and Mrs. John Semple Dick, of 34, Langham Road, N., and grandson of the late Anthony Beaufort Brabazon, M.D., of Bath, to Marjorie Stella, widow of Harry Evelyn Marsh, of Sheffield, and youngest daughter of the late Edward Nunes Phillips.

FOSTER—HATCH.—The marriage took place on Sept. 2nd at St. Mark's, North Audley Street, of Capt. William Foster, R.A.F., youngest son of Mr. Robert Foster, of Stockeld Park, Wetherby, Yorkshire, and the late Hon. Mrs. Robert Foster, and Marjorie, only child of Sir Ernest Hatch, formerly M.P. for the Gorton Division, and Lady Constance Hatch, of 46, Upper Grosvenor Street, W.

The officiating clergy were the Dean of Salisbury (Dr. Page Roberts), great-uncle of the bride, the Rev. the Hon. A. Parker, uncle of the bridegroom, and the Rev. W. G. Pennyman, vicar of St. Mark's.

NIGHTINGALE—WHITAKER.—On Sept. 1st, at St. Anselm's Church, Streatham, by the Rev. F. A. S. Reid, M.A., Capt. Alfred J. Nightingale, R.A.F., youngest son of the late A. Nightingale, to Stella May, youngest child of the late Walter S. Whitaker and Mrs. Whitaker, Streatham.

ROACH—COOK.—On Aug. 25th, at Christ Church, Ealing, Lieut. Thomas Edward Vaughan Roach, R.A.F., of Johannesburg, South Africa, was married to Elspet Sophia, only daughter of Mr. and Mrs. John Nicol Cook, 27, Castle Bar Road, Ealing, and Aberdeen, by the Rev. J. E. Cardigan Williams.

SOMERS-MARSHALL—NEALE.—On July 22nd, at St. Mary Magdalen's, Brighton, Lieut. J. A. Somers-Marshall (late R.A.F.), was married to Winefride Mary Neale.

SYKES—ROBERTS.—On Sept. 4th, at St. Jude's on the Hill, Golder's Green, Capt. Maurice Gaskell Sykes, R.A.F. (Indian Civil Service), youngest son of T. Gaskell Sykes, West Ealing, to Constance Mary Lilian, younger daughter of the late Hugh Stewart Roberts.

WOODHOUSE—MANNING.—On Sept. 1st, at All Saints' Church, Nottingham, Lieut. George Edward Leighton Woodhouse, R.A.F., younger son of Mr. and Mrs. Arthur Woodhouse, of 17, Heygate Avenue, Southend, to Mary, only daughter of Smith Fowler Manning, Esq., J.P., and Mrs. Manning, of The Tower House, Nottingham.

BIRTHS.

ALSTON.—On Aug. 23rd, at Dyffryn, Dulwich, S.E., to Margery, wife of Capt. C. R. Alston, late R.A.F.—a daughter.

ELLIOTT SMITH.—On Aug. 18th, at "The Rough," Wimborne Avenue, Parkstone, the wife of Capt. H. Elliott Smith, R.A.F., of a son.

ELLIS.—On Sept. 1st, at "Glasslyn," Brook Street, Brentwood, Essex, the wife of Colonel H. C. Ellis, C.B.E., R.A.F., of a son.

MONTAGU.—On July 19th, at Lady Holland's Home, to Capt. A. M. R. Montagu, R.A.F., and his wife Margaret (née Rumsby), a son—John Humphrey.

MUSSON.—On July 24th, at 3, St. Andrew's Road, W.14, to Moya, the wife of Lieut. J. McD. Musson, R.A.F.—a son.

O'CONNOR.—On Aug. 13th, at 34, Albert Road, Regent's Park, N.W., Constance (née Price), the wife of Capt. C. W. O'Connor, R.A.F., a son.

OLDHAM.—At Balgonie, Cobblehill, Vancouver Island, the wife of Lieut.-Col. Frank T. Oldham, R.A.F., of a son.

SANDFORD-THOMPSON.—On August 10th, at Orchard Cottage, Dormansland, Surrey, the wife of Major W. A. Cecil Sandford-Thompson, late R.A.F., of a daughter.

SCOTT.—On July 8th, at Wyncot, Thorpe St. Andrew, Norwich, to G. J. Scott (late Captain, R.A.F.) and Mrs. Scott, a daughter.

SLINGSBY.—On Aug. 5th, at "Clare Green," Nelson, Lancashire, the wife of Capt. William Ecroyd Slingsby, R.A.F., of a son.

WOOD.—On Sept. 5th, 1919, at Thicket Cottage, The Thicket, Southsea, "Biddy" (née Amos), wife of Capt. H. L. Wood, R.A.F., of a daughter.

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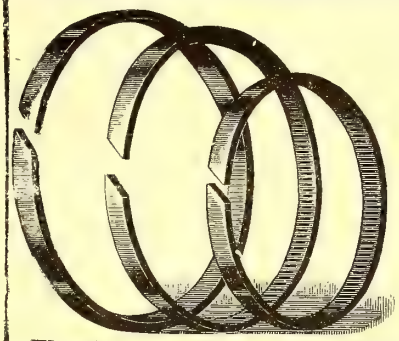

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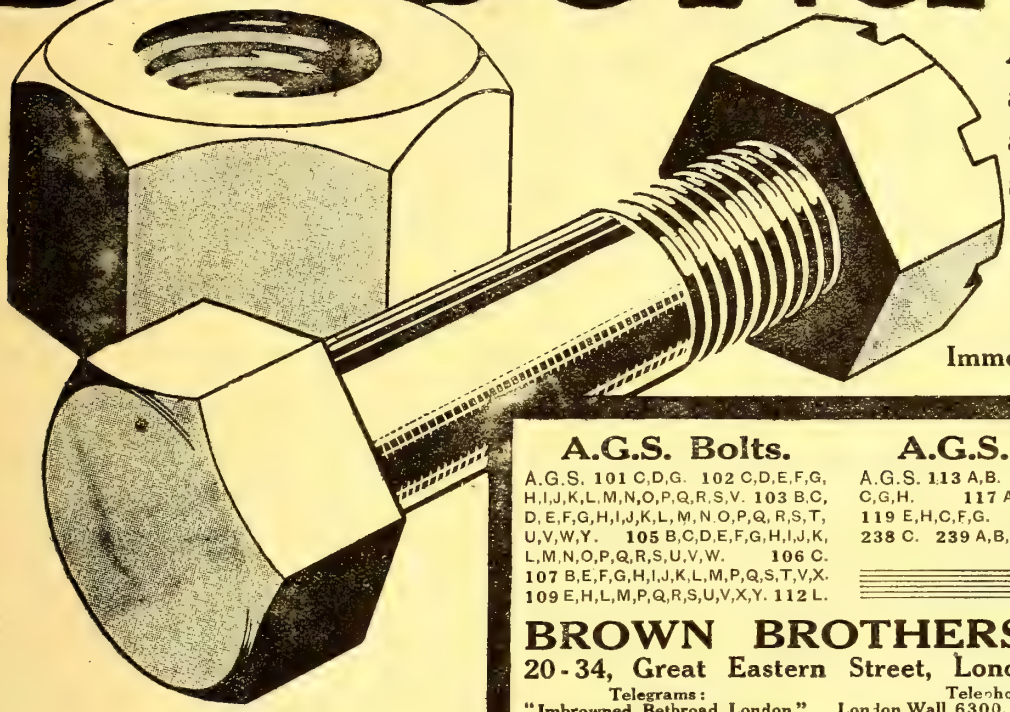

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ON THE SCHNEIDER PICNIC.

[NOTE.—Owing to the extreme length of these notes it has been necessary to set them in small type. It is hoped that the information contained therein will repay the trouble of reading them.—C. G. G.]

Officially it was called the Jacques Schneider International Cup Seaplane Competition, or words to that effect, the function of Sept. 10th having been arranged in order to hold a seaplane race for a handsome trophy and a prize of £1,000 presented by M. Jacques Schneider, of the famous French gun-making firm. Unfortunately, owing to a variety of reasons which will be related in detail further on in this story, there were very few seaplanes, there was no race, and there was little or no competition.

Consequently, the grandiloquent and complicated official title did not apply, and, considered from that point of view, the affair was a very perfect failure. But, considered as a picnic pure and simple, it was a great success, at any rate to those of us who had the good fortune to be of the party on the T.S.Y. "Ombra," which the Committee of the Royal Aero Club had borrowed from Mr. Montague Grahame-White for the occasion. Perhaps the expectant hundreds of thousands of the mere public who sat and grilled on the cliffs and beaches between Christchurch and Swanage enjoyed themselves less, and departed with a very poor opinion of seaplanes and the sport of flying, but, after all, that is no concern of the Royal Aero Club, which, it will be remembered, is by agreement with the Aerial League and the Royal Aeronautical Society concerned only with the sporting side of aviation and not with propaganda or with science.

AN EPICUREAN EPITHALAMIUM.

Certain readers of this paper have made the accusation that one is constantly attacking everything and everybody, and that one is incapable of praise. Just by way of refuting that accusation one feels that it is one's first duty to praise the Committee of the R.Ae.C. for its work on Sept. 10th and during the period of preparation before that date. Those who are merely interested in seaplanes and flying and such things had therefore better skip the next few paragraphs, for the ensuing epithalamic effort has nothing to do with such subjects. But one must praise something.

The Committee of the Royal Aero Club may not be great as organisers of flying events, but it certainly is astonishingly competent in arranging for the social side of the sport of aviation It is true that once in a while it misses an opportunity—as, for instance, when it omitted to entertain the first people to fly the Atlantic, namely the gallant officers and men of the U.S. Naval Flying Boat N.C.4—but it made full amends to its members in the way it afforded them the opportunity of eating and drinking with Sir John Alcock and Sir Arthur Brown, and with the officers and men of H.M. Airship R.34.

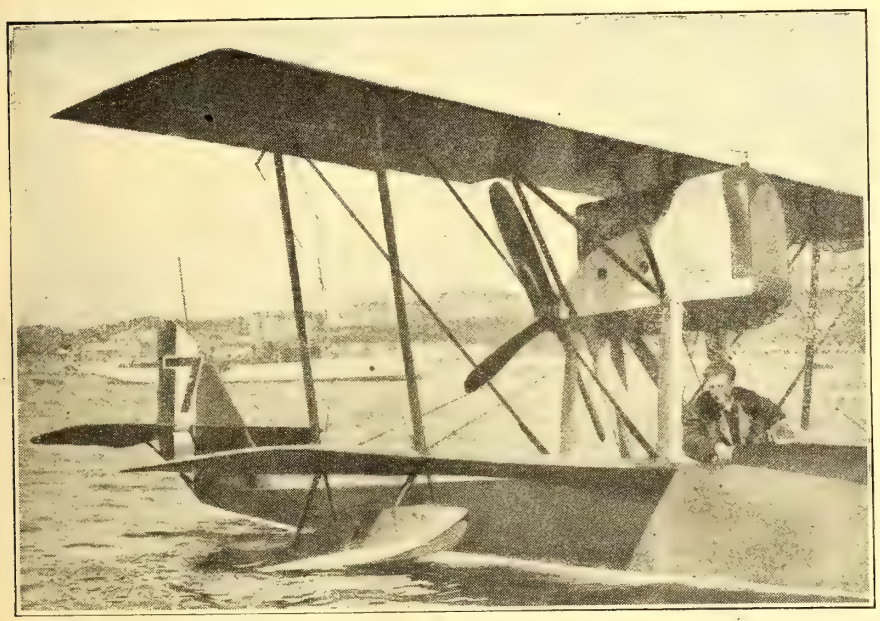
The Committee may not arrange "classic" races, nor establish championships for different kinds of sporting events in its own line, as do the governing bodies of other branches of sport, but it has certainly appeased the hunger and thirst of its members better than has any club in London throughout the war and the subsequent parched and arid peace. This signal success is certainly due to the individual genius of the Club's *maître d'hôtel*, Mr. Frisbee, whose ability in finding manna in the wilderness and in extracting liquids (other than water) from the rocky hearts of dealers in such commodities suggests that somewhere in his remote ancestry he must include the Quartermaster-General of Moses' Desert Column. But to the Committee belongs the credit of having discovered and engaged Mr. Frisbee and the still greater credit of succeeding in retaining his services.

A YACHTING PICNIC.

By a wonderful flash of intelligence the Committee sent Mr. Frisbee to control the catering on the yacht "Ombra," with the result that one hundred and seventy people had excellent lunches in relays in a saloon which could only seat twenty at a time. And then they had tea and an infinite variety of *patisseries* afterwards. Where the material was stowed and how it was handled was a pure conjuring trick.

It was not surprising that one of the distinguished foreign visitors who had some knowledge of the Club, as well as of "Ombra" during the picnic, remarked that though the Schneider Cup Race was not a success the Committee was quite fit to run a subsidiary company of the Maison Lyons.

At any rate, all those who penetrated to the yacht enjoyed the picnic thoroughly, though one cannot speak for the balance who stood on the pierhead at Bournemouth. Personally, one cannot praise the work of the Committee too highly.



THE HERO OF THE DAY.—The Italian Pilot, Janello, in his Savoia Boat (250 h.p. Isotta-Fraschini engine) at Bournemouth.

OUR VISITORS.

In the preceding issues of this paper Capt. Sayers has given all obtainable particulars concerning the competing machines and the so-called eliminatory trials from which the British team was selected, but, as usual, some of the competitors only arrived at the last moment.

It was unfortunate in some ways that there were so few entrants, though, as things turned out, it was fortunate that there were no more nations represented, for if there had been there would have been just so many more to be amused, or annoyed, or irritated by our comic British ideas of organisation. If, for example, there had been a German team we should have provided aviatic Germany with subject-matter for

heavy humour for the next two or three years. As it was, the French and Italians took our clumsy efforts with all the courtesy of the Latin race, whatever they may have felt, and it is only right to put on record the names of our visitors on this occasion.

The Nieuport firm was represented by M. Delage (Director), M. Chasseriaux (Chief Engineer), Lieut. Casale (Pilot), and MM. Janvier, Arnould, Sanson, Bompaire, Fournier, and Bonthieu.

The Spad was represented by M. Herbemont (Technical Director and Chief Designer), M. Sadi-Lecomte (Chief Pilot), M. de Romanet (Reserve Pilot), and MM. Chion, Levannier, Lehoucq, Fabricius, Coquelin, and Maignan.

The Savoia was represented by Sig. Santoni (Director, and incidentally a pioneer of British aviation), Mr. Power (British Representative), Sig. Janello (Pilot), Sig. Conflenti (Technical Manager), and Signori Magnani, Aisa, Roncorone, and Foresti.

M. Rousseau, of the Paris "Temps," was the French *commissaire*, and Capt. Finzi, of the Italian Army, a Doctor of Science, and Air Attaché at the Italian Embassy, watched affairs in the Italian interests. M. Demonge and M. Roche d'Estrez, of that excellent new French paper "L'Air," were also present. And a distinguished visitor was Madame Lumière, the clever little lady who has designed and manufactured the airscrews which have captured all the recent records in France.

BEFORE THE FATAL DAY.

One arrived on Tuesday at Cowes where the foreign competitors were housed in the capacious sheds of S. E. Saunders, Ltd. Certainly nothing finer could be imagined as a storage place for seaplanes, and nothing could exceed the care which Mr. Sam Saunders took to provide for the needs of the visitors. Lieut.-Commander Harold Perrin (Secretary of the Royal Aero Club) busied himself indefatigably for their comfort, and Mr. Charles Greenhill expended his Pentecostal versatility for their verbal assistance. Indubitably they had nothing of which to complain before the fatal day on which the competition should have occurred.

The Nieuport people had the hardest of luck, which was only relieved by the splendid example of sportsmanship it afforded. M. Casale had left Paris on Sunday and had arrived at Cowes *via* Brighton in two and a half hours, a very fine performance. In descending at Cowes he alighted on top of a buoy and completely abolished his floats and undercarriage. The machine sank, and of course that meant that the wings and engine were seriously damaged, though fortunately the main spars were not broken.

Real Sportsmanship.

As soon as his men arrived on Monday morning Mr. Saunders set them to work to rebuild the Nieuport. Mr. Newman took charge of the job and he and his men worked without stopping till Wednesday morning, so that the machine was ready again in time for the race. They fitted the spare engine and the spare floats which the Nieuport people had sent on ahead; they rebuilt the wings entirely, using only the spars, metal fittings, compression struts, and a few ribs; they made new undercarriage struts; they repaired the fuselage and tail unit; and they re-erected the whole machine.

In defiance of all modern labour notions they worked for practically forty-eight hours at a stretch, and demonstrated conclusively that, whatever the British workman may be, he is at heart a sportsman. The work was excellently done, and all the foreign visitors were loud in praise of the fine spirit shown by Mr. Newman and his men. It is wholly lamentable that their fine sporting effort was wasted after all, but it was a very bright spot in a disappointing affair.

More Bad Luck.

The Nieuport bad luck did not end here. M. Malard, the famous pilot of pre-war days, left Paris on Monday on the second Nieuport, and disappeared. The Air Ministry put a telephone call through to Paris on Tuesday, but could get no news of him. On Tuesday evening a member of the Royal Aero Club at Cowes tried to telephone to the Admiralty to awaken it to the advisability of sending a destroyer or something to hunt for him, but so far as one could learn nothing came of the attempt.

It was not until the centre of activity had moved to Bournemouth on Wednesday that information was received that M. Malard had been picked up in mid-Channel some time the previous day. He owes his life to the perfect weather of the period. Otherwise, he must have suffered the fate of poor Gustav Hamel, drowned in flying from France for the Aerial Derby of 1914.

Final Alterations.

The Spad arrived by boat and was duly assembled. After a preliminary trial M. Herbemont decided that she would be faster with less surface, so he and his men spent Tuesday night in amputating a foot or so from each tip of the upper plane. The result was that she arrived at Bournemouth with her upper wings considerably shorter than her lower.

The effect was curious to the eye, but distinctly beneficial to her speed, and though she was obviously not as fast as the Sopwith, she would have put up a good fight for second place with any of the other competitors. Despite her quaint appearance, she impressed everybody very favourably, and it is to be hoped that she will do some trials against time before long so that her performance may become known.

A Fine Achievement.

The Savoia was the last competitor to arrive, she came the longest distance, she was certainly built in the shortest time, and she was the first of the visitors to fly after arrival. All of which is cause for just pride on the part of her constructors.

Three weeks before the event she did not exist. She was built in exactly two weeks, and she spent a week in reaching England She would hardly have got there then but for the help of General Pitcher and the Air Ministry Mission in Paris, who used every endeavour to expedite her railway journey across France.

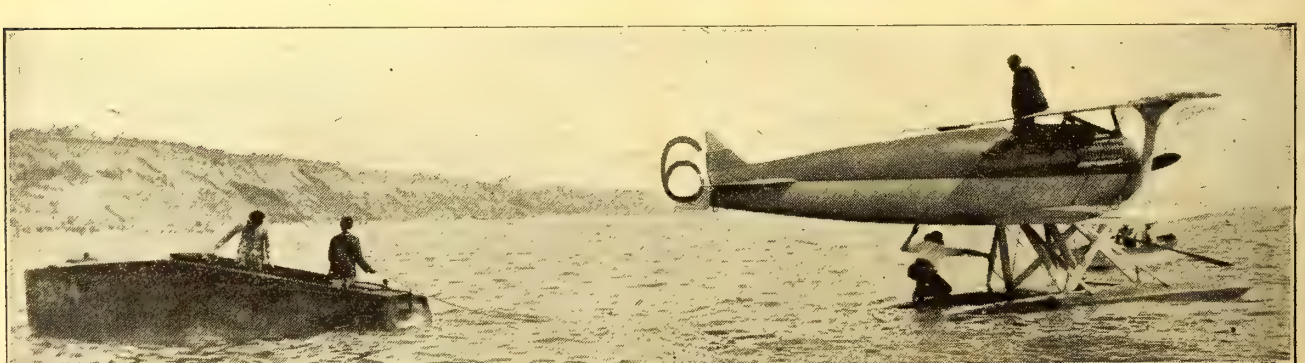
She had the smallest engine of all the competitors, a 250 h.p. Isotta-Fraschini, but it has a lovely voice and it runs like a clock. The boat and wing structure is beautifully built, and altogether Sig. Conflenti is to be congratulated on a very fine achievement.

Sig. Lorenzo Santoni, who will be remembered as being concerned with the British Deperdussin Co. and with the General Aeronautical Co. of 1912 and thereabouts, has certainly made good in Italy as founder and director of the great Savoia firm. It is seldom that such a pioneer as he attains to so much success.

The British Competitors.

Of the British competitors, all of whom were housed in their own sheds on Southampton Water, it suffices to say that the Sopwith with the 450 h.p. Cosmos-"Jupiter" was an obvious choice because of her astounding speed, which must be a good 160 miles an hour, if not more. The Fairey with the 450 h.p. Napier-"Lion" was an equally obvious choice as a machine of high speed and of proved seaworthiness. With these two Great Britain was estimated to be well represented in case of either very fine or very rough weather. The choice between the Supermarine with the 450 h.p. Napier and the Avro with the 240 h.p. Siddeley-"Puma," B.H.P., was not so obvious, for the Avro was apparently the faster until the day of the race, when the Supermarine acquired a new airscrew and gained a good five knots in speed.

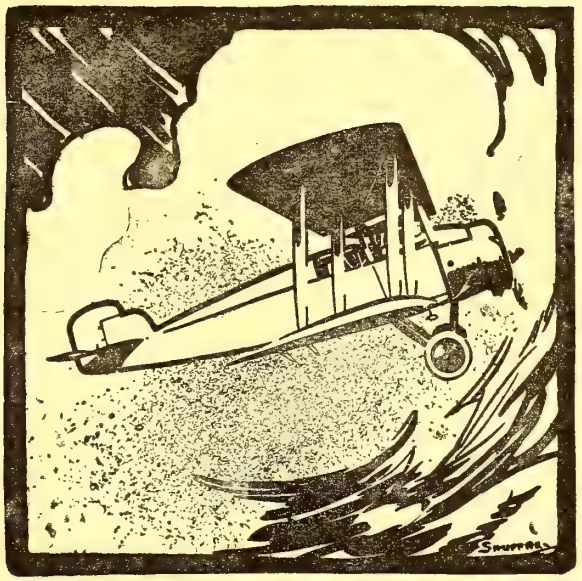
The Committee of the Royal Aero Club made a mistake in holding "Eliminating Trials" at all. They should have held simply "Trials," and after noting carefully the speed and



BEFORE THE SHOW.—M. Sadi-Lecointe on the SPAD at Bournemouth, being taken in tow by the ubiquitous "Tiddleywinks."

CIVIL FLYING

WITH



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performance of each machine they should have nominated the representative machines on the day of the race. As it turned out, if the Avro had been nominated she would probably have won, for she was faster than the Savoia.

A Suggestion to the R.Ae.C.

If the Committee wants to justify its existence it has a chance of doing so. There is a great deal of dissatisfaction about its choice in the Schneider affair, so it would confer a benefit on everybody if it would arrange a "British Seaplane Championship" to be held during the inevitable fine spell in October commonly called "St. Martin's Summer."

The course should be from Southampton Pier to Calshot as many times as might be necessary. The Club Enclosure, starting and finishing point should be in the Avro Aerodrome at Hamble. The rules should be otherwise those applying to the Schneider Cup Race.

The date might be fixed approximately and forty-eight hours' notice given of the actual start, when the Air Ministry Meteorological Department signals fine weather ahead.

In this way British constructors might satisfy themselves and demonstrate to the world who builds the best seaplanes. And if the Club wanted to be really enterprising it might offer a respectable prize for foreign competitors. Thus it might remove some of the obloquy which at present attaches to it on account of its apathy towards the sport of flying and its dire demonstration of organising inability.

THE DAY OF THE FIASCO.

The Club yacht arrived at Bournemouth a little after midday on Wednesday. There had been a fog in the Solent in the morning, but by mid-day the sky was clear except for a slight haze. There was scarcely a breath of wind, the sea was dead calm except for a slight swell, and it was blazing hot. In fact it was a perfect day. And that was precisely why the whole affair was such a hopeless fiasco.

If it had been blowing a gale nobody would have been surprised at machines smashing up, or at the race being called off, but on such a day the public in its hundreds of thousands expected to see a great race, and it was grievously disappointed.

A Wily Competitor.

The first competitor to arrive, if one is not mistaken, was the Fairey, piloted by Lieut.-Col. Vincent Nichol, D.S.O. Mr. Dick Fairey is one of the wisest and wiliest of men, besides being a genius as a designer. He saw no fun in keeping his machine afloat till the Committee felt inclined to start the race. Keeping afloat means the danger of being rammed by motor-boat hogs or idiots in other craft, besides a great deal of trouble generally. So he arranged to beach his machine as soon as it arrived.

Mr. Fairey argues that the whole fabric of British society is based on the Land Laws, and that if a man puts up an enclosure of any sort it takes an Act of Parliament to shift it. One may tell off innumerable officials and policemen and so forth to keep a crowd back, and the crowd will still push past them. But if one sticks a few posts into the ground and ties a piece of cotton between them the crowd will respect the sanctity of the resultant enclosure.

So Mr. Fairey constructed a wire fence with many posts and much wire, rolled it into a bundle, and sent it to Bournemouth with men in a lorry. As soon as Colonel Nichol beached the machine—right alongside the pier—the Fairey gang came down, unrolled their fence, stuck the posts in the sand, and there the machine remained, perfectly happy and unmolested.

The contrast between the fenced Fairey and the unfenced Savoia may be seen in the accompanying photographs. There is a useful lesson here, both for the Club Committee and for individual aeroplane owners.

Preliminary Incidents and Accidents.

The Supermarine boat arrived much about the same time as the Fairey, and Squadron-Commander Hobbs, D.S.O., the pilot, made a faultless alighting. He was promptly taken in tow by the Supermarine Co.'s funny little motor-boat "Tiddleywinks." This, one is told, is really the hull of one of the original Supermarine flying-boats built for that clever and curiously neglected invention of Mr. Pemberton Billing's by which the wings and tail form a complete unit which can be slipped off, leaving the hull as a self-contained motor-boat. Such a scheme would have been of great value during the war, and will be later on when flying-boats come into their own.

"Tiddleywinks" was very useful all day, acting as tender for all and sundry. A photograph shows her courteously assisting the Spad after the arrival of M. Sadi-Lecointe.

Mr. Hawker arrived soon after on the Sopwith, the big "Jupiter" engine emitting much crackling owing to being throttled down, though it has a splendid note when running full bore. He alighted well and beached his machine. Afterwards one learned that he discovered a leak in a float, so the pair of floats was changed on the beach while waiting for the race to start.

The Result of a Perfect Day.

This was the first evil result of the perfect weather. As there was no wind all the machines had perforce to alight at their slowest safe flying speed. In the case of the Sopwith this could hardly be less than 60 miles an hour, for a speed range of 60 to 160 m.p.h. is about as wide as could reasonably be expected.

Also, as there was no wind the sea was as smooth and as hard as glass, whereas if there had been a slight ripple or lop the floats would have cut through the tops of the waves, which would thus have had a gradual braking effect. Consequently, floats which would have done their work perfectly well on an ordinary day simply cracked through hitting hard, smooth water at a very high speed.

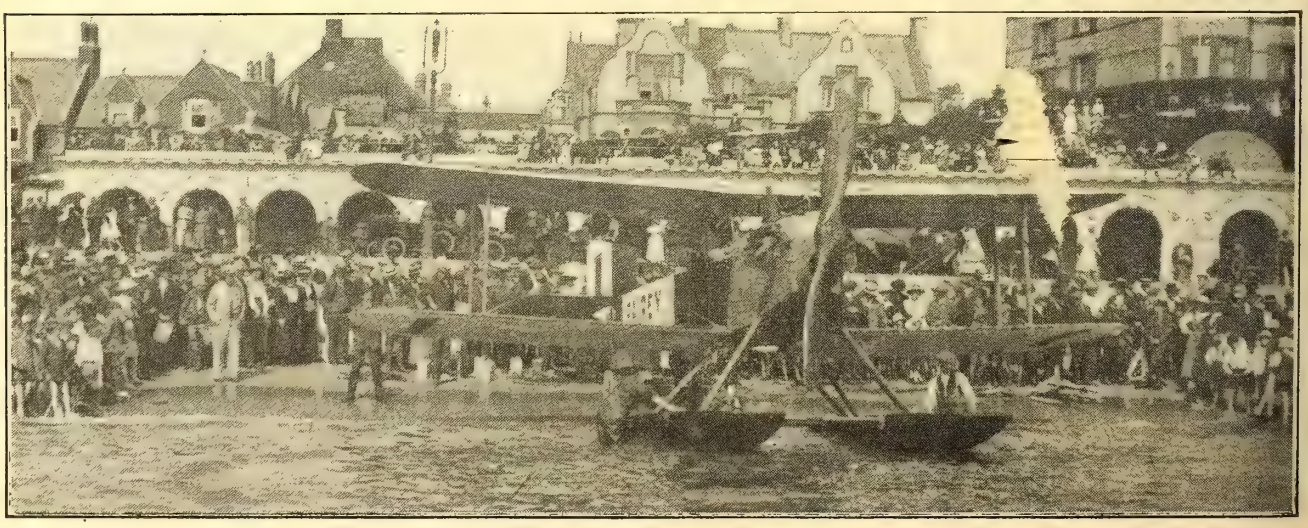
The Arrival of the Foreigners.

The first of the foreign machines to alight was the Savoia. Janello put her down in perfect style. He is a fair-haired, blue-eyed youngster, very much more a Goth than a Latin in type, and he is a non-commissioned officer of the Italian Navy. As he has three rows of medal ribbons one judges that his Service record is more than ordinarily good. And his flying showed him to be a pilot of the very first class.

When he alighted one noticed the first serious defect in the Aero Club's organisation. He taxied about on the water for quite a while before anybody paid any official attention to him. At last he was taken in tow by a big, clumsy R.A.F. boat, the crew of which was evidently unaccustomed to handling small flying-boats. However, they managed not to do any damage to the machine, and eventually he put his boat ashore.

Defective Organisation.

One would have expected that there would have been a motor-boat told off as a tender for each competitor, and that each such boat would have borne the competitor's number.



A PSYCHOLOGICAL STUDY.—How the British Public respected the Fairey Company's fence.

Then there could be no doubt about whose duty it was to attend to whom.

Later, when the Spad alighted (in very pretty style), she was towed in by the Supermarine Co.'s "Tiddleywinks." She also was beached, for lack of proper moorings, and stove a hole in one of her floats on a stone on the beach. So that put her out of the race.

It was desperately hard luck on M. Herbemont, who was so upset by the accident and so overwrought by working nearly all night at cutting down his wing area that in the evening he quite broke down and was too *enervé* even to eat or drink. As a designer he is quite in the front rank, so there was no need for him to be discouraged, but apparently he had set his heart on making a good show in this race, so he took things rather more hardly than seemed necessary.

Last of all came the Nieuport, flying very fast and evidently standing a very good chance in the race if anything happened to the Sopwith. M. Casale put her on the water as slowly as was possible with so fast a machine, and floated about for a while. Then she began to sink slowly, and on beaching her it was found that a float had cracked in alighting. This, again, was the fault of the perfect weather and not of the Club.

The Float Trouble.

It is well to remember, and to point out to those who scoff at seaplanes on the strength of the Schneider fiasco, that these floats which cracked and burst and punctured so easily were built specially light purely for racing machines, and were intended for ordinary weather. When they had to come down on glass-hard water at high speed, or be pushed ashore on pebbles, they were asked to do something which they were never intended to do.

All the firms whose machines suffered in this way have built excellent floats in the past. These breakdowns reflect no more discredit on the firms than does the breakdown of an experimental racing car of a motor firm of proved reliability.

More Defective Organisation.

When the foreign pilots went ashore they found that there were no preparations of any kind for them. There was nobody to interpret for them. There was nobody to keep the mob away from their machines. There were no preparations to feed them, though even if the race had started at the proper time (2.30 p.m.) they would have wanted lunch.

So far as one could discover, they were supposed to hang onto the tail of a motor-boat (if they could find one) from the time of their arrival until the start, and they were to feed in their machines as best they could. Which hardly strikes one as being the courteous or even the politic way in which a big and rich club ought to treat visitors from abroad.

Happily, the undefeatable Mr. Newman of S. E. Saunders, Ltd., redeemed our national reputation when he discovered that the Club had made no preparations. Somehow he managed to make himself understood by both the French and Italians. He found food for them, he established some sort of guard for their machines, he commandeered planks with which he made temporary launching slips. He and the crew of his Saunders seaplane tender were here, there, and everywhere.

No wonder the visitors went home with the idea that Saunders, Ltd., and their Mr. Newman, are the most efficient people and the best sportsmen in England. They saw so little of the Committee of the Royal Aero Club that they can scarcely have acquired a true estimate of either their efficiency or sportsmanship.

A Geographical Error.

The splendid work done by Mr. Saunders and his people is in fact the one redeeming feature in the result of the Committee's gross error in choosing Bournemouth as the headquarters of the race and Cowes as the storing-place for the machines.

The theory was that if the day was rough the machines would fly off the sheltered water at Cowes, alight on the water at Bournemouth, and then start in the race when told. If that had actually happened most of the machines would have been wrecked or swamped long before the race started. Moreover, there was no direct communication with Cowes, so there was no way of telling them when to start for Bournemouth.

When the Aero Club first announced that the race was to take place this year, one pointed out the folly of separating the housing of the machines from the starting-point of the race. Events have shown conclusively that one's criticism was right.

The race ought to have taken place at Eastbourne, where there are seaplane sheds and ample repair shops within flag-wagging distance of the pierhead which would be the timing point. If the sea had been too rough at Eastbourne it would have been too rough at Bournemouth also. From every point of view Eastbourne would have been a far better place for a race which, under the conditions of the prize, must be held in the open sea. Otherwise, the Solent or Southampton Water is the right place.

Nothing but Mr. Sam Saunders and his people saved the face of the Committee, and, without detracting in any way from their magnificent effort, one may express one's belief that under similar circumstances Major F. B. Fowler and the Eastbourne Aviation Company would have been just as thoroughly sportsmanlike.

It is to be hoped that before another important event takes place the Royal Aero Club will have formed a committee to manage that event which will include men with a stronger critical faculty, greater knowledge of sporting flying, and more experience of organising competitions than those who were responsible for the Schneider fiasco.

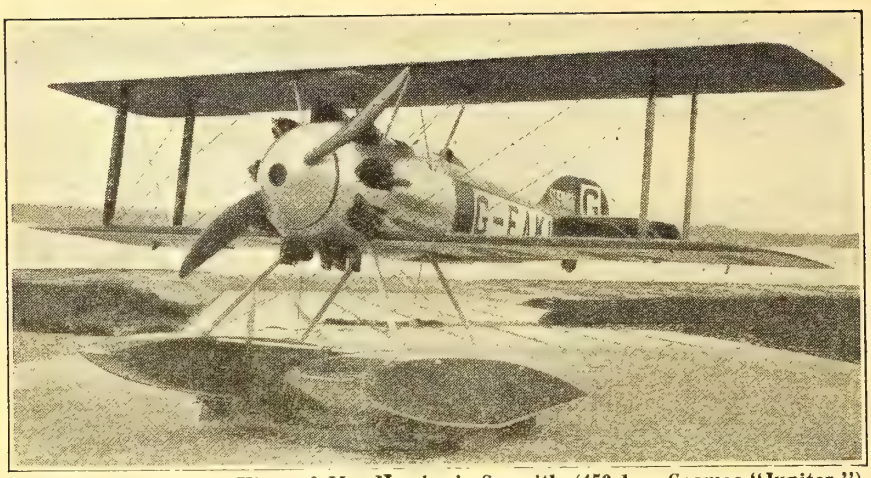
THE RACE THAT FAILED.

Not long before the race was timed to start heavy banks of fog began to roll in from seaward, and by 2.30 p.m. one could only see about 400 yards in any direction, and then only up to a height of 40 or 50 feet. From the yacht everything was blotted out except the pier and the beach immediately behind it.

Before the fog came in two R.A.F. boats had gone off, one to the turning-point at Swanage and one to the turning-point at Christchurch. A third boat of the same type was kindly lent for the race, but was not wanted. But that is another story which enters into this tale later.

By 4 p.m. the fog had passed inland and left only a slight heat-haze through which it was quite possible to see the Needles—the westernmost point of the Isle of Wight. Therefore the Committee decided to start the race at

HOW NOT TO DO IT.—The Savoia swamped by the crowd owing to the lack of an official enclosure.



Three-quarter Front View of Mr. Hawker's Sopwith (450 h.p. Cosmos "Jupiter.")

4.45 p.m., without taking the precaution to send a machine down the long leg of the course to Swanage to see what the weather was like there.

This proved to be the undoing of the whole affair. Capt. Hammersley and the little Avro (the British reserve machine) had been doing some very pretty exhibition flights during the morning, and he would certainly have gone out scouting if the Committee had asked him to do so. But seemingly nobody thought of it, and the race started.

THE START.

The first machine away was the Fairey which lifted in great style. Colonel Nichol, who knows the coast well, reached Swanage Bay and found it still full of fog. Though he could see the top of the cliffs he could see nothing below them. Relying on his own quick-

Three-quarter Rear View of the Sopwith.

ness in controlling the machine, he dived into the fog to try and find the mark-boat. He sighted the water and flew along about 15 feet above it. Then suddenly a sailing ship appeared in front of him. He pulled his machine upwards as quickly as possible, cleared the ship, and went straight on up into the clear air.

Then he headed for Bournemouth, circled round to find a vacant piece of water, alighted on it, and beached his machine. He reported to Mr. Fairey that it was not good enough to go on with the race, for if he could not see the mark-boat he was sure that the mark-boat could not see him. Though it might hear him if he followed the cliff line, that would not be evidence of identity. Consequently he retired from the race. The Fairey people took his decision without question, for they knew that their machine was not up to the speed of some of the others, so they simply withdrew from the race.

They had been gambling on and praying for fairly rough weather, and it turned out to be a perfect day. If it had blown half a gale they would very probably have won. The curious thing was that after all the Fairey was the only competing machine that flew home.

Commander Hobbs' Supermarine was the next starter. He took her off splendidly, though badly baulked by row-boats which came out onto the course owing to absence of course-keepers. This is another point for the attention of the Committee at the next seaplane competition.

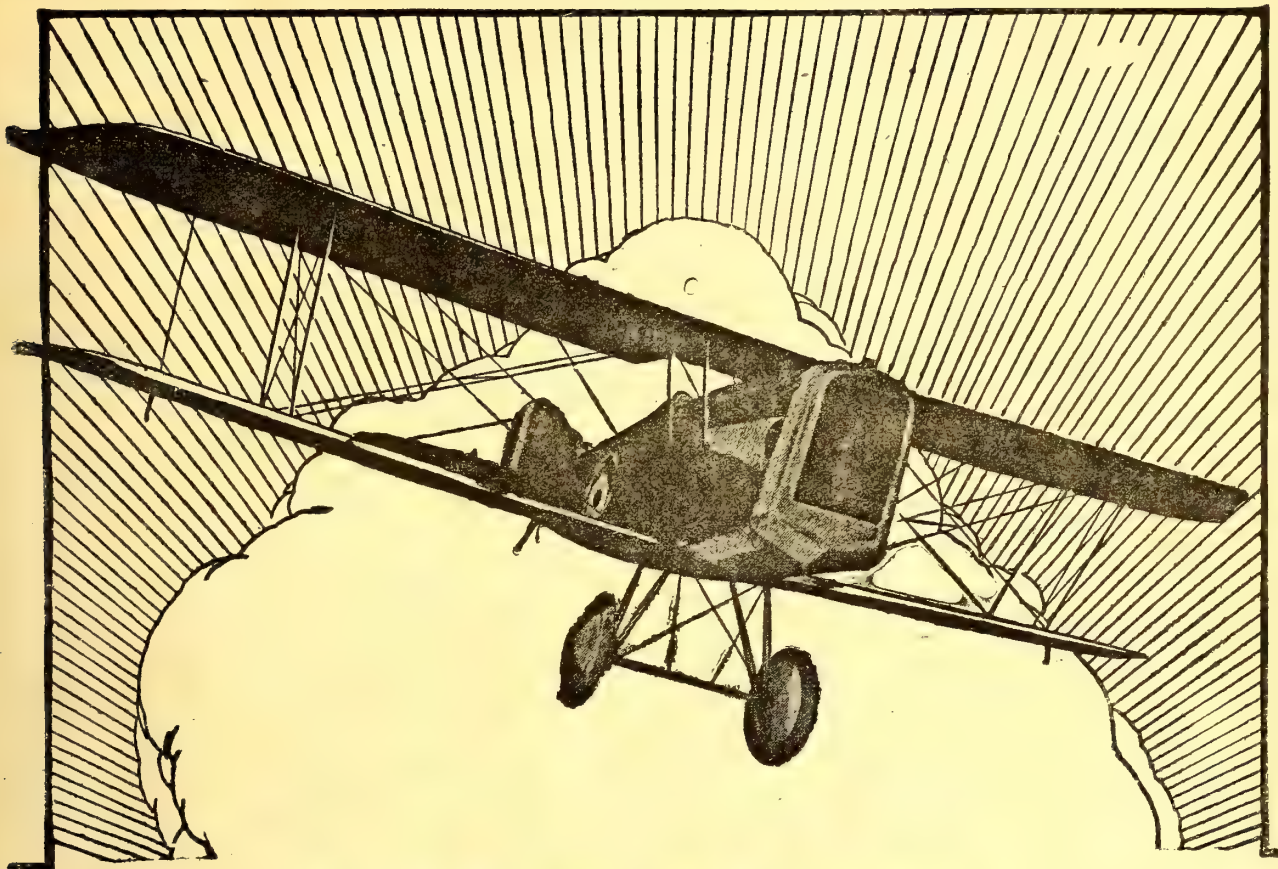
Personally, one's idea of a course-clearing craft is a 40-knot steel-built hydroplane with a ram bow, but, as such a method might not find favour in so mild-mannered a country as this, perhaps a fast hydroplane with a big megaphone or a Klaxon might suffice. On Wednesday there seemed to be nobody to keep the course clear. Mr. Louis Coatalen in "Tyreless" was doing some very neat high-speed driving, and one feels sure that if he had been asked he would have been pleased to act as course-keeper.

A wrong impression has been circulated concerning the fate of the Supermarine. All that was seen of her was what looked like a circuit of the course. She came down at the end of the first lap to do the two alightings specified by the conditions, and at the first attempt changed at once from a Supermarine to a submarine. Naturally the uninformed assumed that the hard, smooth water had stove in her bottom.

Such was not the case at all. She was also a victim of the perfect day, but not from that cause. What happened was this: Commander Hobbs arrived at Swanage Bay, could not see the mark-boat because of the fog, and so alighted in the hopes of finding her under the fog-bank. As he failed to do so, he, being an experienced seaplane pilot, took a compass-bearing for Bournemouth and started away again. Just as he was leaving the water something hit the boat with a terrific crash, but being already practically in the air he carried on: which was extremely lucky for him, as it proved.

Once out of the fog-bank he headed for Bournemouth, turned over the pier and went back to Swanage. This time he flew round the Bay, taking his course by the cliffs, presumably hoping that the mark-boat would see him even if he could not see it. Thence he followed the proper course to Christchurch, turned there, and came down to do the

WELL AWAY.—Janello in full flight over Bournemouth Pier.



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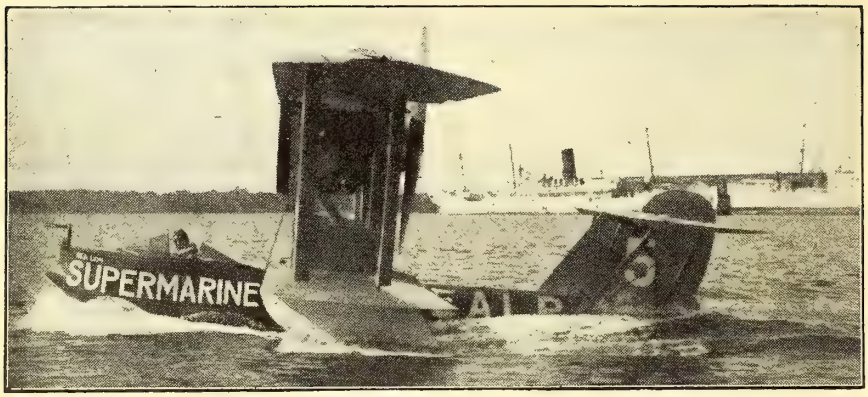


The Supermarine (450 h.p. Napier "Lion"), piloted by Squadron-Commander Hobbs, D.S.O.

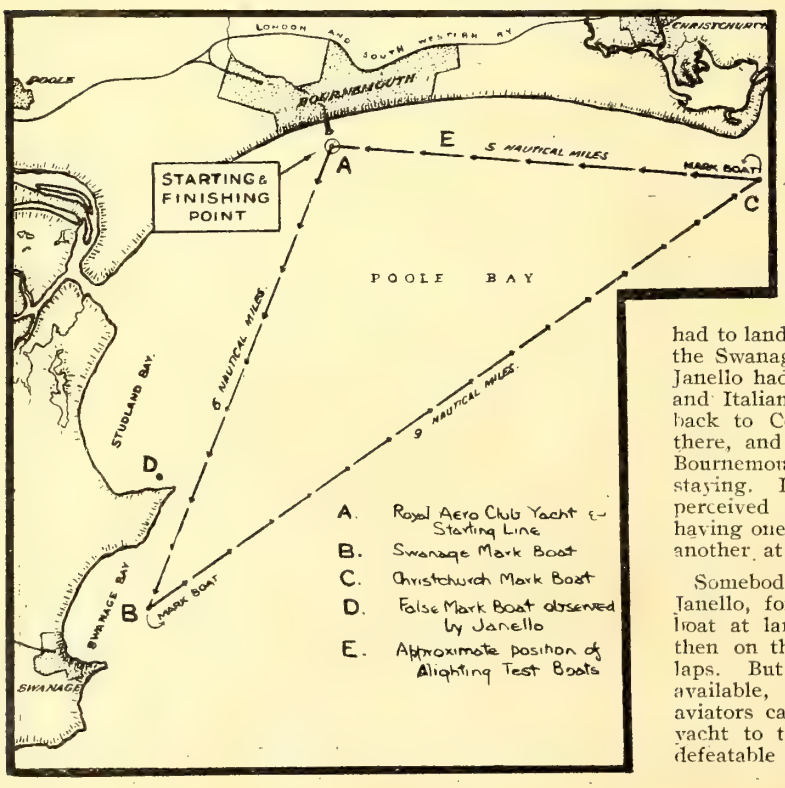
required alightings under the eyes of the official observers on a Naval "M.L."

Surmising that there was probably something wrong with his boat he alighted very carefully and very close to the "M.L." He made quite a pretty descent onto the water and went straight under. He himself came up a few seconds later and was retrieved by the ubiquitous "Tiddleywinks," which had gone down to watch his alighting. When the boat was hauled up later on it was found that the whole bottom had been knocked out of her by the collision at Swanage. Presumably the object hit was a baulk of timber or a big packing-case which was invisible owing to the fog and smooth sea. There were several R.N. ships in Swanage Bay at the time, and the Navy is always prodigal with such impedimenta, and is accustomed to heave overboard anything, no matter how useful, which interferes with superficial smartness.

The next to get away was the Savoia. Janello's start was perfect as an example of handling a boat, but here again was an example of mismanagement by the Committee. He taxied towards the line, looking alternately at the pier and at the yacht for the starting signal. The official starter and the timekeepers were in fact on a "M.L." ahead of the yacht, though there was nothing to indicate the fact, and apparently nobody had informed the foreign competitors.

The obviously proper method of starting such a race is by means of a big white flag hung out on a pole from the pierhead and used exactly as an ordinary semaphore signal is used on a railway. It is so hard to get people, especially official people, to see that the simplest method is always the best

MAP OF COURSE.



Anyhow, inspired apparently by everybody on the yacht waving him forward, Janello got off, followed the coast in the direction of Poole, appeared presently to the southward flying east, came back over Christchurch way, made his two required alightings in quite perfect style, and thereafter continued to pass the post lap after lap with the regularity of a clock. One will leave him at that for the time being.

The fourth and last starter was Mr. Hawker on the Sopwith. He got off the water faultlessly and streaked off towards Swanage with that curious hustling action reminiscent of a scalded cat which one always perceives in the start of these tiny machines with big engines. In an incredibly short time he came back, alighted close to the beach where he had gone ashore earlier in the day, heeled over to the right, opened up his engine, skilfully avoided sundry bathers, and shot his machine onto the sand.

Later one learned that he had gone to Swanage and, like Colonel Nichol, had found it impossible to see the mark-boat, so he had decided to withdraw. On alighting he had punctured another float. So that was that. He was a double victim of the perfect day.

The Great Tragedy.

We may now revert our attention to Janello in the Savoia, who, after all these minor tragedies, was left circling a course in solitary glory. It had been arranged that, as the required alightings in the first lap necessarily took a good deal of time, competitors could, if they wished, fly eleven laps instead of ten and be officially timed for the last ten so as to set up a seaplane record for 200 nautical miles. This Janello elected to do.

Somewhere about the ninth lap Mr. T. O. M. Sopwith, who is an exceptionally fine judge of pace and had been studying the times very carefully, perceived that Janello's time for each lap—though wonderfully regular—was much faster than was possible for the apparent speed of his boat. That was the first hint that there was a still greater misfortune in store for the unfortunate Aero Club than the previous mishaps.

Janello duly completed his eleven laps, but as there was one lap which was so fast as to show that he must have turned short somewhere, Sig. Santoni went out in a motor-boat and, when Janello alighted, asked him to go on again for a twelfth lap so as to be sure of covering the full course. Janello consented, although he said that he doubted whether he had enough petrol for the distance, and this led to still more trouble.

A Wholesale Mix-Up.

Judging by his previous laps Janello should have come round again in about ten minutes. Twenty minutes, thirty minutes, and then forty minutes passed, and there was no Janello. The Christchurch mark-boat returned and reported that he had passed it ten times, but not eleven, thus proving that the short lap, already surmised from the time-sheets, had been made.

Still there was no Janello, and it was evident that he had come down somewhere at sea. Darkness was falling, the yacht "Ombra" had to get back to Cowes for fear of being fog-bound on the way up the Solent. The Aero Club Committee had to land on the pier at Bournemouth to await the arrival of the Swanage mark-boat, on whose report depended whether Janello had covered the correct course or not. The French and Italian *commissaires* and some others of us had to get back to Cowes in "Ombra," for all our belongings were there, and in any case there was not a room to be had in Bournemouth, and we could not help Janello in any way by staying. It was a horribly helpless feeling. But thus one perceived the true beauty of the Committee's scheme of having one headquarters at Cowes, another on the yacht, and another at Bournemouth.

Somebody ought to have gone off at once in search of Janello, for although there were an M.L. and an R.A.F. boat at large patrolling the course, both were probably by then on their way home, having counted the requisite ten laps. But there did not seem to be a boat of any kind available, and anyhow everybody appeared to be in what aviators call a flat spin over the job of shifting from the yacht to the pier and so forth. Then, as before, the undefeatable Mr. Newman and the Saunders launch came to

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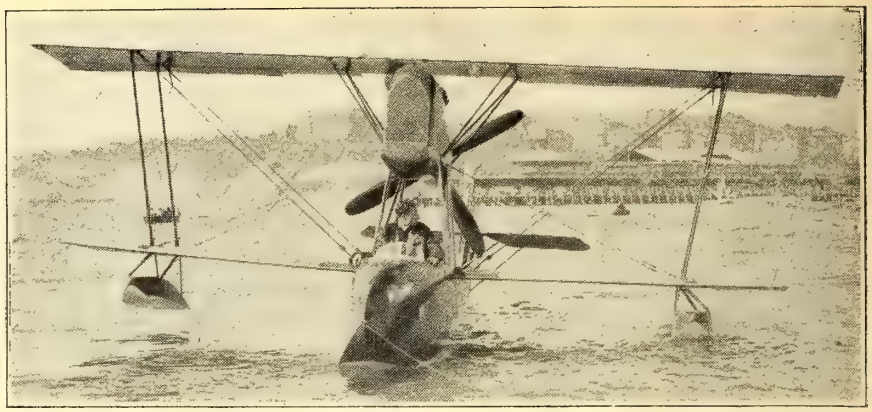
Member of the British Ignition Apparatus Association.

B T-H

the rescue and took off Sig. Santoni, Sig. Conflenti, and Captain Finzi, to go in search of Janello.

As "Ombra" started for Cowes one looked round the horizon, which was now quite clear, and in the dying reflection of the sun on the water over towards Poole one spotted through glasses a slow motor-boat towing a flying-boat. Careful study showed clearly that the latter was the Savoia, for there was nothing else in this part of the world with precisely her hull-line. So we went off to Cowes greatly relieved in mind.



Front View of the Savoia off Bournemouth Pier.

A Reunion and a Blow.

The first people one met on entering the Gloster Hotel at Cowes were the Savoia crowd, Signori Santoni and Conflenti, Captain Finzi, and the lost Janello, with the inevitable Mr. Newman. It appeared that, despairing of other help, they decided to fling themselves on the mercy of the Royal Navy, and had gone aboard H.M.S. "Malaya," then lying off Bournemouth with H.M.S. "Barham," for the enthusement of the British public. "Malaya" could do nothing without the consent of her flagship "Barham." Just as they were going over the side to appeal to "Barham" the keen eye of Sig. Conflenti caught sight of the motor-boat towing the flying-boat and recognised the towee. So the Italians, instead of waiting for the British Navy to move, depended on the Mercantile Marine (like the British nation in the Great War), and went off again in the Saunders boat.

They found Janello, put the Savoia safely onto the beach, and came straight back to Cowes. As the Saunders boat does her 16 knots comfortably they got in before "Ombra" and were celebrating their success when the rest of us arrived.

Moved by that "'satiable curiosity" which one shares with Mr. Kipling's baby elephant, one thereupon put a telephone call through to the Branksome Towers Hotel at Bournemouth, which had become the fourth home of the Aero Club's mobile headquarters. Then one learned what one rather expected—namely, that the Swanage mark-boat had never seen Janello at all. They had only seen one machine for one moment in all the day, and were not very sure what it was, but they thought it was the Fairey—which was probably when Colonel Nichol nearly hit a boat of some sort. The mark-boat heard engines in the direction of Studland Bay, and that was all.

Signor Santoni took over the telephone and got the same information, and broke it gently to Janello and the others. Naturally they were dumbfounded. Janello, a skilled pilot and a sailor by training, stuck out firmly that he saw the mark-boat quite clearly, that it was just like the one at Christchurch, and that he passed well outside it every time. He was not likely to be mistaken.

An Explanation and a New Mystery.

Then one produced an official programme, in which was a map of the course, and Sig. Santoni asked Janello to indicate the position of the mark-boat. Without hesitation he placed his finger on a point in Studland Bay, just north of the headland which divides Studland from Swanage Bay. That explained at once the mystery of the excessively fast times. But it produced a new mystery—namely, what boat could possibly have been there?

The only possible explanations at the time seemed to be either that it was an unemployed M.L., or else that it was the third R.A.F. boat which had come out to act as a mark-boat and was not wanted. At the moment of writing the mystery still remains unsolved.

It is, however, plain that Janello would not fly eleven laps of a wrong course just for fun. What happened evidently was that, following the coast past Poole, he came in due course round Studland Bay. Either he could not see over into Swanage Bay because of the fog and never knew that such a place existed, or else, seeing that the coast south of Studland was full of fog, he saw the bogus mark-boat and imagined that the Committee had altered the course.

The Proper Thing.

Naturally, the Italians lodged a protest, and, so far as one can gather, the Committee of the Royal Aero Club intends to do the proper thing by them. That is to say, if the mystery of that mark-boat is explained the representative of the Royal Aero Club will move a motion at the meeting of the Fédération Internationale Aéronautique in October that the Schneider Cup for 1919 and the accompanying prize be awarded to Italy, on the grounds that Janello flew the full distance specified in the rules, and that any error in the course was not his but was due to a British mistake. If we cannot be organisers we can as a rule be sportsmen and gentlemen, and that seems to be about the only way in which the Royal Aero Club can get out of a very awkward position.

Finally.

From the British point of view the Schneider Cup Competition has been a lamentable failure, but there are many valuable lessons to learn from it. British aircraft constructors have learned their own lessons, which are quite obvious and will not need repeating. And, anyhow, the British constructor is very quick to learn. What is most necessary is that the Royal Aero Club, the recognised governing body of the sport of flying, should learn its lessons.

Lieut.-Commander Harold Perrin is a wholly admirable secretary. He has done wonderful work for the Club in the past, and he did everything that one man could do to make the Schneider Cup Competition a success. But in the first place no one man could possibly do all the work of such a competition, and in the second place a secretary is by rights a kind of chief-of-staff, and is not even a generalissimo, let alone a combination of army, corps, division and brigade commanders all in one.

What caused the fiasco, so far as one could judge on the spot, was that the Committee of the Club, as a committee, did little or nothing during the day, except enjoy a very pleasing picnic individually, and before the day the Committeee neglected to appoint officials for the various duties which should have been done. These have been indicated in the course of this lengthy narrative, and one hopes the indications will be of use.

Officious officials are a nuisance at any time, but they are better than no officials at all, and, so far as sports are concerned, in some thirty years' experience of such matters one has learned convincedly that the more really officious officials one can collect to run a sports meeting the better the meeting will be run. They are a nuisance, but they do make things and people move. It was just such people who were lacking at Bournemouth.

To sum up the whole thing, the first and greatest mistake was holding the race at the wrong place, with mobile headquarters. The second was insufficient study of weather conditions and neglect to allow for the possibility of a dead calm day with a sea fog. The third was the absence of properly appointed officials to attend to the multifarious details of such a competition. And the fourth was the absence of a Competition Committee composed of people with practical experience of running competitions, people with a strongly developed critical faculty, and people with acute imagination.

The Committee of the Royal Aero Club is a wholly estimable body. The members individually possess personal charm and unimpeachable honesty. But as a Committee they are better fitted to run a Department under the Air Ministry than to undertake the management of a great international competition in which keen comprehension, foresight, forethought, firmness, and quickness of action are necessary to success. In fact, if the Schneider Cup Competition had been conducted by the Department of Civil Aviation it could not have been done very much worse.

Nevertheless, we live and learn, and it is to be hoped that by the next time we have to run a big competition in this country either the Royal Aero Club will have a new Committeee or the present Committee will have learned its lesson from this failure.—C. G. G.

AIRCRAFT IN THE MAKING.—No. 1

Being one of a series of announcements which describe and illustrate interesting Scientific Devices, Instruments and Machinery utilised in the designing and making of B. & P. Aircraft.

THE WIND CHANNEL

One of the most valuable aids to our designing is the Wind Channel. Owing to the limitations of fluid dynamic theory, model experiments are introduced to bring the Aeroplane within the scope of rigid dynamics. For these experiments the instrument is the most important piece of apparatus.

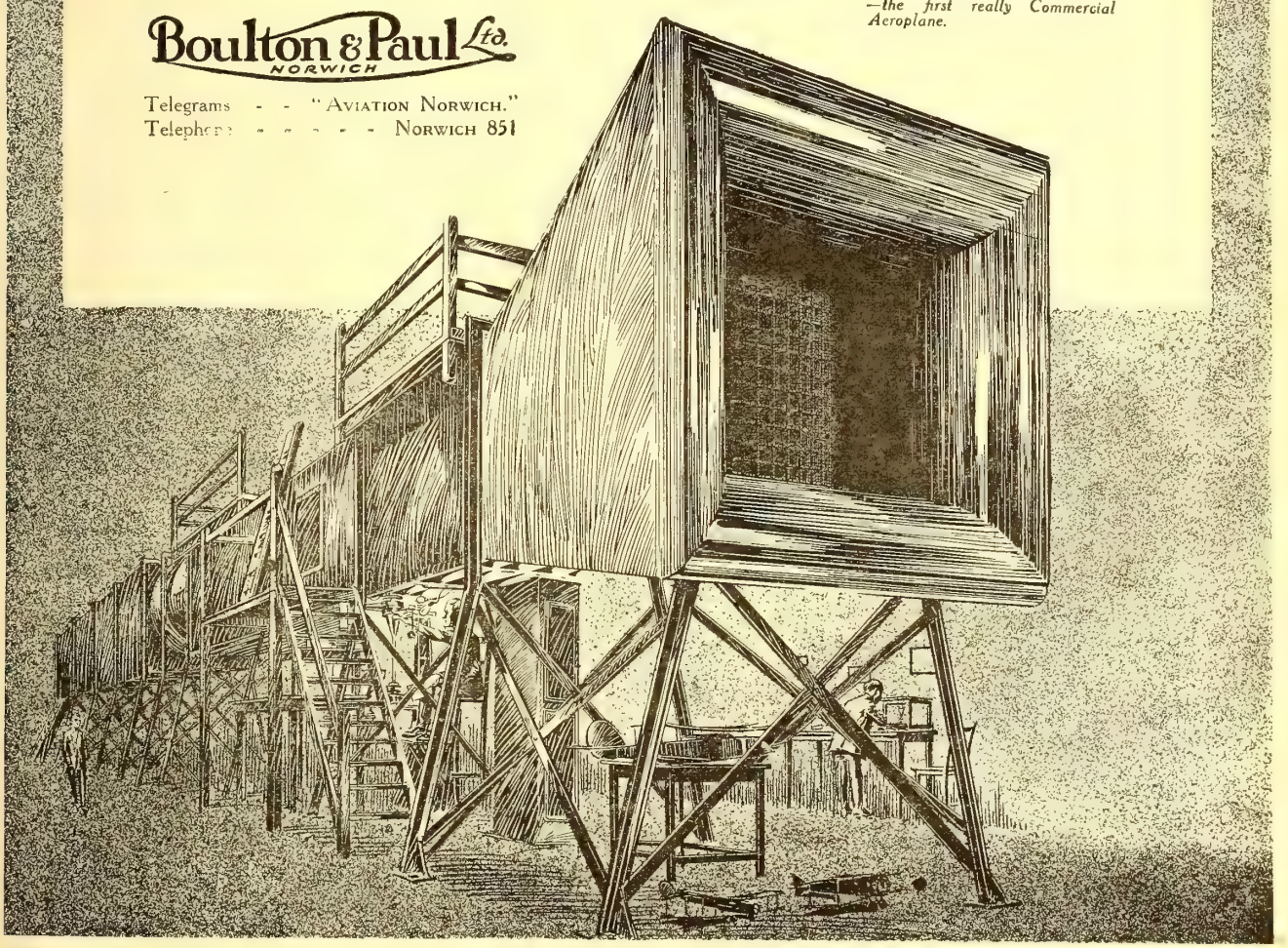
The Boulton & Paul Wind Channel is an instrument of the highest degree of accuracy. Apparatus for determining Forces, Moments, and Derivatives are installed. Many of the unique recording instruments being designed on the works.

Only by these methods is it possible to ensure the desired stability and controllability as well as efficiency which means economical flying.

See elsewhere in this issue the announcement of our P.9 machine —the first really Commercial Aeroplane.

Boulton & Paul Ltd.
NORWICH

Telegrams - - "AVIATION NORWICH."
Telephone - - - - - NORWICH 851



AN OFFICIAL PROTEST

The following letter has been sent to the Royal Aero Club by the Savoia Company :—

Gloster Hotel, West Cowes, I. of Wight,
Sept. 11th, 1919.

The Committee, Royal Aero Club, Clifford Street.

RE SCHNEIDER CUP RACE.

Gentlemen,—We confirm our telegram of even date herewith as follows :—

"Schneider Cup. Please note we appeal against the decision of Committee declaring race void on account of Mark boat observe Swanage end statement that he did not see our Savoia machine, our pilot saw distinctly at that end of course a boat with same mark as boat at Christchurch. We understand that a third mark boat was on the course, and we request investigation and inquiry as to whereabouts of this boat. We request revision of decision against which we formally appeal to the Committee of the Aero Club.

"D. LAWRENCE SANTONI, President,
Societa Idrovolanti Alta Italia."

We beg formally to appeal against the decision of the Race Committee declaring the race void and disqualifying Savoia seaplane on the statement that the observer on the mark boat situated at the Swanage end of the course, that he did not observe our machine.

We appeal on the following grounds, and we demand an inquiry into the facts mentioned below :—

1. Our pilot made the circuit 11 times complete. On each circuit he distinctly recognised the mark boat with the red and white sign at the Swanage end of the course, exactly similar to the boat situated at the Christchurch end.

2. Observation from below may have been obscured by the mist.

3. We have been informed that there were three mark boats, and as our pilot distinctly saw, during the whole of the race at the Swanage end, a boat exactly similar to that at Christchurch with the same marks, he evidently took this boat as the turning point, and if this is the case, the error is due entirely to bad organisation on the part of the arrangement of the Committee, for which we are, naturally, not responsible.

We also protest against the manner in which the race was managed, and against the absence of proper indication to the pilots of the change in the time, and in the order of starting.

The rules hereon laid down by the Committee were not adhered to. Proper and definite notice of such change was not intimated to our pilot, who received his information from a source outside the official one. No proper and effective provision was made to enable the mechanics attached to the foreign seaplanes to approach their respective pilots in order to supply them with petrol, or to inquire as to their wants. Nevertheless, we had been assured by the Secretary of the Club that a special motor-boat would be at the disposal of each competitor at Bournemouth in order to bring mechanics and petrol, etc., to the pilots.

We say we complied with all the rules and conditions of the race, our pilot having, as a precaution, completed more than the 200 miles prescribed by the Rules, and we claim to have won the Cup and the pilot's prize, and we request you to revise the decision of the Race Committee, and to make a searching inquiry into the points above-mentioned —We are, Gentlemen, for the Societa Idrovolanti Alta Italia,

D. LORENZO SANTONI, President.

SCHNEIDER CUP NOTES

The following notes as to the events immediately preceding the Schneider Cup Race arrived too late for inclusion in last week's issue, and are here printed to complete the story.

THE NIEUPORT'S RUN OF BAD LUCK.

Two of the Nieuport machines built for the race crashed on their trials in the Seine. The reserve machine left Paris on Sunday, Sept. 7th, about 2 p.m., and, flown by Lieut. Casale, reached Cowes in 2½ hours. Unfortunately, alighting in the Medina the machine hit a mooring buoy and crashed. She was recovered during the evening, and work upon refitting with new floats and wings was started at once, and there seemed every possibility that she would be ready in time for the race.

This reserve machine was fitted with the long streamline type of floats described in "Aeronautical Engineering" of last week, and not with the original Nieuport type.

A second Nieuport was expected at Cowes on Monday, but had not arrived at 6 p.m.

THE SPAD.

The Spad arrived at Cowes on Saturday, Sept. 6th, and by Monday morning was completely erected. The machine was obviously not new, and had had a fair amount of flying—though possibly not as a seaplane.

She is a very pretty and extremely Hunnish looking job The fuselage is an oval monocoque of the very cleanest type. The upper and lower wings are of about equal span, but the upper wing has a much more pronounced rounding-off at the tips than has the lower, and is heavily swept back from the centre. The lower plane alone is fitted with ailerons.

The floats fitted are not the streamline affairs with hydro-vanes, originally intended, but long, stepped, pontoon floats very like those of the Nieuports, carried on a very complicated and rather curious chassis. On the water the machine handles well and certainly looks very fast when in flight.

ITALY'S REPRESENTATIVE.

The Savoia boat appeared to be complete, and the Isotta-Fraschini engine was run on Monday afternoon, Sept. 8th, and a trial trip made in the evening. The machine itself is a very normal affair—rather reminiscent of an F.B.A. somewhat cut down and fitted with an excellent engine.

THE BRITISH ELIMINATING TRIAL.

The delayed trial between the Supermarine flying-boat and the Avro was flown off at 4.30 on Monday, Sept. 8th. The machines were started from Cowes, flew to Bournemouth Pier and back, alighted, and again made to take off. On actual time there was very little to choose between the two—both averaged somewhere round 130 m.p.h., and after some deliberation the Committee of the Royal Aero Club nominated the Supermarine as the third British representative.

On speed the Avro's was somewhat the better performance, but it is believed that the Committee were of the opinion that the Supermarine boat stood a much better chance of surviving the alighting and getting-off tests if the day of the race should prove at all rough.

The British team therefore stood as follows :—

(1) Sopwith seaplane, 450 h.p. Cosmos engine (Mr. Hawker pilot).
(2) Fairey seaplane, 450 Napier engine (Lieut.-Col. Nichol pilot).
(3) Supermarine flying-boat, 450 Napier engine (Squad-Comm. Hobbs pilot).

With the Avro, 240 h.p. Siddeley Puma (Capt. Hammersley pilot) in reserve.

THE MEMBERSHIP OF THE AERO CLUB OF FRANCE.

The total membership of the French Aero Club is 1,930. The club has passed through very difficult times during the war, and only admitted an average of 97 new members per year during the war. The figures are as follows :—

Members to end of 1913	1301
New members, 1914	81
,, ,, 1915	26
,, ,, 1916	87
,, ,, 1917	114
,, ,, 1918	178
First 3 months of 1919	143
Total membership	1930

THE INTERNATIONAL AIR CONVENTION

The Air Ministry announces :—

The Convention relating to International Air Navigation was formally approved subject to one or two minor reservations, by the Supreme Council of the Peace Conference, at a meeting held at St. Germain immediately after the signature of the Peace Treaty with Austria on Sept. 10th.

This document, which is one of the most interesting of the agreements made by the Powers taking part in the Peace Conference, is very comprehensive, and deals amongst other things with such subjects as Sovereignty of the Air, Space above Territory and Territorial Waters, International Air Law, Nationality of Aircraft, Certificates of Airworthiness, Conditions of Admission of Air Navigation above Foreign Territory, Rules to be observed on Departure, on Landing, and when under Way, Prohibited Articles and the Institution of an International Commission for Air Navigation.

There was little or no precedent to guide the Delegates in the framing of the Convention, and in its drafting it was essential that our Dominions, our Allies, and as many as possible of the neutral States should participate. To secure agreement in 11 weeks as was done on a subject affecting so many different interests is no mean achievement.

The signatories to what may be regarded as the Charter for Civil Aviation throughout the world are as follows :—

United States, Great Britain, France, Italy, Japan, Belgium, Brazil, Cuba, Greece, Portugal, Roumania, and Serbia.

THE BOULTON & PAUL—P. 9.

An Aeroplane which is a Sound Commercial and Private Proposition

In this P. 9 Machine we have, we feel, solved the problem of providing an Aeroplane which is a sound business proposition—and which combines with low cost the great essentials for Commercial and Private use. All our great resources of material and craftsmanship have been utilised. Scientific Research and Experiment by a staff associated with flying from its beginnings coupled with the great Experience gained through the building of thousands of Aeroplanes during the War, have been concentrated in the production of this P. 9 Model.

It is a Two-Seater—Single Engine Tractor—which has attained on test a speed of over 100 miles per hour.
Its outstanding features are :—

CHEAP AND EASILY HOUSED. The Initial cost is extremely low—£700—and the cost of running for a machine of this type and performance is reduced to a minimum. Owing to its small size it is easy to handle on the ground and requires but little accommodation. The principal dimensions are: Span, 27 ft. 6 in.; Length, 25 ft.; Height, 10 ft.

EASY TO FLY. The P. 9 has a big speed range, and low landing speeds, and this combined with Stability at all trimming speeds and well-balanced controls, allows the machine to be flown for long periods without undue fatigue. It also gives the maximum of Safety possible.

COMFORT AND CONVENIENCE. The comfort of the Pilot and Passenger has been specially considered. Each Cockpit is roomy and fitted with our special Seats. Controls for both Flying and Engine are fitted in the front and rear Cockpits to enable the machine to be flown from either position. The exhaust from engine is discharged behind the rear Cockpit giving a silencing effect and freedom from fumes. Two standard cases are provided for luggage and form part of the fairing immediately behind the rear Cockpit.

The uses to which this compact and efficient machine can be put are wide and various, and will suggest themselves to those who have been awaiting the stage of Aeronautical Development now reached by the P. 9. It can be used for dozens of Commercial Purposes. The same type carried photos from R. 34 direct to London. It has been sent to Australia for Sheep-runs—and will soon be in use in various parts of the world for Exploring Uncharted Territory, Examining Timber Tracts, Fighting Forest Fires, Carrying Mails to Distant Mines, Transition of Colonial Mails to Mail Steamers, and for General Patrolling and Police Purposes.

£700 **If you are interested—write for full particulars. State your needs or purpose, and our engineers will consider every detail closely—to advise soundly.**

BY APPOINTMENT

Boulton & Paul Ltd.
NORWICH

SEE OUR INTERESTING SERIES "AIRCRAFT IN THE MAKING" ELSEWHERE IN THIS ISSUE

The WORLD of AERONAUTICS

NEWS OF THE WEEK FROM ALL QUARTERS

The Francis Mond Professorship.

The election to the recently established Francis Mond Professorship of Aeronautical Engineering at Cambridge will take place on Friday, Sept. 26th.

An Attempt to Fly Round the World.

According to German newspapers, the pilot Boehm, who is well known in Germany for the feat of remaining twenty-four hours in the air, proposes to make an attempt to fly round the world.

The "Vossische Zeitung" considers that Boehm's twenty-four-hour flight as a feat of endurance surpasses even the British and American flights across the Atlantic.

It is good news to hear that Herr Boehm survived the war.

International Air Routes.

An international conference of the representative aerial transport companies of Norway, Sweden, Denmark, and Germany, summoned at the instance of Mr. Holt Thomas, chairman of Aircraft Transport and Travel, Ltd., of Great Britain, has just been held at The Hague.

The meetings, extending over several days, under the presidency of Maj.-Gen. Sir W. S. Brancker, were held by permission of the Dutch Government at the Ministry of Agriculture, Industry, and Trade; and, as their outcome, it was decided to form the International Air Traffic Association, the object of which will be to facilitate the commercial operation of long-distance "airways," more especially in the northern part of Europe.

145 Miles an Hour.

In an international air race, flown round a closed circuit of 130 miles, in connection with the Aircraft Exhibition at Amsterdam, the fastest time was that of Capt. Gathergood, who, piloting an Airco 9R (450 h.p. Napier Lion) biplane, averaged a speed of 145 m.p.h.

Life Insurance for Airship Passengers.

One of the passengers on the R.33 during its cruise to the Continent insured his life for £1,000. The premium was under £2.

A Banquet.

A banquet is to be given to Mr. Handley Page on Saturday, Sept. 20th, by the Cheltenham Chamber of Commerce to honour him as a distinguished citizen of the town.

Airships in Peace and War.

A very excellent exhibition has been arranged by Lady Sybil Grant, at the Princes Galleries, under a host of difficulties, as explained in the foreword of the catalogue, in an effort to educate the rather dense British public in the colossal amount of work achieved by airships in the past, principally during the war; and also in the huge possibilities that present themselves for the future.

Both the Air Ministry and the French Airship Department have lent their support, and together with a large number of private firms connected with the airship industry have brought together a comprehensive collection of parts accessories, models, photographs, paintings, etc., which illustrate the wonderful progress of the airship from pre-war times to the present day in a particularly graphic manner.

The opening day did not attract a "huge" crowd, but the G.B.P. was ever an unobservant tribe, and unless notices are continually thrust before its gaze, such as one gets concerning certain brands of pills, or systems of furnishing the home on one's separation allowance, a certain period of time must elapse before the preliminary Press notices take the necessary effect. Perhaps if the Jazz-band were accommodated in the basket of a captive Caquot balloon somewhere over Piccadilly it might have the desired effect.

Nevertheless, it is to be earnestly hoped that the exhibition will meet the success it deserves, more particularly since the profits go towards founding an "Airship" bed at the St. Dunstan's Home.

The exhibition is arranged in three rooms, the principal exhibits in each gallery being grouped as follows :—(I) French exhibits lent by the French Government; (II) Autochromes, cloud photographs, etc.; and (III) A collection of Airship accessories, such as types of valves, blowers, instruments, etc., together with a series of models, etc. In addition, there is a large number of commercial exhibits, a show of bombs and armament, as well as an excellent collection of official photographs and paintings; and finally mention should be made of the Masked Airship Band which dispenses syncopated music daily.—L. L. B.

Comparative Speeds.

In the "Daily Express" Maj.-Gen. Sir W. S. Brancker, K.C.B., A.F.C., is reported to have said recently: "Britain's airships, including the R34, are too small and much too slow. The airships, for passenger or goods transport, will be of little value, and for this reason the Government, when they sell the ships, must not expect to make a profit. They must, in fact, be sold at a low percentage of their original cost.

"The R34's performance, creditable as it was, shows that even our largest flying craft can get to America in little better time than ordinary steamships. Exporters who are asked to send their goods by air, and incidentally to pay double or treble the shipping rates, will want something speedier.

"The Government may have to subsidise the development of airship construction. The French Government are already doing this on a large scale. Airships will pay if we build them larger, with more power, and with greater lift.

"Larger ships, however, will mean larger sheds and—capital. Whether or not money for this purpose will be forthcoming from ordinary sources is problematical. Personally, I do not think it will."

Flying Backwards Through Time.

At the R.A.F. Club the other day, a member who is fond of leg-pulling was talking learnedly on the subject of flying backwards through time. After pointing out that as at the equator the earth revolves at the speed of about one thousand miles an hour, which speed naturally diminishes towards the poles, he argued that at a certain latitude the speed would be less than 100 miles an hour, so that if an aeroplane flew in the opposite direction to the earth's movement at a speed of more than 100 miles an hour, it could arrive at various points before it started. For instance, it could start at lunch time and travel backwards through the morning to breakfast time, and the only danger would be that one might travel backwards to the time when one was in bed and asleep, and then one might crash.

Some members, whose ideas of local time were vague, found that the problem required quite a lot of thinking over.

A Megaphoned Mistake.

On Wednesday, September 10th, the day allotted for the decision of the Schneider Cup Race, three of the Supermarine Passenger Flying Boats were moored to the West and inside of Bournemouth Pier. On one occasion during the afternoon, an official motor launch was visiting the competitors in the International Seaplane Race, with instructions to be ready to start within a quarter of an hour, and much to the surprise of the occupants of these three passenger machines instructions were megaphoned to them by the official on board the launch that they also were to be ready to start in a quarter of an hour.

A New Altitude Record Claimed.

It is said that one of the Curtiss Co.'s testing pilots, Mr. Rowland Rohlfs, on Sept. 13th, rose from Roosevelt Field, Long Island, to a height of 34,200 ft. Mr. Rohlfs started out to test a machine in preparation for an officially observed attempt to beat what is claimed to be the world's altitude record of 33,136 ft., held by Adjutant Casale, of the French Army, but found conditions so favourable that he decided to try how high he could ascend. As it was unobserved, the "record" is unofficial, but Mr. Rohlfs will try on the first favourable day to make an authenticated attempt. At 34,000 ft. Mr. Rohlfs found a temperature of 44 deg. below zero, but discovered what a scientific writer recently described as "a temperature lid" a little above that height, as at 34,200 ft. the thermometer registered four degrees higher. Mr. Rohlfs machine was a Curtiss war triplane with a 400 h.p. Curtiss engine.

A Pretty Style.

The following advertisement recently appeared in the "Times" :—

> "Demobbed officer, R.A.F., age 26, plus 3 golfer, with the correct, pretty style, has also a knowledge of motors, seeks appointment as private professional or companion; small salary."

Also a pretty literary style.

ROLLS ROYCE

WARNING

Changes to Rolls-Royce Cars

Rolls-Royce Ltd. have recently learned that attempts are being made by certain persons to "bring up to date" pre-war Rolls-Royce chassis by substituting for Rolls-Royce Springs of old type cantilever springs which are not of Rolls-Royce manufacture; also by substituting other radiators and bonnets which are not of Rolls-Royce manufacture. Some of these changes have been brought to the attention of the Company, who have found them to be not only unsatisfactory but possibly dangerous to the users. Owners who are asked to have such changes made to their Rolls-Royce cars, or potential purchasers of Rolls-Royce cars on which such changes have been made or may be suspected, should communicate with Rolls-Royce Ltd., 15, Conduit Street, London, W.1, and the Company will, for a small fee, inspect the chassis in question and inform the applicant what parts, if any, are not supplied by Rolls-Royce, and what the effect of such parts in their opinion is likely to be. Furthermore, any such alterations which interfere with or depart from Rolls-Royce standards will probably put the car out of action for an indefinite period in cases of accident or breakage, as Rolls-Royce new parts cannot be expected to replace foreign broken parts in a "bedevilled" chassis.

ROLLS-ROYCE Ltd., 14 & 15, Conduit Street, London, W. 1.

Telegrams: "Rolhead, Reg., London." **Telephone: Gerrard 1654, 1655, 1656.**

RECENT
AIRCO SUCCESSES

THE AERIAL DERBY, 1919

THE winning machine, an Airco 4R, with a Napier engine, averaged a speed of 129 miles an hour—since declared a record by the Royal Aero Club. Two other Airco machines started, the Airco 4, with a Rolls-Royce engine, and the Airco 9, with a Siddeley "Puma" engine. The Airco 4 finished third, and the Airco 9 fifth. Of the seven machines finishing three were Aircos.

FIRST
THIRD
AND
FIFTH

THE AMERICAN AERIAL DERBY

IN this race, just flown over a course 1,042 miles in length, the winning machine, an Airco 4, averaged throughout a speed of 136 miles an hour; while the second and third places were also secured by Airco 4's.

FIRST
SECOND
AND
THIRD

INTERNATIONAL RACE AT AMSTERDAM

IN this contest, flown in connection with the Aircraft Exhibition at Amsterdam, there were between thirty and forty starters, including the fastest of the French and Italian machines. The first and second speed prizes were won by Airco machines. The Airco 9R, with a Napier engine, the fastest machine in the race, covered the closed circuit of 130 miles at a speed of 145 miles an hour; while the second fastest time was that of the Airco 4A, with a Rolls-Royce motor.

FIRST
AND
SECOND
SPEED
PRIZES

THE AIRCRAFT MANUFACTURING COMPANY, LIMITED

London Office: 27, BUCKINGHAM GATE, S.W.1.

Chairman (and Founder 1911), Mr. G. HOLT THOMAS.

NAVAL & MILITARY AERONAUTICS

GREAT BRITAIN.

NAVAL.

ADMIRALTY APPOINTMENTS.

The following appointment has been made :—

SEPT. 13TH.—Sub. Lieut.—P. R. Fryer, to "Furious," Sept. 12th.

A British flying boat containing two officers recently arrived at Sordavala on the Finnish shore of Lake Ladoga. The boat had been flown from the Murmansk front and started on its return journey on Sept. 6th.

* * *

The British seaplane ship "Vindictive" has anchored at Copenhagen.—HI.

* * *

The aeroplane-carrier "Hermes" was launched on Sept. 11th from the shipyard of Sir W. Armstrong, Whitworth and Co., Ltd., on the Tyne. It is probable that she will be the last large vessel launched for the Navy for a long time.

Most of the vessels of this class were converted or adapted for aeroplane work, but the "Hermes" was laid down as a carrier in January, 1918, and in her construction and equipment advantage has been taken of the experience gained in the earlier ships. The "Eagle," a converted aeroplane-carrier, has also been launched at the Armstrong yard.

The "Hermes" has a length of 548 ft. and 70 ft. beam, with a displacement of 10,950 tons, and geared turbine engines of 40,000 h.p. capable of developing a speed of 25 knots. As in the case of the "Argus," the whole length of the flying deck of the "Hermes" will be available for starting and receiving the machines, and, by special arrangements for the emission of the hot gases and smoke, there will be no funnels or other obstructions. Under the flying deck are the hangars for the machines, as well as the workshops for their repair. Two electrically controlled lifts are fitted, the one forward and the other aft, for hoisting the aeroplanes to the flying deck. Another special feature of her design is a system of ventilation to lessen the danger of fire from petrol fumes.

The armament of the "Hermes" will consist of a number of light guns for anti-aircraft protection and several 6 in. guns for heavier work. In her construction, as a defence against torpedo attack, the "blister" system has been used. The complement of the vessel will comprise 500 naval ratings and 130 members of the Royal Air Force. It is expected that the "Hermes" will be completed early in 1920.

It is to be hoped that in the next war she will not be the victim of such a mistake as was her predecessor.

* * *

It is reported that a case of considerable interest will come before the War Inventions Committee during the course of the next few weeks. Capt. W. O. Bentley, the inventor of the Bentley rotary aeroplane engine, will claim recompense for the use of his invention. The amount claimed is said to be £100,000.

Capt. Bentley, who has served both in the R.N.A.S. and the R.A.F., was frequently in France and Flanders during the later stages of the war on duties connected with his engines.

MILITARY.

OFFICIAL COMMUNIQUÉS.

The War Office issued the following communiqué on September 15th : Touch has been gained by aeroplane with General Marmontoff, who, in the middle of August broke through the Bolshevik lines facing the Volunteer Army, and has been carrying out a raid on a large scale around Tamboff.

Kronstadt was bombed twice on Sept. 4th. The "Berlingsketidende" states that British aviators again attacked Kronstadt on the night of Sept. 7th-8th. The Bolsheviks had anti-aircraft guns in action, but did not seem to mind the air attack. Their searchlights were only directed on the sea, and they evidently feared an attack on the remainder of the Russian Baltic Fleet. But the British only made an air raid, and the number of fires proved the effect of their bombs.

A British pilot was bombing Kronstadt recently when his engine stopped. With a fierce barrage surrounding him, he glided across the 12-mile stretch of water to the Finnish coast. He landed on the beach, repaired his engine and flew back to the Bjorko base.

AIR FORCE.

An official announcement from the War Office states that an Army Entrance Examination for the Royal Military Academy, Woolwich, and the Royal Military College, Sandhurst, will begin on November 4th. Candidates must have attained the age of 17½ on January 1st, 1920, and must not be more than 19 on November 1st, 1919. An exception is made in the case of candidates who are serving or have served satisfactorily in the Navy, Army, or R.A.F.

A limited number of cadetships at the Royal Air Force Cadet College will also be open to competition, and will be awarded to candidates who fulfil certain conditions laid down by the Air Ministry from which particulars may be obtained on application. A candidate who fulfils all the necessary conditions may compete for a cadetship at the Royal Air Force Cadet College, and also for a cadetship at the Royal Military Academy or Royal Military College. Candidates desiring to do this must express definitely their order of preference before the examination begins. A candidate may say that if he is not among the first (so many) successful competitors for the Royal Military Academy or Royal Military College (as the case may be) he will elect for a cadetship at the Royal Air Force Cadet College. Cases may, however, arise in which it would not be possible to give effect to such conditional preference.

* * *

The Air Ministry has decided to demobilise the R.A.F. pigeons. It is stated that all the pigeons used in the Force were presented to the Government by fanciers, and it is hoped that these birds, which did good service, will now be returned to their original owners.

* * *

The Air Ministry made the following announcement of the trip of the R.33 :—

"Following upon the conference held on Sept. 8th relating to the Government airship programme, it has been arranged that H.M. Airship R.33 shall carry out a flight of about 86 hours' duration in order to demonstrate the capabilities of lighter-than-air craft and as a practical illustration of the comfort afforded to passengers travelling in airships. Invitations to take part in this voyage have accordingly been extended to leading members of industry and representatives of Home and Colonial Government Departments interested in the commercial development of this type of aircraft. On board also is Lieut. de Vaisseau Sablé, Air Attaché to the French Embassy in London. In addition there are the following officers :—Air Commodore E. M. Maitland, C.M.G., D.S.O., A.F.C.; Flt. Lieut. G. M. Thomas, D.F.C., who is captain of the R.33; Flt. Lieut. H. A. H. Leetham, second officer; Flt. Lieut. S. E. Taylor, D.S.C., third officer; Pilot Officer W. E. James, engineer officer; and the crew, which consists of 27 men.

"Every possible attention has been paid to the comfort of the guests. Sleeping berths have been rigged in the internal keelway of the vessel, in which the passengers will rest during the night. Meals will be served in the mess-room, also in the keelway, hot and cold water will be available, and the news of the day will be transmitted to the airship by wireless telegraphy."

The R.33 left Pulham, Norfolk, at 9 p.m. on Sept. 10th. She had ten passengers on board, including a number of prominent business-men : Mr. Sydney A. Boulton, of Lloyds; Mr. J. Dunn; Mr. Benjamin Guinness; General Sir Sefton Brancker, of the Aircraft Manufacturing Co.; and in addition Commander Foakes, R.N., representing the General Post Office; and Mr. E. A. Box, Secretary to the High Commissioner of Australia. Most elaborate arrangements were made for the comfort of the passengers. Beds complete with all bedclothes were provided. A chef and a head waiter from the Criterion Restaurant cooked and served sumptuous meals cooked on the exhause-pipes and a small electric stove.

The R.32 left Pulham at 8 p.m., one hour before the R.33. The weather was excellent. The R.33 crossed the coast at Lowestoft and set a course to the mouth of the Thames, proceeding from the North Foreland to the Belgian coast at Ostend, which was reached at about 4 a.m. Shortly before 5 a.m. the coast of Holland was crossed at West Kapelle, and

The Hague was reached by 6 a.m. At about that time the R.32 was sighted flying low on the port side of the R.33. A signal was sent to her by wireless asking her to keep in company as far as Amsterdam, which was reached at 7 a.m. The R.32 then returned to Pulham. Messages were dropped at Amsterdam and at many other places. Rotterdam was reached at 8.15 a.m.

It was then decided to abandon the visit to Paris as landing might have been difficult owing to the amount of water ballast which had been dropped in the night. Therefore the battle-fields were then visited and the passengers obtained a good view of them from a height of 3,000 ft. Antwerp was reached at 10.40 a.m. South of the town and over the district of Hoboken what appeared to be German submarine shelters were observed on the banks of the Scheldt.

A message was dropped into Brussels at 12.45. Lille was passed over at 2.40 p.m. A return to Nieuport was then made by way of Armentières and Ypres. In that district salvage parties are clearing the ground, and the streaks of smoke from their fires can be seen over the shattered, desolate, and waterlogged waste. The journey over the sea was made to Suffolk and a landing was made at 6.20 p.m. on Sept. 11th, after a trip of about twenty-one hours. Over France on the return journey there was some head wind, but not enough seriously to interfere with the progress of the airship. A number of photographs were taken, but the ground haze probably interfered with many of them.

By special arrangement, which had been made in advance with the Marconi wireless station at Wormwood Scrubs, a complete summary of the news of the day was dispatched to the R.33 from the "Times" Office in Printing House Square. The last sentence of the summary was received by the aerial liner shortly before 4 a.m. while she was flying over the North Sea at 4,000 ft. The messages were typed out on sheets of special paper, by 6 o'clock the newspaper had gone to press, and at breakfast time, two hours later, the passengers on the R.33 received with their eggs and bacon the first copy of the aerial edition of the "Times."

The passengers were delighted with their trip. One remarked that he never expected a comfortable sleeping-berth, a dining-room, oysters for lunch, and electric light, nor did he expect to be able to roam all over the ship and from one gondola to another.

* * *

An aeroplane, piloted by Lieut. Kennedy left St. Raphael (Var) on Sept. 10th on a flight to India, via Taranto and Egypt.

BELGIUM.

The King of the Belgians flew from Brussels to Ostend during the afternoon of Sept. 8th. He then inspected the repairs carried out in the port, and returned by air to Brussels in the evening.

FRANCE.

The French military authorities have for some considerable time been running the following aerial services in the Near East assisted by the Serbian and Greek military aviation arms both of which are commanded by French officers.

(1) Athens-Salonica (208½ miles). Landings are made intermediately at Larissa and Lamia. This service, which has been in existence for over a year, is run weekly during the winter and twice weekly during other seasons.

(2) Constantinople-Salonica (310½ miles). Landing intermediately at Dedeagatch. Service irregular.

(3) Constantinople-Bucharest (298 miles). Landing intermediately at Lulu Burgas. Twice weekly since May last.

(4) Bucharest-Galatz-Kichinev (186 miles). Intermittent service.

The steamer "Mingrelie" left Dakar on Sept. 6th having on board the remains of the Farman biplane "Goliath" which is now being brought back to France. The pilot, Lieut. Bossoutrot, and his crew are returning in the same ship.

Commandant Vuillemin continuing his flight from Cairo to Paris left Constantinople at 7 a.m. on Sept. 8th and reached Istres, near Marseilles, at 8 p.m. on the same day, having landed at Naples en route. On Sept. 9th he continued his journey and reached Villacoublay at 7 p.m. He thus completed safely his journey Paris to Cairo and back which began on Aug. 11th. The total distance covered is about 5,500 miles.

The French nation has ever excelled in the creation of heroes. There is a national swiftness of perception in these matters and a delicate grace in the recognition of gallantry. As an instance of the manner in which the Army does honour to its heroic dead, the last citation of Captain Guynemer, a General Order of Oct. 16th, 1917, is here reprinted:—

"Le général commandant la IIe armée cite à l'ordre de l'armée le capitaine Guynemer, commandant l'escadrille No. 3.

"Mort au champ d'honneur, le 11 Septembre, 1917. Héros légendaire tombé en plein ciel de gloire, après trois ans de lutte ardente. Restera le plus pur symbole des qualités de la race.

"Ténacité indomptable, énergie farouche, courage sublime. Animé de la foi la plus inébranlable dans la victoire, il lègue au soldat français un souvenir impérissable qui exaltera l'esprit de sacrifice et provoquera les plus nobles émulations."

The memorial ceremony took place at Le Bourget on Sept. 11th. At four o'clock General Duval, Director of Aeronautics, and his staff arrived at the aerodrome and took the general salute from the troops on the station. He then read the last citation of Guynemer quoted above, and immediately afterwards presented various decorations to officers and men. The bands played the Marseillaise and the ceremony ended. During the proceedings the aviator Fronval flew with customary brilliancy and verve.

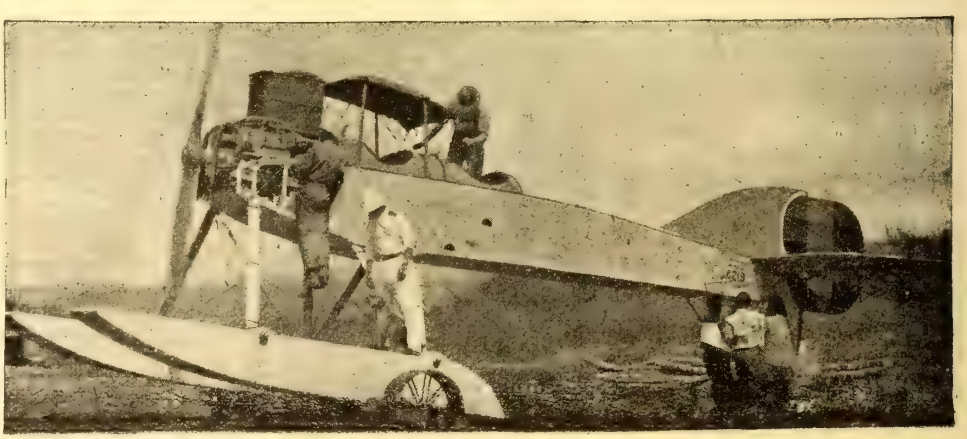
GERMANY.

According to the German paper, "Freiheit," the 426th Detachment of the Air Service recently joined the Russian counter-revolutionaries. The Detachment is still in communication with the Military Departments in Germany, and is receiving Army stores. Some men from the detachment arrived in Berlin on Sept. 10th to fetch three aeroplanes. Other machines will be sent shortly.

ITALY.

On Monday, Sept. 8th, Petty Officer Guarnieri, R.I.N., piloting a Savoia flying boat, left Lake Maggiore, with Lieut. Campacci, R.I.N., as observer. After flying over the Alpine chain in the St. Gothard region, and crossing Switzerland from south to north, he struck the Rhine Valley, and followed it. He arrived safely at Amsterdam after a non-stop flight.

Maggiore Gabriele d'Annunzio, whose fame as a dramatist has almost been equalled by his gallantry as an aviator, has, as has been stated, organised with some publicity a flight from Rome to Tokio. On Sept. 12th he appears to have destroyed any chance of his attaining further distinction as an aviator or of reaching Tokio save as a refugee by a singularly rash interference in the affairs of nations. On the afternoon of that day he led a force of about 10,000 Italian Grenadiers and Arditi, with armoured cars and machine guns, to the port of Fiume (which, to the annoyance of the Italians, was not given



ANCIENT HISTORY. — A Short Seaplane (225 h.p. Sunbeam engine) in Central Africa. Very little has been heard of the work of these machines in that particular part of the world during the late war. The R.N.A.S. Detachment in Central Africa was not so widely advertised as was its less fortunate squadrons on the Fronts nearer to England and the world of newspaper correspondents.

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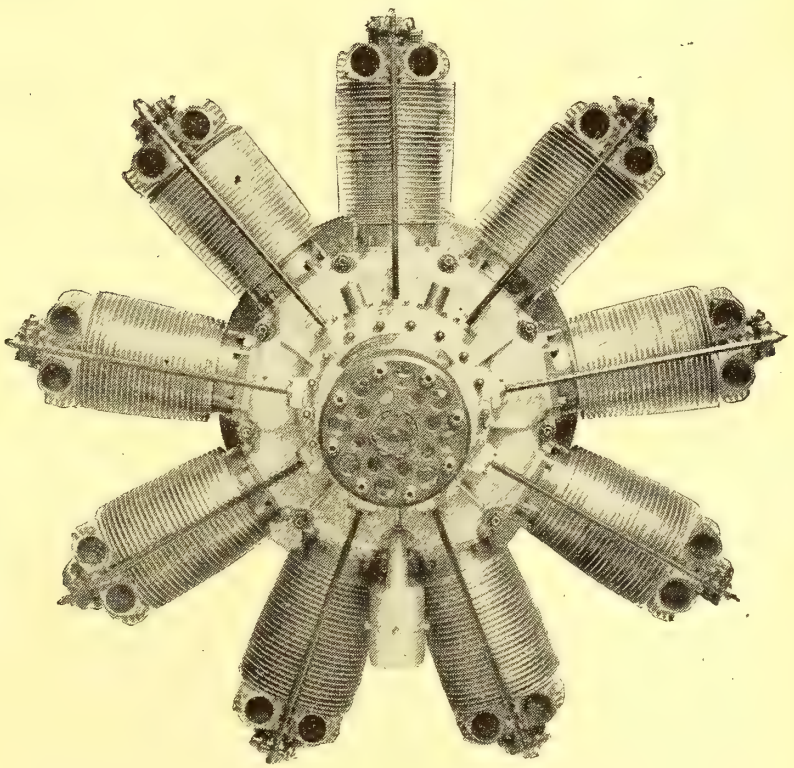


450 H.P. JUPITER.

to Italy in the Peace Treaty). Fiume has recently been administered as a temporary measure by an Italian general aided by Allied troops. According to the latest reports, Maggiore d'Annunzio seized the town and is now in the seat of power. The Italian troops in Fiume when called upon to repel the d'Annunzio attack revolted and transferred their allegiance to the insurgents.

The Italian Premier, in a speech in the Chamber, denounced Maggiore d'Annunzio's action and stated that vigorous measures were being taken to suppress the revolt. General Badoglio, the Deputy Chief of the General Staff, has gone to Fiume with complete powers.

The Italian correspondent of THE AEROPLANE writes :—

It transpires that among other unaccountable fatalities the death of the Naval officer-pilot Umberto Calvelli has caused the absence of an Italian seaplane squadron from the Amsterdam Show. Giovanni Ravelli is one more of the great naval war aces who have gone out in this last disastrous month. One is led to ask what effect the intense solar heat may have had on the artificially-seasoned timber of the use of which one has heard.

Italian seaplanes have been sent to St. Raphael to pass French Government tests.—I. S. H.

RUSSIA.

The "Daily Express" correspondent reports that Bolshevik aviators have dropped eleven bombs at Kellomaki, near the Finnish frontier, but caused only insignificant damage.

SPAIN.

The Farman biplane flown by M. Chevillard from Paris to Madrid where it arrived on Sept. 9th has been delivered to the Spanish Government for use in a Military aviation school. One machine of the same type has previously been delivered.

U.S.A.

A recent issue of the "Aircraft Journal" stated that mechanically inclined men were wanted for service aboard the U.S.S. "Shawmut," the only aviation mother ship in the U.S. Navy. The "Shawmut" is releasing aviation mechanics in accordance with orders received recently, and the vacancies are to be filled.

The "Shawmut" acts as tender for ten seaplanes and will be attached to the Atlantic Fleet. Four of the seaplanes are carried on board ship. The other six are known as air boats —big seaplanes of the F-5 type. Air boats are flown from port to port, and engage in all fleet manœuvres. The "Shawmut" will proceed to Newport soon for aerial bombing practice and for seaplane observation of torpedo tests.

The Missouri Aeronautical Society, of which Major A. B. Lambert is president, has arranged a Free Balloon Race between the Army and the Navy, to start from St. Louis, U.S.A., on Sept. 26th. Six balloons have been offered—three for the Army and three for the Navy. Final details have not been arranged, but there appears to be no doubt that the race will take place. So far as known, this will be the first free balloon race between Army and Navy officers ever held in America. Attempts will be made to establish both altitude and long-distance records.

THE "INTERNATIONAL AERIAL REGISTER."

The second impression of the "Aerial Register and Gazette" has now been produced. It is distinctly an elaboration of the first impression, and is to that extent more useful, and is now called "International," as it is aimed at bringing the British pilot before the notice of the foreign employer.

Obviously, some register of the technical personnel of aviation is necessary. Almost equally obviously, that "Register" should have been issued by the Department of Civil Aviation, so that anybody who is engaging a pilot—whether as a tester of new machines or for a 10 minutes' pleasure flight—should be able to refer to an Official Register and find out whether the pilot's record is such as to make him a trustworthy person. Similarly, anybody concerned with an aeronautical engineer—whether as a ground engineer at an aerodrome, or as a Government inspector of aeroplanes, or as an applicant for a position as a designer, or in any other capacity, should be able to refer to that "Register," and discover at once whether the man's record is such as to give confidence in his ability or in his opinions.

Similarly, Lloyds Underwriters and the Insurance Companies should be able to gauge a pilot's qualities in the same manner as that in which a ship captain may be turned up in the "Captains' Book."

As no official publication of this kind has been issued, naturally the opportunity arose for private enterprise to supply the deficiency, and this "Register" is the result.

Capt. Swinton, the compiler of the "Register," is an ex-officer of the Royal Engineers.

The difficulty of compiling such a "Register" was necessarily great, largely owing to the fact that the only people who were at all disposed to place their names in such a "Register" were those who were in search of situations, whereas, to be of the greatest use, a register of this kind should include all those who already occupy positions of importance, for these are the people whose names and records would really be of the greatest interest to possible purchasers of such a work.

From the beginning Capt. Swinton has been careful to point out that he is not running an employment agency, and does not pretend to find situations (though he has made very strenuous efforts to do so) for those who place their names on the "Register." It is refreshing to know, however, that his efforts have not been absolutely barren as salaries are actually being paid at the rate of some £8,000 or £9,000 per annum to registrants whom the "Register" has placed.

The fee charged for registration is certainly more than the sum charged for the insertion of a name in certain other registers and directories; but, no doubt, this is explained by the fact that whereas other directories embrace thousands of names, an aeronautical directory can at first only expect to number the names in hundreds. In any case, it is fairly evident that there cannot be any profit on the actual compilation of the "Register," and it is only fair to assume that so far as the registrants are concerned the proprietor of the "Register" is not making any money out of them. As a matter of fact, he has financed the undertaking to a considerable extent out of his own pocket. The profits—if any—will presumably be made from the sale of the book and from advertisements therein.

One may perhaps take this opportunity of stating clearly that THE AEROPLANE newspaper is not in any way concerned with this "Register," beyond the fact that it is published by the Aeroplane and General Publishing Co., and it has done its best to bring the existence of the "Register" before the aeronautical community in the belief that a directory of pilots and technical people ought to exist.

As at present arranged, each registrant is given a number on registering his name, and that number is discovered by reference to an alphabetical list near the end of the book. The second edition includes names up to No. 1,000. Following the numerical and alphabetical list of registrants there is a number of pages devoted to registrants' qualifications, such, for example, as knowledge of aerial photography, knowledge of aerial traffic management, knowledge of aerial equipment, acquaintance with various countries, knowledge of various languages and so forth, the registrant in each case being indicated by his number. In this way anybody desiring to engage a man with certain technical knowledge and a knowledge of a certain language can easily discover whether there does happen to be a registrant who combines the desired kinds of knowledge.

Naturally, the "Register," as it stands, is only a nucleus of what such a register should be, and one is somewhat in doubt as to whether it is actually the right kind of nucleus, but the book as produced is evidently the result of much hard and intelligent work. It certainly has already considerable value as a source of information, but before it can reach its highest value it must include, as already mentioned, those who are already occupying important positions in the Aeronautical Industry.

Capt. Swinton states that he hopes to bring out another edition in 1920 (published half-yearly) without any payment on the part of registrants, and to have their records supported either by an Air Ministry reference, or by a certificate of competency from the transportation concern employing them.

The permission of the Ministry has been obtained to publish lists of all registered aircraft, all pilots holding A.M. licences, and for the reprint of the Air Convention and other provisions for aerial navigation.

["The International Aerial Register and Gazette." Published for the proprietors by The Aeroplane and General Publishing Co., Ltd., Carey Street, W.C.2. xvi + 140 pp. Price 7s. 6d.]

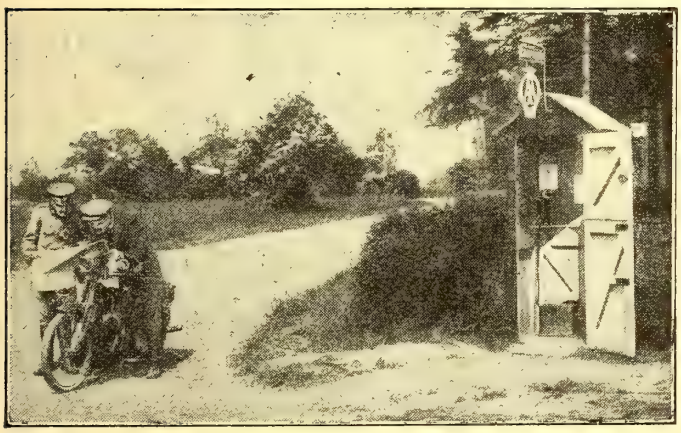
CIVILIAN PILOTS REQUIRED.

A large aviation firm which has done a very great deal of passenger-carrying all over England this summer is advertising in this issue. They require pilots for commercial flying abroad. They should be not less than twenty-five years of age, with business experience and special knowledge of one of the following countries: Africa, Canada, China, Denmark, France, Holland, India, Italy, Japan, Mexico, Russia, South America, and the United States, etc.

Crossing The ts.

How the A.A. is extending well-known facilities.

The Automobile Association places no reliance on the proverb "Leave well alone" in connection with its road service for members. Having successfully organised and provided a new benefit the Association



is not content to maintain it at the original level, but all the time endeavours to go one better.

The present season has seen marked activity in the Association's policy of progress, as is evidenced by the following 1919 Service refinements:

Road Patrol Scheme. "Mechanical First-Aid" Cycles fitted with side-cars, carrying spares and tools necessary for light repairs to cars or motor cycles, have been added.

Roadside Telephones. All the A.A. sentry boxes are being adapted for a 24 hour telephone service, and every member will be given a key which will enable him to use any of the instruments at any hour of the day or night.

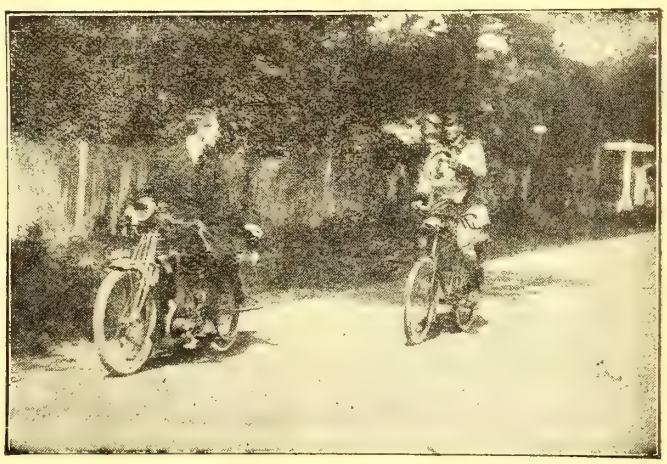
Free Legal Defence. This benefit now covers Free Legal Representation in civil cases by the Association's solicitors in all approved cases arising from the sale, purchase or use of privately owned motor cars or motor cycles.

Foreign Touring Assistance. Members of the Association can now take their cars into a 70 per cent. tariff country on a banker's indemnity alone and without depositing hundreds of pounds in Customs dues.

Branch Offices. New offices have been opened at Oxford, Cambridge and Brighton, where members whilst *en route* can obtain road information.

Motor Fuel. The Association has commenced 10,000 and 5,000 miles road tests of "National" benzole on a Sunbeam car and a Triumph motor cycle, in order to prove once and for all that benzole of good quality is completely satisfactory as a motor fuel.

Complete information as to the objects of the Automobile Association and the many privileges it extends to members is contained in a new edition of "The Key to the Open Road," a copy of which can be obtained, post free, from the Secretary, A.A. & M.U., 41, Fanum House, Whitcomb Street, London, W.C.2. Send a postcard to-day. Motorists in London who wish to join the Association without delay are invited to call at Headquarters, where a staff of experts is always in attendance ready to give information on any question relating to motoring.



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THE WEEKLY COMMENTARY.

In a leading article Captain Sayers draws attention to the neglect into which seaplane design has fallen of recent years in this country.

The lamentable exhibition in the Schneider Competition at Bournemouth on the 10th of this month serves to point the moral—even if it scarcely adorns the tale.

Machines produced during the war by the firm of Frederick Sage, Ltd., form the subject of this week's instalment of Modern British Aeroplanes.

Illustrations of certain German machines of more or less experimental types serve to show the profound effect which the Sopwith Triplane produced on the German mind.

This particular case is a typical example of the German method of seizing upon a new idea of extraneous origin and diligently investigating its possibilities.

So far as can be discovered Germany produced many more different types of triplane than all the rest of the belligerents combined, yet—with the possible exception of the Fokker—none of these equalled the original Sopwith.

A somewhat delayed account of a lecture by Lt.-Col. H. G. Lyons, read at a Joint Meeting of the Royal Meteorological Society and the Royal Aeronautical Society is published in this issue as being *apropos* the Schneider Cup weather.

THE NEGLECTED SEAPLANE.

By Capt. W. H. SAYERS, late R.A.F.

Great Britain has been known to be an island for some appreciable time. One Julius Cæsar placed the fact on record—*circa* 55 B.C.—and it seems possible that others were aware of it even earlier. As the files of the "Times" or its equivalent of those days are unfortunately no longer extant, it is impossible to state whether the importance of the matter was properly realised in those days.

Some 900 years later a certain Alfred—a sort of Lord Fisher of that era—certainly awoke to one aspect of the matter and founded the British Navy. It is also true that he burnt the cakes, and that the tradition which he thus initiated is to be found reflected in the execrable cooking which survives in the Senior Service to this day.

However, it is now over 1,000 years since Alfred the Great discovered that England's defensive frontier was to be sought upon her enemies' coasts, and it may therefore reasonably be hoped that within the next century or two one will arise who will combine, as Alfred did, both vision and authority, and who will realise that, although the advent of the airship and the aeroplane has profoundly modified the details of defence, it is still as true as it was 1,000 years ago that Britain's frontier in war should be the coastline of her enemies.

It has been stated often that the aeroplane has destroyed, or is about to destroy, the defensive value of the British Navy. It is even believed that THE AEROPLANE has on occasion expressed views which have been generally interpreted in that sense.

A very little reflection will serve to show that it is as absurd to suggest that aircraft can supersede a sea-going navy as that they can supersede an army. It is conceivable that some future wars may be fought almost entirely in the air.

Nevertheless, any type of aircraft must have some sort of base upon the Earth's surface, and that base must have protection against enemy attacks by land as well as by air.

Thus, even if the aerial arm attains that supremacy in warfare that some of its advocates proclaim, the aerial arm will still need a terrestrial protecting force from behind whose lines it will draw supplies.

For the British Empire, even more than for the British Isles, the lesson of history is clear. If the British Air Force is to take its place in the Empire's defensive system, it must be an Air Force which is based upon the sea, immediately behind the British Navy.

True, the few odd miles of ditch which separate Great Britain from the Continent are a relatively small matter where aircraft are concerned, but even here it were better to use that ditch over which to fight any future attempts at invasion rather than leave the business to occur over an equal depth of British land.

But, taking the Empire as a whole, there is question not of a few miles of water, but of thousands of miles of it, and the Imperial Air Fleet of the future—if it is not to be a mere coastguard affair—must be a High Seas Air Fleet.

To Britain land-going aircraft have a certain importance. There are a few land frontiers of the Empire exposed to the incursions of barbarous peoples, and land machines should be useful for police purposes in such places.

But sea-going aircraft—not merely aircraft able to cross hundreds and thousands of miles of sea, but aircraft which can use the sea as an aerodrome and a supply ship as a base—are essential to its continued existence, unless it be true that the millennium is at hand.

The late war was fought on land. The navies of the belligerent Powers were too frightened one of another to attempt to hold the open seas, and the coasts of the opposing nations were too close together to force the development of real marine aircraft, and Britain in particular has lost an unparalleled opportunity of developing what will become the basis of air power in the future.

Few things are quite so surprising in the history of the late war as the relative stagnation of seaplane development in this country. When war broke out, Britain possessed, in the Sopwith Schneider Cup winner, the fastest seaplane in the world. In the Sopwith "Bat-Boat" she had the original of the N.C. type which made the first flight across the Atlantic, and, in the Short seaplanes of that date, a type of general-utility seaplane unequalled by the products of any other country.

At the cessation of hostilities, after four and a half years of the most amazing progress in aeroplane performance, the only small high-speed seaplane which the Royal Air Force had possessed in any quantity was the original Sopwith Schneider with a somewhat more powerful engine. The only version of the "Bat-Boat" type that those four years have produced was a feeble effort of the Royal Aircraft Establishment, and the only moderate-sized seaplanes which had been made to any large extent were Shorts—practically unaltered in design since 1914.

One very important development did occur in that period. Whether it was pure joss, or whether it was that Wing Commander (since several other titles which memory fails to recall) J. C. Porte's naval training had taught him the right methods by which to attack the powers that were at the Admiralty—or whether it was mere persistence and perseverance on his part—Felixstowe was permitted to carry on with the work of developing the big flying boat to the extent of making a success of it and of getting it into production on a really large scale.

The big boat enthusiasts, who are not a few, will point to this fact as an indication of the essential soundness of the British seaplane policy.

As a matter of fact, it is nothing of the sort.

In the first place, speaking from a very intimate knowledge of the facts, there never has been any policy that has lasted more than three months on end.

In the second, without any kind of reflection upon the excellent work carried out at Felixstowe—carried out under conditions which only a small number of people who have attempted similar experimental work under the ægis of the late Air Department, Admiralty, can guess at—Felixstowe was in effect given a monopoly in that particular branch of experimental work. Had any of the competent designers who were willing to attack big seaplane design been decently encouraged, their efforts would at least have improved the Felixstowe breed of boat, had they done nothing else.

But the big boat is not the only type of seaplane, whether for war purposes or for the uses of peace.

The little Brandenburg monoplanes, which shot down our big boats 20 miles from their birthplace, are sufficient evidence, so far as war is concerned—just as they are evidence that the Germans had digested, as we have forgotten, the truth that Alfred the Great recognised a thousand years ago.

The flying-boat type of seaplane may or may not prove to be the only really seaworthy type of aircraft for trans-marine work. That question need not now be discussed.

The fact that is to be insisted upon is that, since 1914, nothing has been done officially to encourage the development of seaplanes, with the single exception of the large boat type.

This is in no way the fault of seaplane-designers. If it were possible to publish a list of specifications issued by the Air Department of the Admiralty during the course of hostilities, for various types of seaplane, and of the machines which were designed and produced to those specifications, together with their ultimate fate, and one or two other relevant matters of history, it would make an extremely interesting, though rather melancholy, story.

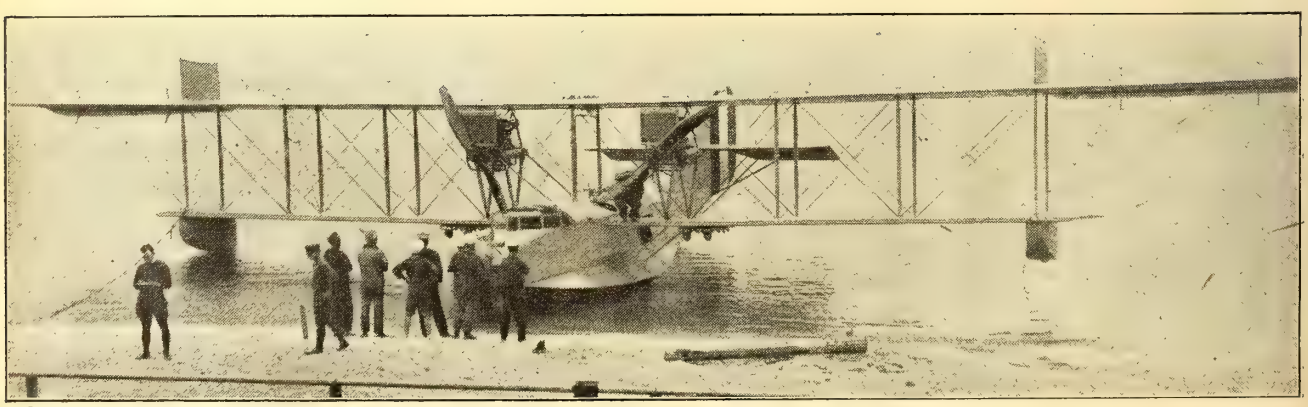
The Schneider Cup fiasco of Sept. 10th by no means tends to dispel the gloom in which war has shrouded the seaplane. It is true that Janello on the Savoia boat with the Isotta-Fraschini engine ran his full ten laps of the course—for even if he did not round the mark-boat in Swanage Bay he made up for that omission by his coast-hugging course west of Bournemouth—with clock-like regularity at just upon 130 miles per hour, and that Capt. Hammersley, on the left-out Avro, had the speed of Janello by not less than 20 miles per hour on his time for the exhibition laps which he flew.

But all these were merely aeroplane performances. The sea at Bournemouth on the day of the race would not have sunk an eggshell—and the beach there is as nearly perfect for beaching seaplanes as any that can be found in Britain.

Yet of seven machines built by three great nations for a seaplane race, only three, and one not a competitor, survived the day with unpunctured floats, and of those three one only actually passed the landing and getting-off tests imposed by the rules of the race.

There is in this country a certain number of people who have had some experience of seaplanes in practice, and who do know that a seaplane which has to alight at 80 miles per hour needs something rather extraordinary in the way of float bottoms if she is to alight undamaged with fair certainty even on a sea like a millpond, but most of them have been driven out of the industry, and none of them appear to have had any say in the arrangement of the contest.

Thus it happens that after four and a half years of war use of seaplanes the International Seaplane Race produced mainly a number of high-speed land machines on floats, and Britain—which should be the home of the seaplane—made as sorry a show as any competitor.



The Curtiss H.16. A big American twin-engined boat which has many resemblances to, and a common ancestry with, the British F. boats.

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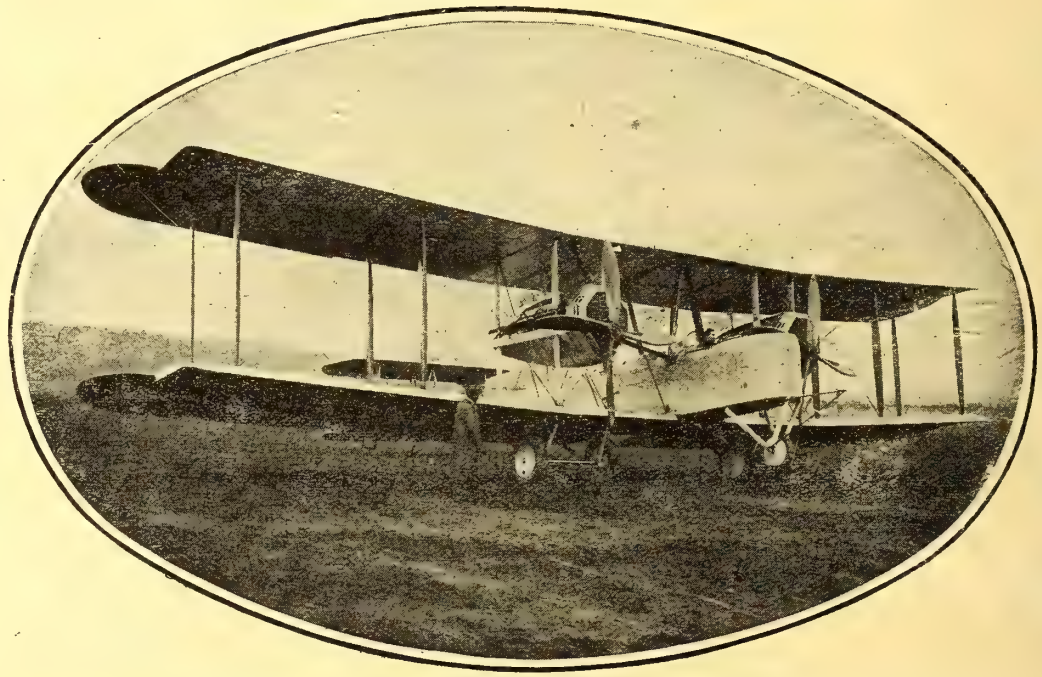

The first direct Flight from Newfoundland to Ireland 1,900 miles) was accomplished by this Aeroplane in 15 hrs 57 mins. 4 tons of Petrol and Oil were used.

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MODERN BRITISH AEROPLANES.

XV.—Frederick Sage & Co., Ltd.

The aircraft branch of Frederick Sage and Co., Ltd., the well-known firm of shop fitters and furnishers was begun at the request of the Admiralty early in 1915, and for a time machines of outside design were constructed.

In Sept., 1915, Mr. E. C. Gordon England joined the firm as pilot and consultant, and a few months later he was put in charge of the aeronautical department of the firm. In Jan., 1916, Mr. Clifford W. Tinson was permitted by the Director of Air Services to leave the Air Department of the Admiralty and join the firm as designer.

From that time Messrs. Sage have produced a number of machines of their own design, besides turning out in quantity sundry types of independent design, together with large quantities of spare parts.

An airship section was also formed shortly before the aeroplane department and built large numbers of cars for non-rigid airships.

THE SAGE II.

Sage I was an experiment which was not finished.

The Sage II was designed as a two-seater fighting scout, at a time when the synchronised gun was an experiment.

The pilot was seated in front and the gunner by standing up behind the pilot could fire a Lewis gun through a hole in the top plane.

Both pilot and gunner were enclosed in a streamline fairing extending upwards from the cockpit to the top plane.

Further developments of this machine were not proceeded with as the Constantinescu synchronised gun gear made the type unnecessary.

SPECIFICATION

Type of machine	Two-seater tractor biplane
Name or type number of machine	Sage 2
Purpose for which intended	Fighting scout
Span	22 ft. 2½ in.
Gap, maximum and minimum	5 ft. 6 in.
Overall length	21 ft. 1⅝ in.
Chord	top, 5 ft.; bottom, 2 ft. 8 in.
Total surface of wings	168 sq. ft.
Total area of tail	20 sq. ft.
Area of elevators	14.5 sq. ft.
Area of rudder	9 sq. ft.
Area of ailerons	25 sq. ft.
Engine type and h.p.	100 h.p. Gnôme
Weight of machine empty	946 lb.
Load per sq. ft.	9.2 lb.
Weight per h.p.	15.46 lb.
Tank capacity in gall.	petrol, 27½ gall.; oil, 8 gall.
PERFORMANCE—	
Speed low down	112 m.p.h.
Speed at 10,000 ft.	109.75 m.p.h.
Landing speed	55 m.p.h.
Climb—	
To 10,000 ft. in min.	14.75 min.
Total weight of machine loaded	1,546 lb.

THE SAGE III.

The Sage III was designed at the request of the Admiralty as a two-seater, dual-control, primary training land machine, the principal requirements being ease of handling, slow-landing speed, and good visibility.

A large order for this machine was given, but was cancelled in order to allow the firm to concentrate on the production of fighting seaplanes.

SPECIFICATION

Type of machine	Tractor biplanes
Name or type number of engine	Sage 3a and 3b
Purpose for which intended	Training
Span	34 ft. 6 in.
Gap, maximum and minimum	5 ft.
Overall length	32 ft. 10 in.
Chord	4 ft. 9 in.
Total surface of wings	330 sq. ft.
Total area of tail	26 sq. ft.
Area of elevators	24 sq. ft.
Area of rudder	10 sq. ft.
Area of fin	4 sq. ft.
Area of ailerons	72 sq. ft.
Engine type and h.p.	75 h.p. Rolls-Royce "Hawk"
Weight of machine empty	1,390 lb. (3b)
Load per sq. ft.	6.25 lb. (3a), 6 lb. (3b)
Weight per h.p.	23.9 lb. (3a), 26.4 lb. (3b)
Tank capacity in gall.	petrol, 26 gall.; oil, 4 gall.
PERFORMANCE—	
Speed low down	72 m.p.h. (3a), 76 m.p.h. (3b)
Landing speed	39 m.p.h.
Total weight of machine loaded	2,064 lb. (3a), 1,980 lb. (3b)

THE SAGE IV SEAPLANES.

The Sage IV Seaplane—produced in July, 1917—was very similar to the Sage III type, with a float undercarriage instead of wheels.

The machine was a two-seater, intended for wireless patrol work at sea, with a 140 h.p. Hispano-Suiza and in the hands of the late Capt. Gordon Bell, put up an excellent performance on test.

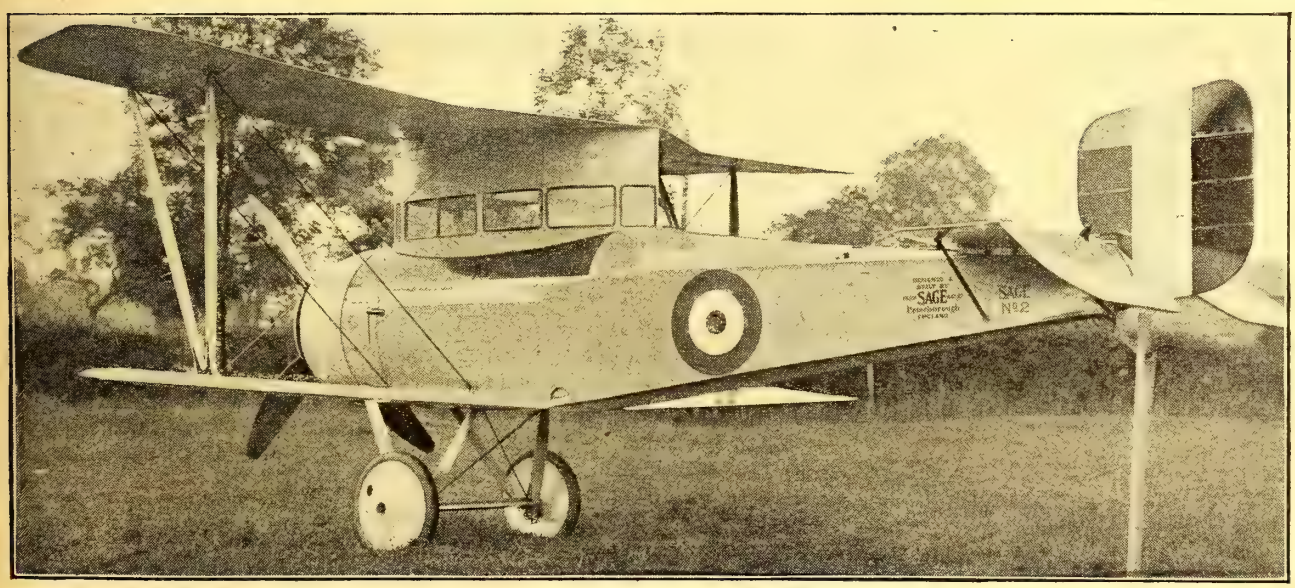
Subsequent types were altered to take the 200 h.p. Hispano-Suiza engine and fitted with dual-control. The training machines thus derived were called Sage IVb and Sage IVc, the former having fixed planes, and the latter folding planes.

These machines were extremely maniable, and just before the signing of the Armistice, the Sage IVc was used for a course of intensified training at seaplane training stations.

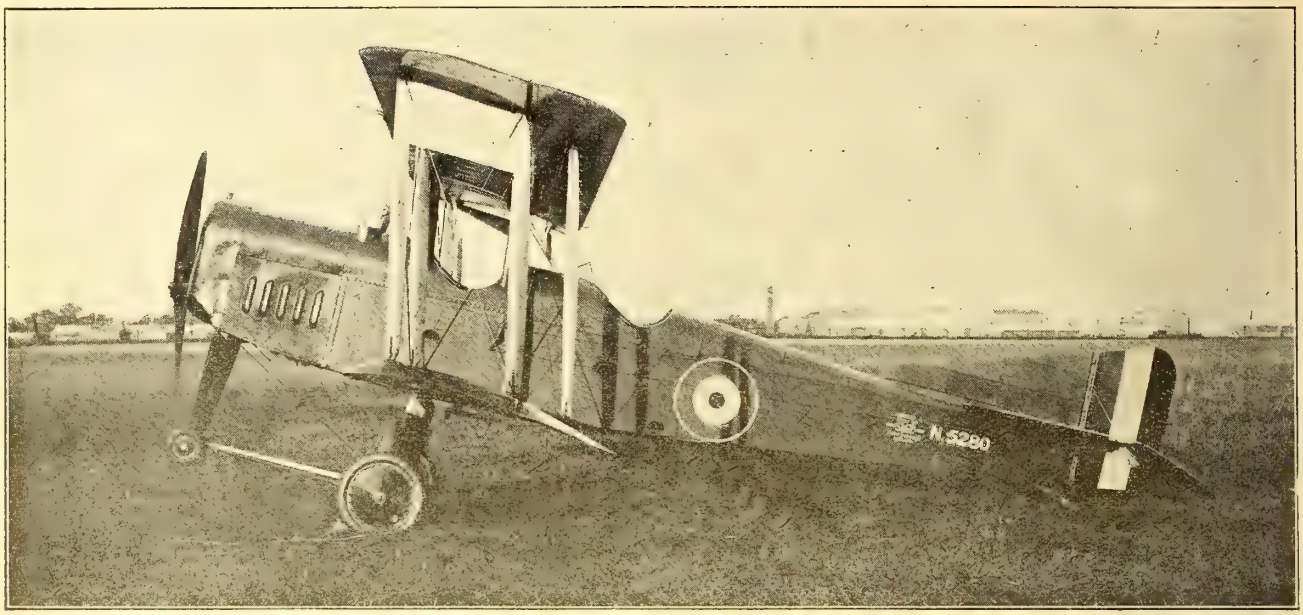
THE SAGE TYPE IVa.

SPECIFICATION.

Type of machine	Tractor float seaplane
Name or type number of machine	Sage 4a
Purpose for which intended	Training



The Sage II Fighter, with enclosed cockpit and gun-hole in the roof (100 h.p. Gnôme engine).



The Sage III Training Machine (Rolls-Royce "Hawk" 75 h.p.).

Span	34 ft. 6 in.
Gap, maximum and minimum	5 ft.
Overall length	32 ft. 6 in.
Chord	4 ft. 9 in
Total surface of wings	330 sq. ft.
Total area of tail	26 sq. ft.
Area of elevators	24 sq. ft.
Area of rudder	10 sq. ft.
Area of fin	4 sq. ft.
Area of ailerons	72 sq. ft.
Engine type and h.p	140 h.p. Hispano-Suiza
Load per sq. ft.	8.06 lb.
Weight per h.p.	16 lb.
Tank capacity in gall.	petrol, 48 gall.; oil, 6 gall.
PERFORMANCE—	
Speed low down	83.5 m.p.h.
Speed at 10,000 ft.	79 m.p.h.
Landing speed	45 m.p.h.
Climb—	
To 10,000 ft. in min.	32 min.
Total weight of machine loaded	2,662 lb.

THE SAGE IVb SEAPLANE.

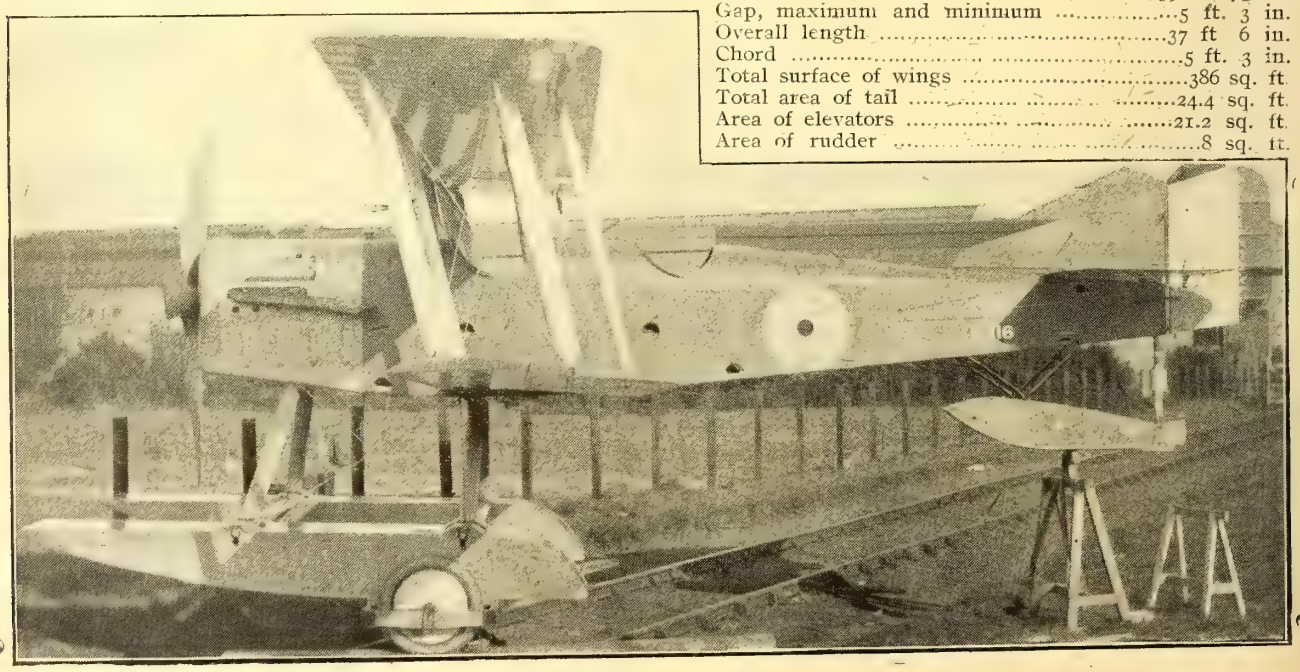
SPECIFICATION.

Type of machine	Tractor float seaplane
Name or type number of machine	Sage 4b
Purpose for which intended	Training
Span	34 ft. 6 in.
Gap, maximum and minimum	5 ft. 3 in.
Overall length	34 ft.
Chord	4 ft. 9 in.
Total surface of wings	330 sq. ft.
Total area of tail	26 sq. ft.
Area of elevators	24 sq. ft.
Area of rudder	9 sq. ft.
Area of fin	5 sq. ft.
Area of ailerons	72 sq. ft.
Engine type and h.p.	220 h.p. Sunbeam
Load per sq. ft.	8.2 lb.
Weight per h.p.	13.54 lb.
Tank capacity in gall.	petrol, 35½ gall.; oil, 4½ gall.
PERFORMANCE—	
Speed low down	95.5 m.p.h.
Speed at 10,000 ft.	85.1 m.p.h.
Landing speed	53 m.p.h.
Climb—	
To 10,000 ft. in min.	25 min.
Total weight of machine loaded	2,709 lb.

THE SAGE IVc SEAPLANE.

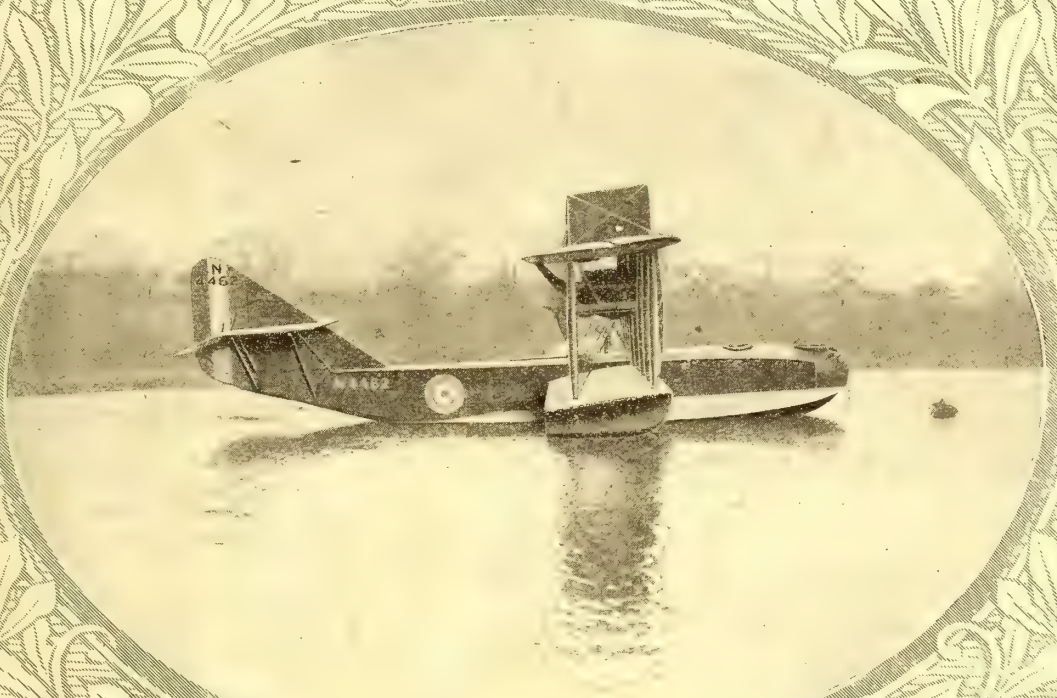
SPECIFICATION.

Type of machine	Tractor float seaplane
Name or type number of machine	Sage 4c
Purpose for which intended	Training
Span	39 ft. 7¼ in.
Gap, maximum and minimum	5 ft. 3 in.
Overall length	37 ft 6 in.
Chord	5 ft. 3 in.
Total surface of wings	386 sq. ft.
Total area of tail	24.4 sq. ft.
Area of elevators	21.2 sq. ft.
Area of rudder	8 sq. ft.



The Sage IVc Seaplane (Hispano-Suiza 200 h.p.)

SAUNDERS



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Area of fin	5½ sq. ft.
Area of ailerons	84 sq. ft.
Engine type and h.p.	200 h.p. Hispano-Suiza
Weight of machine empty	2,100 lb.
Load per sq. ft.	7·34 lb.
Weight per h.p.	14.16 lb.
Tank capacity in gall.	petrol, 35½ gall.; oil, 4½ gall.

Performance—

Speed low down	97.2 m.p.h.
Speed at 10,000 ft.	93·7 m.p.h.
Landing speed	45 m.p.h.

Climb—

To 5,000 ft. in min.	8 min.
To 10,000 ft. in min.	21.44 min.
Total weight of machine loaded	2,875 lb.

Fredk. Sage, Ltd., do not propose to abandon their Aircraft Department on the cessation of hostilities, but intend to play a part in the development of civil aviation in the future.

To that end they are prepared with a series of designs for post-war types, ranging from a single-seater sporting model of 45 h.p. up to a big 1,200 h.p. 24-seater seaplane for long-distance work, and are, doubtless, prepared to undertake the design of special types for particular purposes.

SOME GERMAN TRIPLANES.

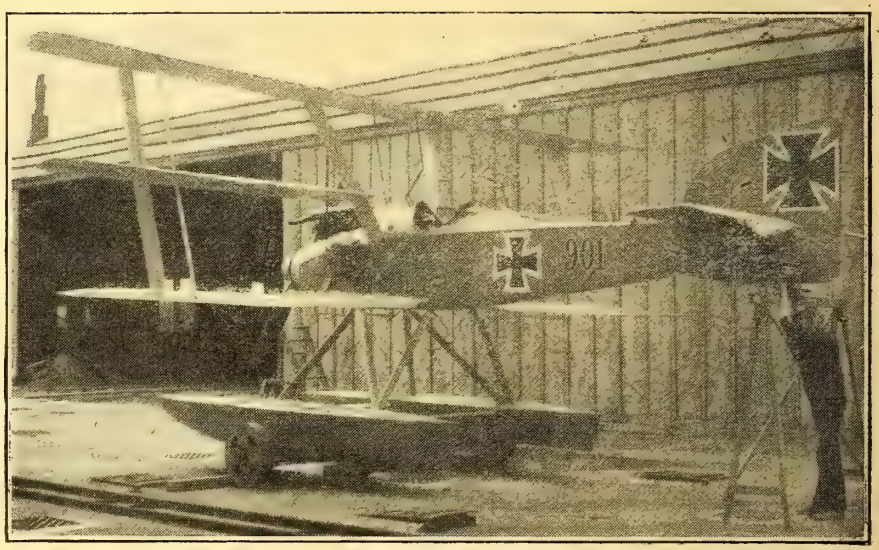
It is fairly well known that the Sopwith Triplane during 1917 produced a very considerable moral effect upon the German Air Service—in addition to the very substantial material losses which it inflicted.

It is also fairly well known that it produced by way of reply the Fokker triplane.

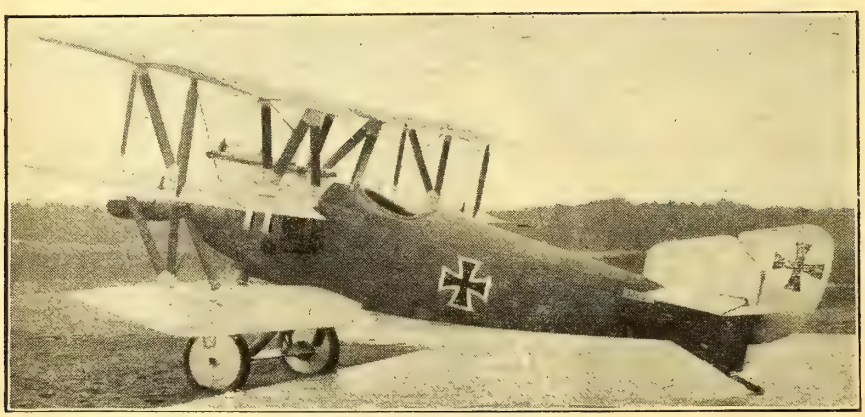
The three experimental triplanes shown on this page never reached any of the fighting fronts so far as can be discovered, but they serve to show how thorough and painstaking an experimentalist the German is.

Of the machines illustrated the little Sablatnig seaplane shows the most obvious signs of Sopwith influence—it is in fact a Sopwith triplane fitted with a stationary engine and has long floats without a tail float.

The second picture is a product of the Schütte-Lanz firm, and the last of the



A Sablatnig Tri-Seaplane.



The Schütte-Lanz Triplane.

illustrations shows a machine produced by the Naglo Werke—actually a hybrid quadruplane.

Both show the curious German hankering after novel and rather complicated structural work in their strut arrangements.

In addition to the machines illustrated, small single-seater fighting triplanes of Roland and Pfalz design were produced at about the same time.

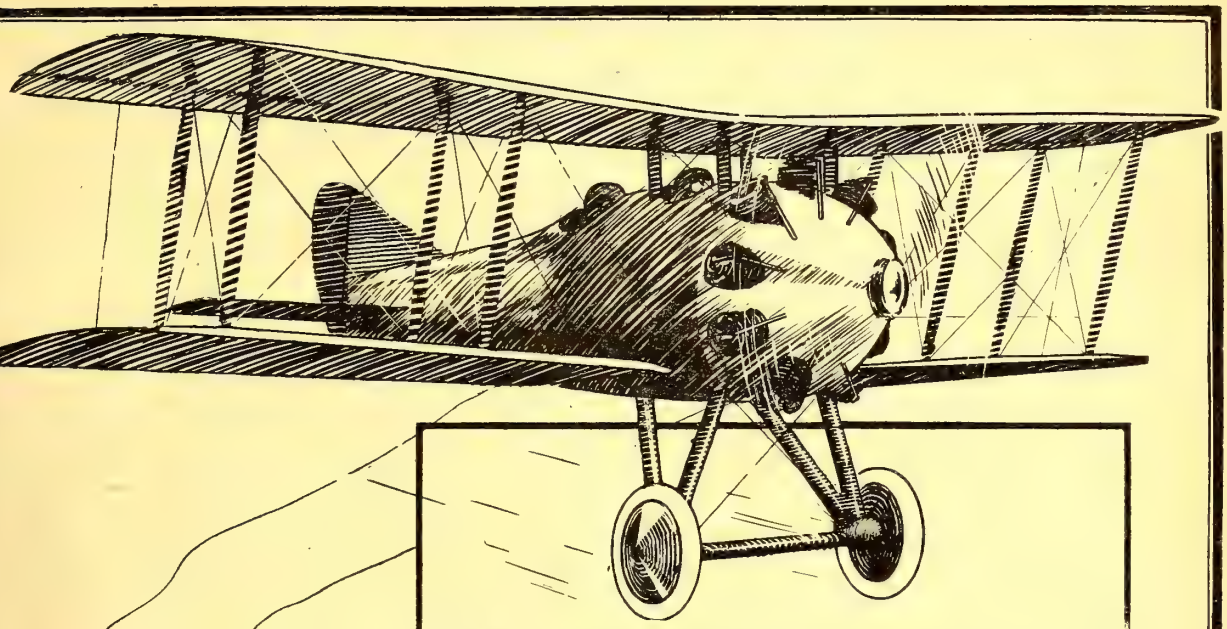
Of these the Pfalz was fitted with a rotary engine—probably the Siemens-built 11-cylinder of 200 h.p. and the Roland with a 6-cylinder vertical—apparently a Mercédès.

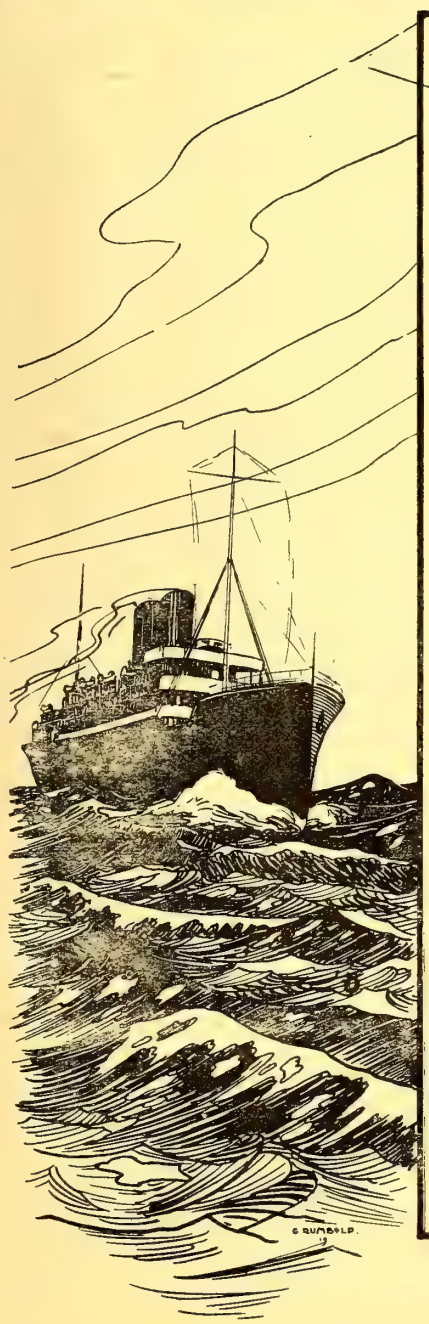
Both the Pfalz and the Roland triplanes have an upper wing of considerably greater chord than the two lower wings, though all three wings are in both cases of nearly equal span.

The Pfalz strutting arrangement to meet these conditions is in the form of a Y—one single strut connecting the lowest and centre planes and a Nieuport type V above connecting the top and centre planes.

In addition to single-seater machines, quite a number of larger machines have been built on triplane lines. Both the Gotha and the Freidtichshafen concerns have produced large twin-engined triplanes, and recently the Hannover Wagen Fabrik have turned out a three-seater limousine triplane which is possibly a converted war machine.

The Naglo Quadruplane.





TRANSITIONS IN TRANSIT

No. 6.—The Continental Tour.

"The Continent"! What visions that magic word conjures up. And how strangely it brings into focus that little strip of salted wilderness we call the "Channel." To most folk the crossing of that strip is the one fly in the Continental ointment. Few indeed are those who do not approach it with apprehension—and vivid recollection!

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He is, as it were, in a little world apart; far from the troubles that beset the earth-t.ed tourist.

Illustrated above is the Nieuport "Nighthawk" sporting machine.

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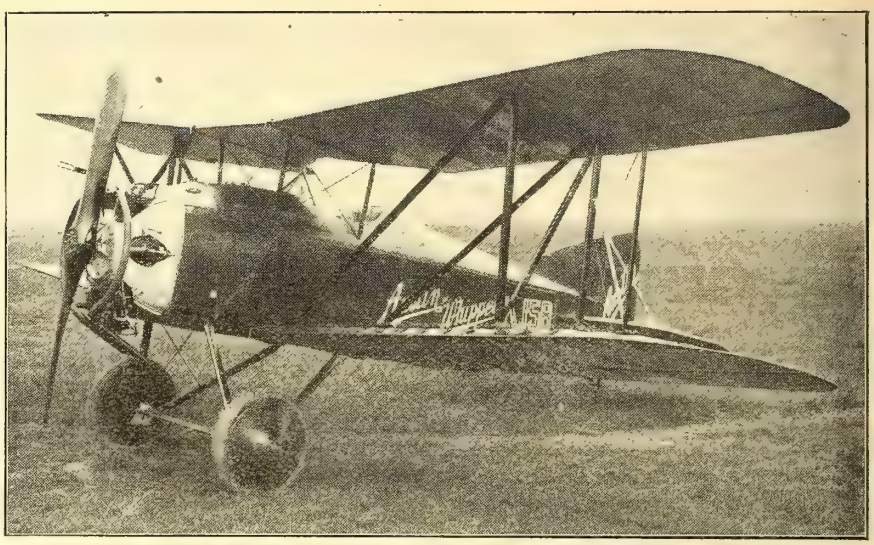
THE AUSTIN "WHIPPET."

The Austin Motor Co., Ltd., of Northfield, Birmingham, have, during the late war, produced large numbers of aircraft and aero engines of standard design, and also some machines of their own design for war purposes, which have performed well.

Since the Armistice they have brought out a small biplane, known as the "Whippet," which is intended purely as a sporting machine. To meet the requirements of a private owner who is fortunate enough to be able to run an aeroplane, the "Whippet" has been very carefully designed to be simple to fly and also to keep itself in flying order and to be housed in the smallest space possible.

The "Whippet" is a small, single-seater, tractor biplane, with a wing span of 21½ ft. and an overall length of 16 ft. The fuselage and undercarriage are of steel construction, and in place of flying wires streamline tubes are used. It will thus be seen that frequent re-rigging is unnecessary.



The Austin "Whippet" (45 h.p. Anzani).

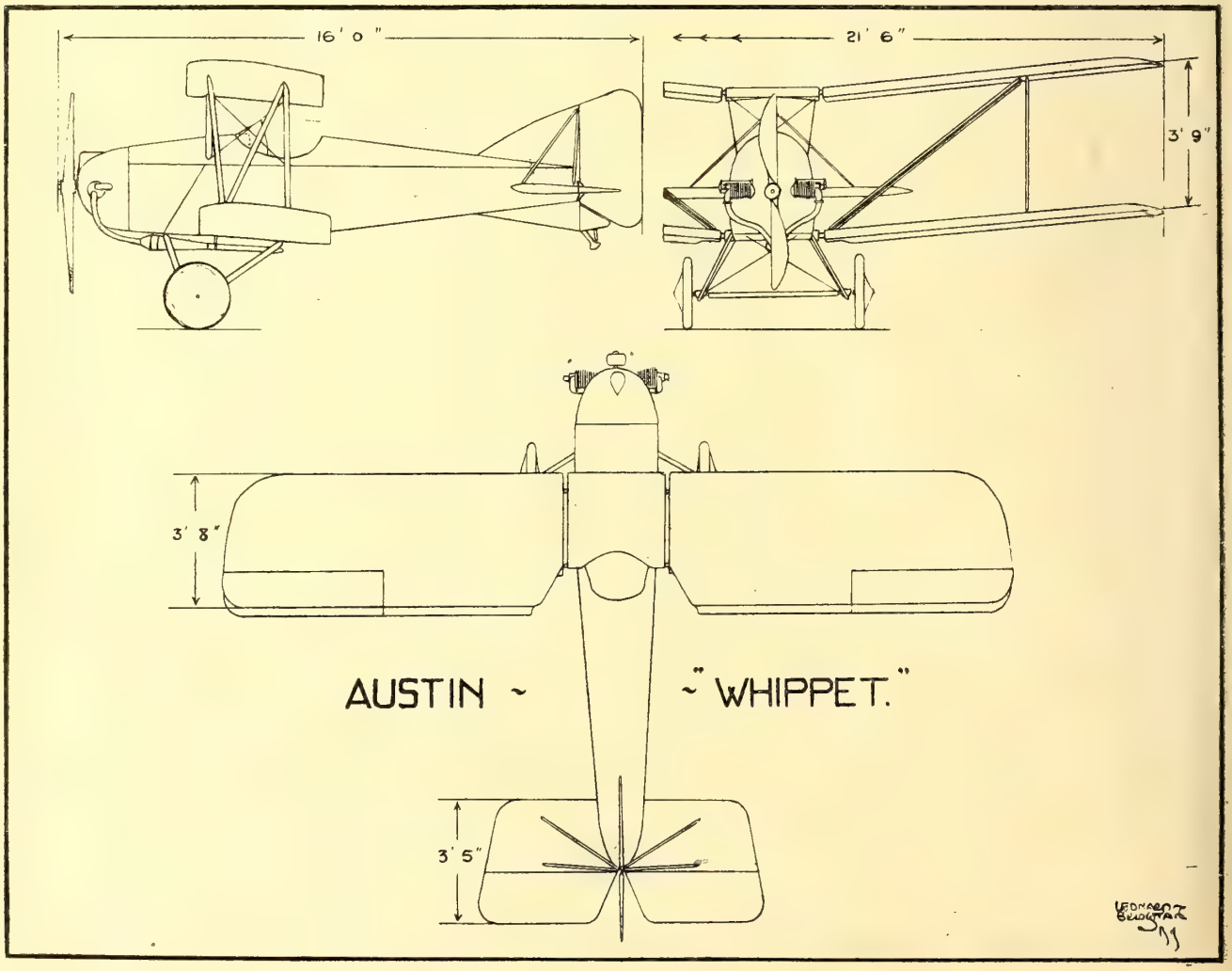
For storage purposes the wings are made to fold by releasing four locking bolts, bringing the span down to 9 ft.

The fuselage is made in two parts, the join being just in rear of the pilot's seat.

The main planes are built up in the usual fashion with hollow box-section spars and steel tube compression members, the whole wire-braced. One set of steel tube N struts are fitted either side of the fuselage, the steel "flying" tubes being fitted to the top of the interplane struts and the roots of the lower wing, so that they are not disconnected when the wings are folded. Ailerons are fitted to both upper and lower planes, and are interconnected by a steel strut. In the scale drawings a 40 h.p. A.B.C. "Gnat" engine is shown, but a six-cylinder 45 h.p. Anzani engine has been installed in the actual machine. The Anzani engine is overhung on the front of the fuselage and has a rubber shock-absorbing device fitted between the engine bearer and the fuselage.

The tail unit has fin area both above and below the fuselage. The tail skid is of the swivelling type, and is sprung by a spring inside a telescopic tube.

The machine has flown its tests successfully, and gave a speed range of 85—30 m.p.h., together with a climb of 5,000 ft. in 8 min. and 10,000 ft. in 18 min.



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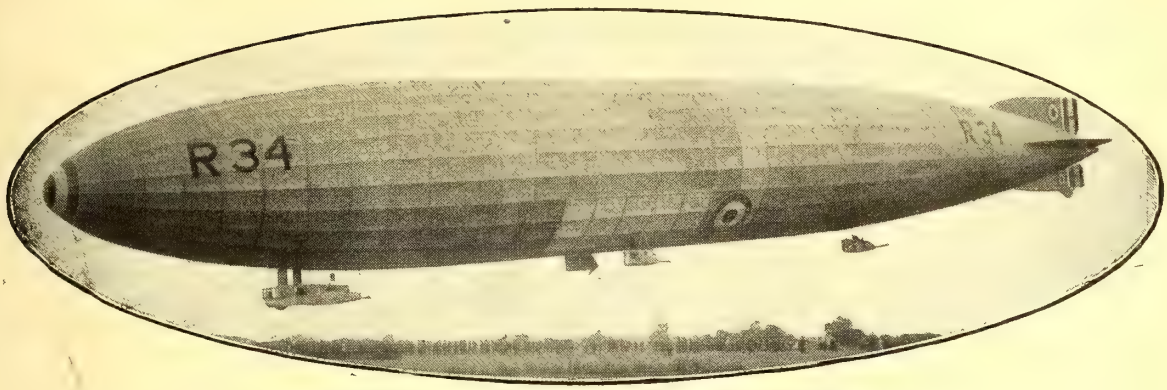

The Landing in Norfork of the R.34, on Sunday, July 13th, 1919.

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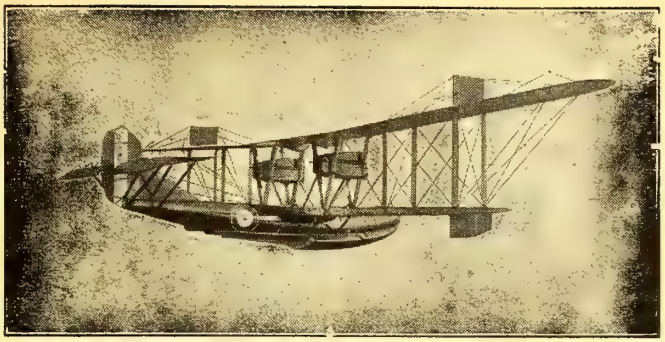

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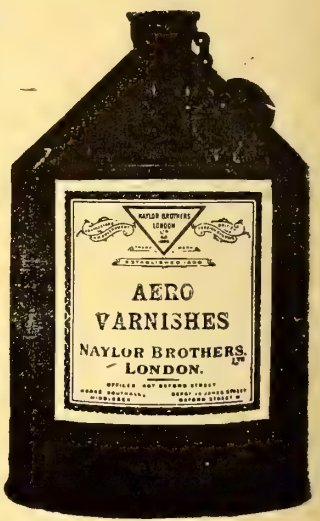

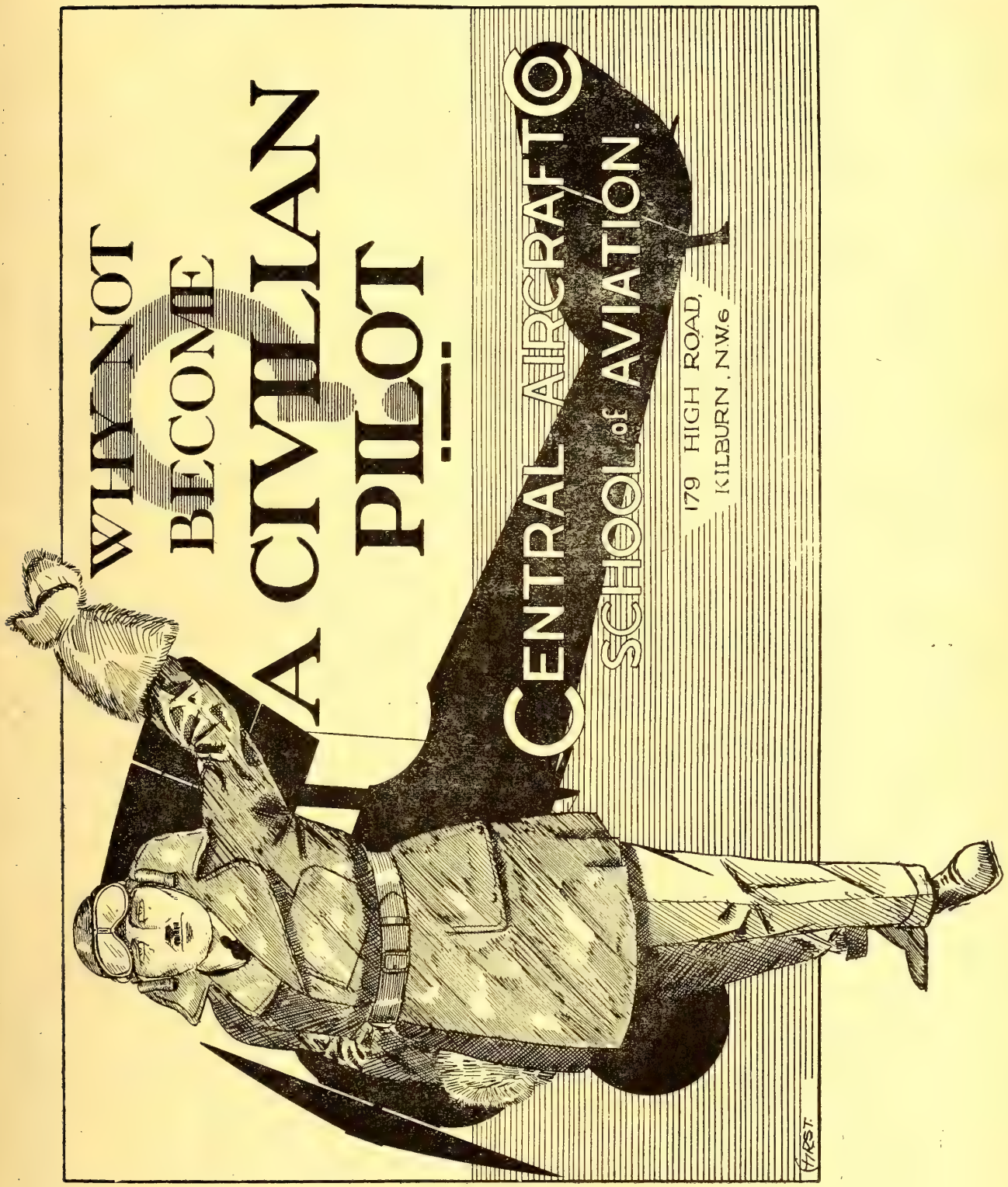
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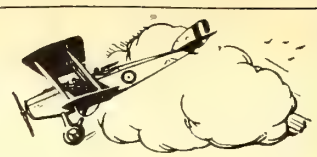

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Imperial Light, Ltd., 123, Victoria Street, London, S.W.1. "Edibrac, 'Phone, London." Victoria 3540 (3 lines).

Aeroplane Manufacturers—

Aircraft Manufacturing Co., Ltd., Hendon. "Airmanship, Hyde, London." Kingsbury 220.

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Blackburn Aeroplane & Motor Co., Ltd., Olympia, Leeds. "Propellors, Leeds." Roundhay 345 (3 lines)

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British Aerial Transport Co., Ltd., Head Office: 58, Conduit Street, London, W.1. "Batigram Reg. London." Mayfair 637, 638.
Works: Hythe Road, Willesden, London, N.W.10. "Aerbrirans, Phone, London." Willesden 2272, 2273.

British & Colonial Aeroplane Co., Ltd. (The Bristol Co.), Filton, Bristol. "Aviation, Bristol." Bristol 3906.

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Gosport Aircraft Co., Gosport "Flight, Gosport." Gosport 217.

Grahame-White Company, Ltd., London Aerodrome, Hendon. "Volplane, Hyde, London." Kingsbury 120.
London Office, 12, Regent Street, S.W.1. Regent 2084.

Handley Page, Ltd., 110, Cricklewood Lane, N.W.2. "Hydrophid, Crickle, London." Hampstead 7420.

Hooper & Co., Ltd., 54, St. James Street, Piccadilly, London, S.W. "Sociable, St. James, London." Regent 912.

Mann, Egerton & Co., Ltd., Norwich. "Motors, Norwich." Norwich 482 (4 lines).

Martinsyde, Ltd., Brooklands, Byfleet, "Martinsyde, Weybridge." Woking 331; Byfleet 171.

"Nieuport" & General Aircraft Co., Cricklewood, London, N.W.2. "Nieuscout, Crickle, London." Willesden 2455.

Phœnix Dynamo Manufacturing Co., Ltd. Thornbury, Bradford "Dynamo, Bradford." Bradford 3700 (4 lines).

Roe, A. V., & Co., Ltd., Manchester "Triplane Manchester." City 8530-8531, Manchester.

Saunders, S. E., Ltd., East Cowes, I.O.W. "Consuta, East Cowes." Cowes 193.

Short Bros., Rochester, Eastchurch and Whitehall House, S.W. "Tested, Phone, London." Regent 378.

The Siddeley Deasy Motor Car Co., Ltd., Coventry. Coventry 954. "Deasy, Coventry."

Sopwith Aviation Co., Ltd., Kingston-on-Thames. "Sopwith, Kingston." Kingston 1988 (8 lines).

The Supermarine Aviation Works, Ltd., Southampton. "Supermarin." Woolston 37 (2 lines).

Vickers, Ltd., Imperial Court, Basil Street, Knightsbridge, S.W.3. "Vickerfyta, Knights, London." Kensington 6870.

Waring & Gillow, Ltd., Hammersmith, "Warisen, Ox, London." Museum 5000.

Westland Aircraft, Yeovil. "Aircraft, Yeovil." Yeovil 129.

White, J. Samuel, & Co., Ltd., East Cowes. "White, East Cowes." Cowes 3.

Airships—

Airships, Ltd., High Street, Merton. Wimbledon 1314.

Short Bros., Rochester, Eastchurch, and Whitehall House, S.W. "Tested, Phone, London" Regent 378.

C. G. Spencer & Sons, Ltd. (See under "Balloons.")

Aluminium Castings (Sand and Die)—

Coan, R. W., 210, Goswell Road, London, E.C.1. "Krankases, Isling, London." City 3846.

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Bent Timber Parts—

Hopton & Sons, George Street, Euston Square, London, N.W.1. "Hoptons, Eusquare, London." Museum 496.
Also at Market Harborough, Leicestershire. "Hoptons, Market Harborough." Market Harborough 13.

Bearings (Etonia Cast Phosphor Bronze)—

Brown Bros., Ltd., Gt. Eastern St., E.C.1.

Yorkshire Engineering Supplies, Ltd., Wortley, Leeds. "Yes, Leeds" Central 3927.

Blowpipes (Oxy-Acetylene)—

Acetylene Corporation of Great Britain, Ltd., The, 49, Victoria Street, Westminster, S.W.1. "Flamma, Vic, London." Vic. 4830.

Imperial Light, Ltd., 123, Victoria Street, London, S.W.1. "Edibrac, Phone, London." Vic. 3540 (3 lines).

Bolts—

Mitchell Wedgewood & Co, Campbell Works, Stoke Newington, London, N.16. Dalston 2500 (2 lines).

Books (Aero Engines)—

Dykes' Auto Encyclopedia, Gillam, 149, Strand, W.2.

Buildings—

Boulton & Paul, Ltd., Rose Lane, Norwich. "Aviation, Norwich." Norwich 851.

Rubery Owen & Co., Darlaston, South Staffs.

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Hobson, H. M., Ltd., 29, Vauxhall Bridge Road, S.W.2. Victoria 4670

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Clothing—

Burberry's, Ltd., Haymarket, S.W.1. Regent 2165.

Dunhill's, Ltd., Euston Road, N.W.1. "Dunsend, London" North 3405-6.

Component Parts—

Accles & Pollock, Ltd., Oldbury, Birmingham. "Accles, Oldbury." Oldbury 111 (4 lines)

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Central Aircraft Co., High Road, Kilburn, N.W.6. "Aviduction, Phone, London." Hampstead 4403 & 4404.

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Cords, Tapes, and Threads—

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Robt. Ingham Clark & Co., Ltd., West Ham Abbey, E.15. "Oleotine, Strat, Loudon." East 955.

Engines and Parts—

Allen, W. H., & Co., Ltd., Bedford. "Pump Bedford." Bedford No. 1.

Arrol Johnston, Ltd, Dumfries. "Mocar, Dumfries." Dumfries 281-282.

Beardmore Aero Eng., Ltd., 112, Great Portland Street, W.1. "Beardmore, London." Gerrard 238.

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Dudbridge Iron Works, Ltd. (Salmson), 87, Victoria Street, London, S.W.1. "Aeroflight, Vic, London." Vic 7026.

Gordon Watney & Co., Ltd., Weybridge. "Mercédès, Weybridge." Weybridge 550 (7 lines).

Green Engine Co., Ltd., Twickenham. Richmond 1203.

Gwynnes, Ltd., Hammersmith, W. "Gwynne, Hammersmith." Hammersmith 1910.

Napier & Son, D., Ltd., 14, New Burlington Street, London, W., and at Acton, W. "Nitrifier, London." Gerrard 8926.

Rolls-Royce, Ltd., 14 and 15, Conduit Street, W.1. "Rolhead, London." Gerrard 1651-5-6.

The Siddeley-Deasy Motor Car Co., Ltd., Coventry. "Deasy, Coventry." Coventry 954.

Sunbeam Motor Car Co., Ltd., Wolverhampton "Moorfield, Wolverhampton" Wolverhampton 985.

The Gnôme & Le Rhône Engine Co., Ltd., 27, Buckingham Gate, S.W.1. "Elevenfold, London." Walthamstow 811 (2 lines).

Walton Motors, Ltd., Walton-on-Thames. "Motors, Walton-on-Thames." Walton-on-Thames 220.

Electrical Accessories—

Belling & Co., Montague Road, Upper Edmonton, N.18. "Belling, Edmonton" Tottenham 1084.

Brown Bros., Ltd., Great Eastern St., E.C.1.

Gent & Co., Ltd., Faraday Works, Leicester. "Lodestone, Leicester." National 151 (two lines).

Johnson & Phillips, Ltd., Charlton, London, S.E.7. "Juno, London." Central 2207; London Wall 1564.

Electric Cables—

E. Kalker & Co., Coventry. "Kalker, Coventry" Coventry 24X

Johnson & Phillips, Ltd., Charlton, London, S.E.7. "Juno, London" Central 2207; London Wall 1564.

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Electro Platers and Metal Polishers' Engineers—

W. Canning & Co., 133-137, Great Hampton Street, Birmingham. "Materials, Birmingham." Birmingham 3022 Central (3 lines).

Fireproof Petrol Tanks—

The Aircraft Improvements Co., Morningon Works, Arlington Road, Camden Town, N.W.1

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Flexible Shafts—

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Galvanising—

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Gauges—

J. A. Prestwich & Co., Northumberland Park, Tottenham, N.17.

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Gears—
Moss Gear Co., Ltd., Thomas Street, Aston, Birmingham. "Mosgear, Birmingham." East 407.

Glue—
Cannon, B., & Co., Ltd., Lincoln. London Office: 110, Cannon Street, E.C.4. "Bececolin, Cannon, London." City 1206.
Improved Liquid Glues Co., Ltd., Gt. Hermitage Street, E. (Croid.) "Excroiden, Phone, London." Avenue 4611-2.
Mendine Co., 8, Arthur Street, E.C. Bank 5873.

Goggles—
Triplex Safety Glass Co., Ltd., 1, Albemarle Street, Piccadilly, W.1. "Shatterlys, Piccy, London." Regent 1340.

Heating and Ventilating—
Chas. P. Kinnell & Co., Ltd., 65 & 65A, Southwark Street, London, S.E.1. "Kinnell, London." Hop 372 (2 lines).
The Thames Bank (Blackfriars) Iron Co., Ltd., Upper Ground Street, London, S.E.1. "Hot Water, Friars, London." Hop 763.

Instruments—
British Wright Co., Ltd., 33, Chancery Lane, W.C.2. Holborn 1308.

Instruments (Scientific, Altimeters, etc.)—
Short & Mason, Ltd., Macdonald Road, Walthamstow, E.17. "Aneroid, Phone London." Walthamstow 180.
Wheeler, T., 217, Goswell Road, E.C.1.

Insurance—
Aviation Insurance Association, 1, Royal Exchange Avenue, E.C.3. London Wall 9944.
Bray, Gibb & Co., Ltd., 166, Piccadilly, W.1.
Harold Townend, Ltd., 13-14, Abchurch Lane, King William Street, E.C.4 "Carinsur, London." Central 156 (2 lines)
Percy Wingfield, 22, Newgate Street, E.C.1. City 4672

Leather Cloth—
New Pegamoid, Ltd., 134, Queen Victoria Street, London. "Pegamoid, Cent., London." City 9764 (2 lines).

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Magneto Driving Pieces—
Herbert Terry & Sons, Ltd., Redditch "Springs, Redditch." Redditch 61

Magnetos—
The British Lighting & Ignition Co., Ltd., 204, Tottenham Court Road, W.1. "Vicksmag, Phone, London." Museum 430
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Metal Casement Manufacturers—
Henry Hope & Sons, Ltd., 55, Lionel Street, Birmingham. "Conservatory, Birmingham." Central 999 (2 lines).

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Metals in General—
Samuel Mercer & Co., 198 Upper Thames Street, E.C.4. "Reconciled, Cannon, London." City 6342.

Metal Parts and Fittings—
Accles & Pollock, Ltd., Oldbury, Birmingham "Accles, Oldbury." Oldbury 111 (4 lines).
Arnott & Harrison, Ltd., Hythe Road, Willesden Junction. Willesden 2207.
Bayliss, Jones, & Bayliss, Ltd., Wolverhampton. (Bolts & Nuts.) "Bayliss, Wolverhampton." Wolverhampton 1041.
Blackburn Aeroplane & Motor Co., Ltd., Olympia, Leeds. "Propellors, Leeds." Roundhay 345 (3 lines).

Metal Parts and Fittings (continued)
Brown Bros., Ltd., Gt. Eastern St., E.C.1.
Mann, Egerton & Co., Ltd., 177, Cleveland Street, London, W.1. "Installing, Eusroad, London." Museum 70.
Rubery Owen & Co., Darlaston, South Staffs.
Sankey, Joseph, & Sons, Ltd., Wellington, Shropshire. "Sankey, Wellington, Salop." Wellington 66.
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Rubery Owen & Co., Darlaston, South Staffs

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Anderson, D., & Son, Ltd. (Roofs), Belfast. "Anderson, Belfast." Belfast 4033-4034-4035.
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Mann, Egerton & Co., Ltd., 379-381, Euston Road, London, N.W.1. "Manegecar, Eusroad, London." Museum 70.
Standard Motor Car Co., Coventry. "Flywheel, Coventry." Coventry 530 (4 lines)

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C. G. Spencer & Sons, Ltd. (See under "Balloons.")

Piston Rings—
The British Piston Ring Co., Ltd., Holbrook Lane, Coventry. "Rings, Coventry." Coventry 1211-5.
The Standard Piston Ring and Engineering Co., Ltd., Don Road, Sheffield. "Ocean, Sheffield." Sheffield 2149.

Presswork—
Rubery Owen & Co., Darlaston, South Staffs.
Terry, Herbert, & Sons, Ltd., Redditch. "Springs, Redditch." Redditch 61.

Propellers—
The Aircraft Improvements Co., Mornington Works, Arlington Road, Camden Town, N.W.1
Blackburn Aeroplane & Motor Co., Ltd., Olympia, Leeds. "Propellors, Leeds." Roundhay 345 (3 lines).
Boulton & Paul, Ltd., Rose Lane, Norwich. "Aviation, Norwich." Norwich 851.
Ebora Propeller Co., 11 & 12, Surbiton Park Terrace, Kingston-on-Thames. "Ebora, Kingston." Kingston 672.
Integral Propeller Co., Ltd. "Aviprop, Hyde, London." Hendon 9: Kingsbury 101.
Lang Propeller, Ltd., Weybridge. "Aerosticks, Weybridge." Weybridge 520-521.
Oddy, W. D., & Co., Leeds. "Airscrews, Leeds." Leeds 20547-8.
Westland Aircraft, Yeovil. "Aircraft, Yeovil." Yeovil 129.

Pyrometers—
The Foster Instrument Co., Letchworth, Herts. "Foster Instruments, Letchworth." Letchworth 26.

Rawhide Hammers—
Ira Stephens, Whitelands Leather Works, Ashton-under-Lyne. "Stephens, 709, Ashton." Ashton 709.

Rigging for Aircraft—
Cradock, Geo., & Co., Ltd., Wakefield, England. "Cradock, Wakefield." Wakefield 466.

Rubber Tubing & Accessories—
Hancock, James Lyne, Ltd., 266, Goswell Road, London, E.C.1 "Masticator, Isling, London." City 3811 & 3812.

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C. H. Holmes & Son, 38, Albert Street, Manchester. "Semloh, Manchester." City 4[illegible]2.

Screw-driving Machines—
Russell Bros. (Redditch), Ltd., Littleworth, Redditch. "Inventors, Redditch." Redditch 74.

Seaplane Manufacturers—
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Phœnix Dynamo Manufacturing Co., Ltd., Thornbury, Bradford. "Dynamo, Bradford." Bradford 3700 (7 lines)
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Supermarine Aviation Works, Ltd., Southampton. "Supermarin, Southampton." Woolston 37.

Searchlights & Landing Lights—
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Imperial Light, Ltd., 123, Victoria Street, London, S.W.1. "Edibrac, Phone, London." Victoria 3540 (3 lines).

Sheet Metal Pressings—
Accles & Pollock, Ltd., Oldbury, Birmingham. "Accles, Oldbury." Oldbury 111 (4 lines).
Blackburn Aeroplane & Motor Co., Ltd., Olympia, Leeds. "Propellors, Leeds." Roundhay 345 (3 lines)
Rubery Owen & Co., Darlaston, South Staffs.

Sheet Metal Work—
The Acetylene Corporation of Great Britain, Ltd., 49, Victoria Street, S.W.1 "Flamma, Vic, London." Vic 4830.
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The Selsdon Aero & Engineering Co., Ltd., 1, Albemarle Street, Piccadilly, W.1. "Selaero, Phone, London." Regent 1181.
Imperial Light, Ltd., 123, Victoria Street, London, S.W.1. "Edibrac, Phone, London." Victoria 3540 (3 lines)

Solder Manufacturers—
Samuel Mercer & Co., 198, Upper Thames Street, E.C.4. "Reconciled, Cannon, London." City 6342.

Sparking Plugs—
Brown Bros., Ltd., Great Eastern St., E.C.1.
Leo Ripault & Co., 1, King's Road, St. Pancras, N.W.1.
Lodge Sparking Plug Co., Ltd., Rugby. "Igniter, Rugby." Rugby 225
The Robinhood Engineering Works, Ltd., Newlands, Putney Vale, S.W.15. Makers of KLG Plugs. "Kaelgee, Phone, London." Putney 2132-3.

Springs—
Dart Spring Co., West Bromwich. "Dart, West Bromwich." West Bromwich 322.
Terry, Herbert, & Sons, Ltd., Redditch. "Springs, Redditch." Redditch 61 (3 lines).

Steel—
Allen, Edgar, & Co., Ltd., Sheffield. "Allen, Sheffield." Sheffield 4607.
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Firth, Thos., & Sons, Sheffield. "Firth, Sheffield." Sheffield 3230 to 3237
Jonas & Colver, Ltd., Continental Steel Works, Sheffield. "Jonas, Sheffield." Sheffield 4660.
Nicklin, Bernard, & Co., Birmingham. "Bernico, Birmingham." Smethwick 224.
Spear & Jackson, Ltd., Ætna Works, Sheffield. "Spear, Sheffield." Central 4522-3-4.
W. Wesson & Co., Ltd., Victoria Iron and Steel Works, Moxley, Wednesbury. "Iron, Wednesbury." Wednesbury 62

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Aeroplane Manufacturers—
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Eastbourne Aviation Co., Ltd., Eastbourne. "Aircraft, Eastbourne." Eastbourne 1776
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Saunders, S. E., Ltd., East Cowes, I.O.W. "Consuta, East Cowes" Cowes 103.
Short Bros., Rochester, Eastchurch and Whitehall House, S.W. "Tested, Phone, London" Regent 178
The Siddeley-Deasy Motor Car Co., Ltd., Coventry Coventry 951 "Deasy, Coventry"
Sopwith Aviation Co., Ltd., Kingston-on-Thames "Sopwith, Kingston" Kingston 1908 (8 lines)
The Supermarine Aviation Works, Ltd., Southampton. "Supermarin" Woolston 37 (2 lines)
Vickers, Ltd., Imperial Court, Basil Street, Knightsbridge, S.W.3. "Vickerfyta, Knights, London" Kensington 6840
Waring & Gillow, Ltd., Hammersmith, "Warisen, Ox, London" Museum 5000
Westland Aircraft, Yeovil. "Aircraft, Yeovil" Yeovil 120
White, J. Samuel, & Co., Ltd., East Cowes "White, East Cowes" Cowes 3

Airships—
Airships, Ltd., High Street, Merton Wimbledon 1374.
Short Bros., Rochester, Eastchurch, and Whitehall House, S.W. "Tested, Phone, London" Regent 178
C. G. Spencer & Sons, Ltd. (See under "Balloons")

Aluminium Castings (Sand and Die)—
Coan, R. W., 213, Goswell Road, London, E.C.1. "Krankases, Isling, London" City 3846.

Balloons—
C. G. Spencer & Sons, Ltd., 504, Highbury Grove, N.5. "Aeronaut, London" Dalston 1805

Bent Timber Parts—
Hopton & Sons, George Street, Euston Square, London, N.W.1. "Hoptons, Eusquare, London" Museum 496
Also at Market Harborough, Leicestershire "Hoptons, Market Harborough" Market Harborough 13

Bearings (Etonia Cast Phosphor Bronze)—
Brown Bros., Ltd., Gt. Eastern St., E.C.1. Yorkshire Engineering Supplies, Ltd., Wortley, Leeds. "Yes, Leeds" Central 3027.

Blowpipes (Oxy-Acetylene)—
Acetylene Corporation of Great Britain, Ltd., The, 49, Victoria Street, Westminster, S.W.1. "Flamma, Vic, London" Vic 4830
Imperial Light, Ltd., 123, Victoria Street, London, S.W.1. "Edibrac, Phone, London." Vic 3540 (3 lines)

Bolts—
Mitchell Wedgewood & Co., Campbell Works, Stoke Newington, London, N.16 Dalston 2500 (2 lines)

Books (Aero Engines)—
Dykes' Auto Encyclopedia, Gillam, 149, Strand, W.2

Buildings—
Boulton & Paul, Ltd., Rose Lane, Norwich. "Aviation, Norwich" Norwich 851
Rubery Owen & Co., Darlaston, South Staffs.

Cable Coverings and Cable Controls—
The Bowden Brake Co., Ltd., Tyseley, Birmingham. "Bowden, Acock's Green." Acock's Green 103 & 104
Bowden Wire, Ltd., Willesden Junction, "Bowirelum, Harles, London" Willesden 2400 (3 lines)
Herbert Terry & Sons, Ltd., Redditch "Springs, Redditch" Redditch 61

Carburetters—
Hobson, H. M., Ltd., 29, Vauxhall Bridge Road, S.W.2. Victoria 4670
René Tampier, Bloctube Carburetter Works, Danemere Street, Putney, S.W.15

Casein—
Nieuwhof, Surie & Co., Ltd., 5, Lloyds Avenue, London, E.C.3 "Suricodon, Fen, London" Avenue 34 and 35

Clothing—
Burberry's, Ltd., Haymarket, S.W.1 Regent 2165
Dunhill's, Ltd., Euston Road, N.W.1 "Dunsend, London" North 3400-6

Component Parts—
Accles & Pollock, Ltd., Oldbury Birmingham. "Accles, Oldbury" Oldbury 111 (4 lines)
Brown Bros., Ltd., Gt. Eastern St., E.C.1
Central Aircraft Co., High Road, Kilburn, N.W.6 "Aviduction, Phone, London" Hampstead 4403 & 4404
Thompson Bros. (Bilston), Ltd., Bradley, Bilston, England. "Thompson Bros., Bilston" Bilston 10

Cords, Tapes, and Threads—
MacLennan, J., & Co., 30, Newgate Street, E.C.1. And at Glasgow City 3115

Dopes—
Titanine, Ltd., 175, Piccadilly, W.1 "Tetrafree, Piccy, London." Gerrard 2312
British Cellulose Co., 5, Waterloo Place, S.W.1. "Cellutate, London" Regent 4046
The British Emaillite Co., Ltd., 30, Regent Street, S.W.1 "Ridleypren, Piccy, London." Gerrard 280
Cellon, Ltd., 22, Cork Street, London, W.1 "Ajawb, Reg, London." Gerrard 440
Robt. Ingham Clark & Co., Ltd., West Ham Abbey, E.15. "Oleotine, Strat, London." East 955.

Engines and Parts—
Allen, W. H., & Co., Ltd., Bedford. "Pump Bedford" Bedford No 1.
Arrol Johnston, Ltd., Dumfries "Mocar, Dumfries" Dumfries 281-282
Beardmore Aero Eng., Ltd., 122, Great Portland Street, W.1. "Beardmore, London" Gerrard 238.
The Cosmos Engineering Co., Ltd., Fishponds, Bristol.
Dudbridge Iron Works, Ltd. (Salmons), 87, Victoria Street, London, S.W.1 "Aeroflight, Vic, London." Vic 7026
Gordon Watney & Co., Ltd., Weybridge "Mercedès, Weybridge" Weybridge 550 (7 lines).
Green Engine Co., Ltd., Twickenham Richmond 1203
Gwynnes, Ltd., Hammersmith, W. "Gwynne, Hammersmith" Hammersmith 1910
Napier & Son, D., Ltd., 14, New Burlington Street, London, W., and at Acton, W. "Nitrifier, London" Gerrard 8020
Rolls-Royce, Ltd., 14 and 15, Conduit Street, W.1. "Rolhead, London." Gerrard 1634-36
The Siddeley-Deasy Motor Car Co., Ltd., Coventry "Deasy, Coventry" Coventry 951.
Sunbeam Motor Car Co., Ltd., Wolverhampton "Moorfield, Wolverhampton" Wolverhampton 385
The Gnôme & Le Rhône Engine Co., Ltd., 27, Buckingham Gate, S.W.1 "Thevenfold, London." Walthamstow 811 (2 lines)
Walton Motors, Ltd., Walton-on-Thames "Motors, Walton-on-Thames" Walton-on-Thames 220

Electrical Accessories—
Belling & Co., Montague Road, Upper Edmonton, N.18 "Belling, Edmonton" Tottenham 1084
Brown Bros., Ltd., Great Eastern St., E.C.1
Gent & Co., Ltd., Faraday Works, Leicester "Lodestone, Leicester" National 151 (two lines)
Johnson & Phillips, Ltd., Charlton, London, S.E.7. "Juno, London" Central 2207; London Wall 1564

Electric Cables—
E. Kalker & Co., Coventry "Kalker, Coventry" Coventry 258
Johnson & Phillips, Ltd., Charlton, London, S.E.7. "Juno, London" Central 2207; London Wall 1564

Electric Lighting and Power—
Johnson & Phillips, Ltd., Charlton, London, S.E.7. "Juno, London" Central 2207; London Wall 1564
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Flexible Shafts—
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Fluxes—
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The Auto Controller Co. (Fluxite), Vienna Road, Bermondsey, Eng

Flying Boat Builders—
Gosport Aircraft Co., Gosport "Flight, Gosport." Gosport 217

Galvanising—
Boulton & Paul, Ltd., Rose Lane, Norwich "Aviation, Norwich" Norwich 851

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J. A. Prestwich & Co., Northumberland Park, Tottenham, N.17

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Gears—
Moss Gear Co., Ltd., Thomas Street, Aston, Birmingham. "Mosgear, Birmingham" East 407

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Cannon, B., & Co., Ltd., Lincoln London Office: 110, Cannon Street, E.C.4 "Bececolin, Cannon, London" City 1206
Improved Liquid Glues Co., Ltd., Gt. Hermitage Street, E. (Croid.) "Excroiden, Phone, London" Avenue 4611-2
Mendine Co., 8, Arthur Street, E.C. Bank 5873

Goggles—
Triplex Safety Glass Co., Ltd., 1, Albemarle Street, Piccadilly, W.1. "Shatterlys, Piccy, London." Regent 1340

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Chas. P. Kinnell & Co., Ltd., 65 & 65A, Southwark Street, London, S.E.1 "Kinnell, London" Hop 372 (2 lines)
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Instruments—
British Weight Co., Ltd., 33, Chancery Lane, W.C.2 Holborn 1308

Instruments (Scientific, Altimeters, etc.)—
Short & Mason, Ltd., Macdonald Road, Walthamstow, E.17. "Aneroid, Phone London" Walthamstow 180
Wheeler, T., 217, Goswell Road, E.C.1

Insurance—
Aviation Insurance Association, 1, Royal Exchange Avenue, E.C.3 London Wall 9011
Bray, Gibb & Co., Ltd., 166, Piccadilly, W.1
Harold Townend, Ltd., 13-14, Abchurch Lane, King William Street, E.C.4 "Carinsur, London" Central 156 (2 lines)
Percy Wingfield, 22, Newgate Street, E.C.1 City 4672

Leather Cloth—
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Magneto Driving Pieces—
Herbert Terry & Sons, Ltd., Redditch "Springs, Redditch" Redditch 61

Magnetos—
The British Lighting & Ignition Co., Ltd., 204, Tottenham Court Road, W.1 "Vicksmag, Phone, London" Museum 430
The British Thomson-Houston Co., Ltd., Lower Ford Street, Coventry "Actiotidal, Coventry." Coventry 278

Metal Casement Manufacturers—
Henry Hope & Sons, Ltd., 55, Lionel Street, Birmingham. "Conservators Birmingham" Central 990 (2 lines)

Metal Manufacturers—
Clifford, Chas., & Sons, Ltd., Birmingham "Clifford, Birmingham." Central 4243; Avenue 1432.

Metals in General—
Samuel Mercer & Co., 198 Upper Thames Street, E.C.4 "Reconciled, Cannon, London" City 6342

Metal Parts and Fittings—
Accles & Pollock, Ltd., Oldbury, Birmingham "Accles, Oldbury." Oldbury 111 (4 lines)
Arnott & Harrison, Ltd., Hythe Road, Willesden Junction. Willesden 2207.
Bayliss, Jones, & Bayliss, Ltd., Wolverhampton (Bolts & Nuts) "Bayliss, Wolverhampton." Wolverhampton 1031
Blackburn Aeroplane & Motor Co., Ltd., Olympia, Leeds. "Propellors, Leeds." Roundhay 345 (3 lines)

Metal Parts and Fittings (continued)
Brown Bros., Ltd., Gt. Eastern St., E.C.1.
Mann, Egerton & Co., Ltd., 177, Cleveland Street, London, W.1 "Installing, Eusroad, London" Museum 70
Rubery Owen & Co., Darlaston, South Staffs
Sankey, Joseph, & Sons, Ltd., Wellington, Shropshire "Sankey, Wellington, Salop" Wellington 66
The Selsdon Aero & Engineering Co., Ltd., 1, Albemarle Street, Piccadilly, W.1 "Selaero, Phone, London" Regent 1181
Thompson Bros., Ltd., Bradley, Bilston. "Thompson Bros., Bilston" Bilston 10

Metric Bolts—
Cashmore Bros., Hildreth Street, Balham, S.W. Battersea 115
Rubery Owen & Co., Darlaston, South Staffs

Miscellaneous—
Anderson, D., & Son, Ltd. (Roofs), Belfast "Anderson, Belfast" Belfast 4033-4034-4035
Brown Bros., Ltd., Great Eastern Street, E.C.1 "Imbrowned, Bethnal, London" London Wall 6200
Herbert Frood Co., Ltd., Chapel-en-le-Frith "Frodobrake, Birmingham" Central 703
MacLennan, J., & Co., 30, Newgate Street, E.C.1, and at Glasgow Tapes, Cords, and Threads City 3115

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Mann, Egerton & Co., Ltd., 370-381 Euston Road, London, N.W.1 "Manegecar, Eusroad, London" Museum 70
Standard Motor Car Co., Coventry "Flywheel, Coventry." Coventry 250 (3 lines)

Nameplates and Labels—
The Clegg Metal Engraving Co., Ltd., Worthing "Clegg, Worthing"

Observation Panels—
Triplex Safety Glass Co., Ltd., 1, Albemarle Street, Piccadilly, W.1 "Shatterlys, Piccy, London" Regent 1340

Oils—
C. C. Wakefield & Co., Ltd., Wakefield House, Cheapside, E.C.2 "Cherry, Cent, London" Central 11302 & 13066

Parachutes—
E. R. Calthrop's Aerial Patents, Ltd., Eldon Street House, Eldon Street, London, E.C. "Savemalivo, Ave, London" London Wall 3266-3267
C. G. Spencer & Sons, Ltd. (See under "Balloons")

Piston Rings—
The British Piston Ring Co., Ltd., Holbrook Lane, Coventry "Rings, Coventry" Coventry 1210-5
The Standard Piston Ring and Engineering Co., Ltd., Don Road, Sheffield "Ocean, Sheffield" Sheffield 2110

Presswork—
Rubery Owen & Co., Darlaston, South Staffs.
Terry, Herbert, & Sons, Ltd., Redditch "Springs, Redditch" Redditch 61

Propellers—
The Aircraft Improvements Co., Morningston Works, Arlington Road, Camden Town, N.W.1
Blackburn Aeroplane & Motor Co., Ltd., Olympia, Leeds. "Propellors, Leeds." Roundhay 345 (3 lines)
Boulton & Paul, Ltd., Rose Lane, Norwich. "Aviation, Norwich" Norwich 851
Ebora Propeller Co., 11 & 12, Surbiton Park Terrace, Kingston-on-Thames "Ebora, Kingston" Kingston 602
Integral Propeller Co., Ltd. "Aviprop, Hyde, London" Hendon 9; Kingsbury 101
Lang Propeller, Ltd., Weybridge. "Aerosticks, Weybridge" Weybridge 520-521
Oddy, W. D., & Co., Leeds. "Airscrews, Leeds" Leeds 20511-8
Westland Aircraft, Yeovil "Aircraft, Yeovil" Yeovil 120.

Pyrometers—
The Foster Instrument Co., Letchworth, Herts "Foster Instruments, Letchworth" Letchworth 26.

Rawhide Hammers—
Ira Stephens, Whitelands Leather Works, Ashton-under-Lyne. "Stephens, 709, Ashton" Ashton 709

Rigging for Aircraft—
Cradock, Geo., & Co., Ltd., Wakefield, England. "Cradock, Wakefield" Wakefield 366

Rubber Tubing & Accessories—
Hancock, James Lyne, Ltd., 265, Goswell Road, London, E.C.1 "Masticator, Isling, London" City 3811 & 3812

Safety Belts—
C. H. Holmes & Son, 38, Albert Street, Manchester "Semloh, Manchester" City 1052

Screw-driving Machines—
Russell Bros. (Redditch), Ltd., Littleworth, Redditch "Inventors, Redditch." Redditch 71

Seaplane Manufacturers—
Blackburn Aeroplane & Motor Co., Ltd., Olympia, Leeds "Propellors, Leeds" Roundhay 345 (3 lines)
Phœnix Dynamo Manufacturing Co., Ltd., Thornbury, Bradford "Dynamo, Bradford" Bradford 3700 (7 lines)
Short Bros., Rochester. "Seaplanes, Rochester" Chatham 627
Supermarine Aviation Works, Ltd., Southampton "Supermarin, Southampton" Woolston 37

Searchlights & Landing Lights—
Brown Bros., Ltd., Great Eastern St., E.C.1.
Imperial Light, Ltd., 123, Victoria Street, London, S.W.1 "Edibrac, Phone, London" Victoria 3540 (3 lines)

Sheet Metal Pressings—
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Blackburn Aeroplane & Motor Co., Ltd., Olympia, Leeds "Propellors, Leeds" Roundhay 345 (3 lines)
Rubery Owen & Co., Darlaston, South Staffs

Sheet Metal Work—
The Acetylene Corporation of Great Britain, Ltd., 49, Victoria Street, S.W.1 "Flamma, Vic, London" Vic 4830
Rubery Owen & Co., Darlaston, South Staffs.
The Selsdon Aero & Engineering Co., Ltd., 1, Albemarle Street, Piccadilly, W.1 "Selaero, Phone, London." Regent 1181
Imperial Light, Ltd., 123, Victoria Street, London, S.W.1. "Edibrac, Phone, London." Victoria 3540 (3 lines).

Solder Manufacturers—
Samuel Mercer & Co., 198, Upper Thames Street, E.C.4 "Reconciled, Cannon, London." City 6342

Sparking Plugs—
Brown Bros., Ltd., Great Eastern St., E.C.1
Leo Ripault & Co., 1, King's Road, St Pancras, N.W.1
Lodge Sparking Plug Co., Ltd., Rugby "Igniter, Rugby" Rugby 225
The Robinhood Engineering Works, Ltd., Newlands, Putney Vale, S.W.15
Makers of KLG Plugs "Kaelgee, Phone, London" Putney 2132-3

Springs—
Dart Spring Co., West Bromwich "Dart, West Bromwich" West Bromwich 322.
Terry, Herbert, & Sons, Ltd., Redditch. "Springs, Redditch." Redditch 61 (3 lines).

Steel—
Allen, Edgar, & Co., Ltd., Sheffield. "Allen, Sheffield" Sheffield 1607
Brown Bros., Ltd., Great Eastern St., E.C.1
Firth, Thos., & Sons, Sheffield. "Firth, Sheffield" Sheffield 3250 to 3257
Jonas & Colver, Ltd., Continental Steel Works, Sheffield "Jonas, Sheffield" Sheffield 1660
Nicklin, Bernard, & Co., Birmingham "Bernico, Birmingham." Smethwick 224.
Spear & Jackson, Ltd., Ætna Works, Sheffield. "Spear, Sheffield." Central 4522-3-4.
W. Wesson & Co., Ltd., Victoria Iron and Steel Works, Moxley, Wednesbury. "Iron, Wednesbury" Wednesbury 62

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Steel Tubes for Aeroplanes—
Accles & Pollock, Ltd., Oldbury, Birmingham. "Accles, Oldbury." Oldbury 111 (4 lines).

Tapes and Smallwares—
MacLennan, John, & Co., 30, Newgate Street, E.C.1. And at Glasgow. City 3115.

Timber—
Hopton & Sons, George Street, Euston Square, London, N.W.1. "Hoptons, Eusquare, London." Museum 406.
Also at Market Harborough, Leicestershire. "Hoptons, Market Harborough." Market Harborough 13.

Time Discipline Apparatus—
Gent & Co., Ltd., Faraday Works, Leicester. "Lodestone, Leicester." National 151 (2 lines).

Tools—
Richard Mather & Son, Shoreham Street Works, Sheffield. Sheffield 4349.

Turnbuckles—
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Rubery Owen & Co., Darlaston, South Staffs.

Tyres and Wheels—
The Palmer Tyre, Ltd., Shaftesbury Avenue. "Tyricord, Westcent." Gerrard 1214 (5 lines).

Undercarriages—
Thompson Bros. (Bilston), Ltd., Bradley, Bilston, England. "Thompson Bros., Bilston." Bilston 10.

Varnishes—
The British Emaillite Co., Ltd., 30, Regent Street, S.W.1. "Ridleypren, Piccy, London." Gerrard 280.
Thomas Parsons & Sons, 315 & 317, Oxford Street, London, W.1. "Varjap, Phone, London." Mayfair 6347 (3 lines).
Robt. Ingham, Clark & Co., Ltd., West Ham Abbey, E.15. "Oleotine, Strat, London." East 955.
Harland, W., & Son, Merton, London, S.W.19. "Harland, Wimbledon 45." Wimbledon 45 and 1395.
Naylor Bros., Ltd., Southall, Middlesex. "Naylor, Southall." Southall 30.

Washers—
Terry, Herbert, & Sons, Ltd., Redditch. "Springs, Redditch." Redditch 61.

Welding and Cutting Plant—
Acetylene Corporation of Great Britain, Ltd., The, 49, Victoria Street, Westminster, S.W.1. "Flamima, Vic, London." Vic 4830.
Imperial Light, Ltd., 123, Victoria Street, London, S.W.1. "Edibrac, Phone, London." Victoria 3540 (3 lines).

Welding Repairs—
Imperial Light, Ltd., 123, Victoria Street, London, S.W.1. "Edibrac, Phone, London." Victoria 3540 (3 lines).

Wind Shields—
Auster, Ltd., 133, Long Acre, W.C. "Winflector, London." Regent 5910.
Triplex Safety Glass Co., Ltd., 1, Albemarle Street, Piccadilly, W.1. "Shatterlys, Piccy, London." Regent 1340.

Wire Gauze—
Greening, N., & Sons, Ltd., 16, Finsbury Street, London, E.C.2. "Setscrew, Finsquare, London." London Wall 1082.

Wire and Cables—
Bruntons, Musselburgh, Scotland "Wiremill, Musselburgh." Musselburgh 28.
Cradock, Geo., & Co., Ltd., Wakefield, England. "Cradock, Wakefield." Wakefield 466 (3 lines).

Wirework—
Terry, Herbert, & Sons, Ltd., Redditch. "Springs, Redditch." Redditch 61.

Woodworking Machinery—
Sagar, J., & Co., Ltd., Halifax. "Cawtooth," Halifax." Halifax 136.
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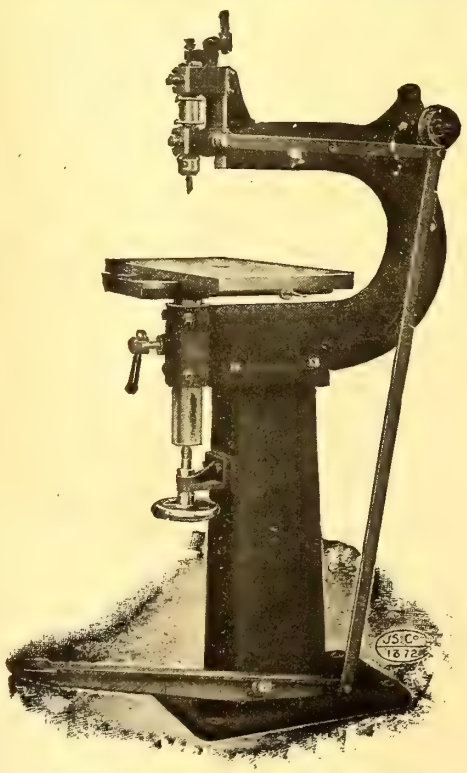

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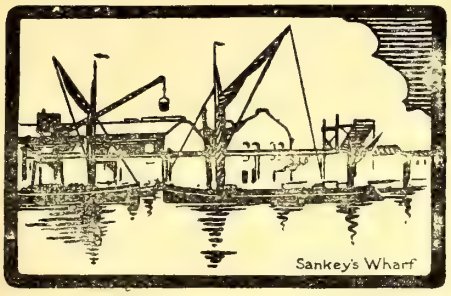

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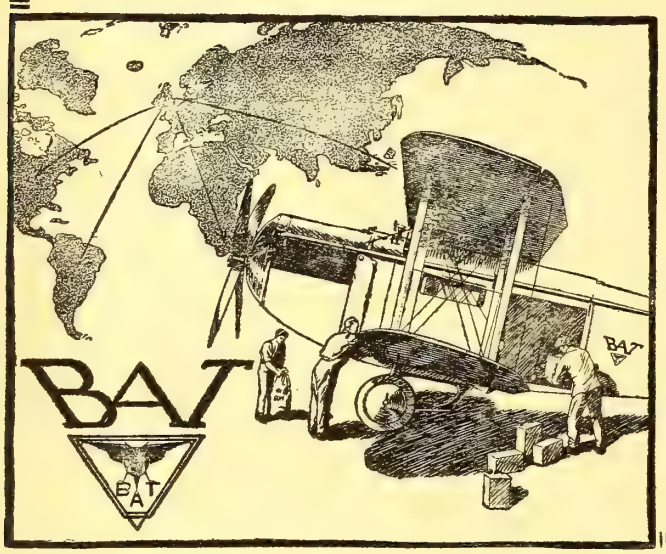

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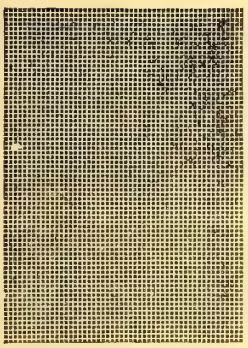

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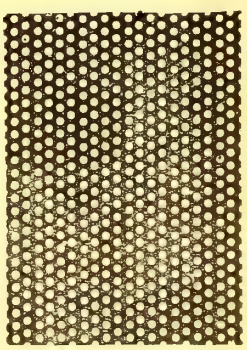

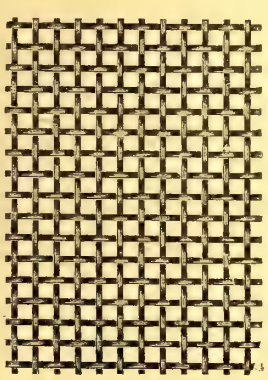

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THE SUPPLY OF METEOROLOGICAL INFORMATION FOR AERONAUTICAL PURPOSES.

At a joint meeting of the Royal Meteorological Society and the Royal Aeronautical Society held some months ago, Lieut.-Col. H. G. Lyons delivered a lecture upon the subject indicated by the title above.

Limitations of space and the pressure of more urgent news has so far prevented the publication of this lecture, but the Schneider Cup fiasco has produced both the space wherein to print it and a practical illustration of the importance of the subject.

The LECTURER asked those present to indulge freely in criticism, as those who supplied the meteorological information were anxious to know the opinions of those who used it.

The following is an abstract of the lecture:—

The difficulties and risks of aviation are so greatly increased by unfavourable atmospheric conditions that the aviator is naturally strongly impressed by the importance to him of the best and fullest meteorological information that he can obtain; and he may be led to assume that the information that he requires must necessarily suffice for all other activities and all lines of investigations.

The truth is rather that the fullest meteorological information of all kinds is needed, so that it may be studied and worked upon by trained meteorologists in order that we may learn more of the principles underlying the phenomena that we observe, and from this standpoint be better fitted to advise aviators as well as all others to whom weather and climate are factors with which they have to be reckoned.

Though aviation makes probably larger demands on that part of meteorology which deals specially with weather, that is, with the short period changes of meteorological conditions, it does not thereby cover the whole field of meteorology any more than the chemistry required in the work of any branch of chemical industry necessarily covers the whole field of chemical science. The same phenomena which are of importance in aviation are among those which the meteorologist studies for the progress of his science. The interest and the importance of the force and direction of the wind at various altitudes above the surface of the earth, which are observed by means of pilot balloons, shell-bursts, and other methods, are not limited to the aviator alone.

The forecaster needs them in his work, in gunnery they are carefully observed and utilised, the meteorologist in his study of the physical conditions of the atmosphere requires them as data from a region where friction with the earth's surface, and heating and cooling of the air by convection, do not complicate the problems with which he has to deal. It is indeed impossible to say that any particular meteorological study is unnecessary or useless for aviation, for gunnery, or for any specific application of meteorological science.

OBSERVATIONS AT VARIOUS ALTITUDES

Measurements of wind, temperature, humidity at various altitudes, taken with all the precision that can be attained are indispensable to the meteorologist who is seeking the principles which underlie the phenomena that we observe, and which, when determined, represent a definite advance in our knowledge and thereby in our powers of practical application.

Observations made in one line of investigation will often, in practised hands, lead to advances in knowledge which are of the utmost importance in their application in quite different fields. Thus the observations which Major G. I. Taylor, F.R.S., made in 1912 on board s.s. "Scotia," which was chartered for studying the distribution of drift ice in the North Atlantic, have led him to most important advances in our knowledge of eddy motion in the atmosphere, which has thrown light on the conditions which determine the formation of mist, fog and low cloud, thus materially advancing our knowledge of a part of one subject which is of supreme importance to the aviator.

All meteorologists have long recognised that the weather of any particular region is only the local result of causes which belong to the general circulation of the atmosphere, so that a collection of the meteorological data of the globe was a first necessity.

THE RÉSEAU MONDIAL.

This is being provided in such a form as can be produced at present by the publication of the Meteorological Office, the "Réseau Mondial," in which the pressure temperature and rainfall for each month at a number of selected stations, two for each ten-degree square being taken wherever possible. This publication of which three years, 1911, 1912, 1913, have appeared, is only possible because of the uniformity and co-operation which has been achieved by international effort.

The next point for consideration in the supply of meteorological information is that for one special class of that information rapidity of transmission is of the highest importance.

That division of meteorology which deals with weather is primarily concerned, at least in extra-tropical regions, with the changes which take place from hour to hour and from day to day; and these changes take place often with great rapidity and spread quickly over large areas, so that if they are to be anticipated and warnings issued of such coming changes as little time as possible should be expended in the collection of reports and the issue of forecasts and warnings.

In this country forecasts have long been prepared thrice daily, from observations at 7 a.m., 1 p.m., and 6 p.m., but with the increase of aviation during the war and the necessity for the issue of forecasts of the weather at an hour before the day's plans for operation were under consideration, an additional forecast and report based on observations at 1 a.m. was introduced, and has been continued up to the present time.

For years past the meteorological services of most European countries, as well as those of India, Canada, the United States, Egypt, Japan, and some others have issued daily weather reports and maps of their area and of the surrounding regions, interchanging information by telegraph under international agreement. Europe was in this way fairly well provided with information of current weather from a large network of stations, to which were added in 1909 reports from ships of the trans-Atlantic steamship lines.

Under present conditions these international services can be and have been for the most part resumed, but the new demands for a quicker and more frequent supply of information are much larger and more numerous than those of five and six years ago. The forecaster must now receive his reports within an interval of not more than an hour after the observations have been taken and for them to be utilised to the full, his deductions from them should be available half an hour later.

THE DAILY WEATHER REPORT.

The daily weather report which was issued before the war from the Meteorological Office was a document which had grown up gradually and by successive changes. It had been the rule to publish with the map the statistical material which had been used in its production, so that the reader could check its correctness, and, if he pleased, draw his own deductions from it.

But under Service conditions something simpler, plainer, and more direct in its presentation of the opinions of the trained meteorologists who prepared it, was needed. Those who had to make use of the daily weather reports were usually far too busy to wish to study the statistical material before accepting the meteorological opinions which were offered to them.

They wanted a direct statement of expert opinion of which they could make use in preparing their own plans of actions. The desire for such expert assistance was also shown by many requests that forecasts should be expressed in "perfectly simple and non-technical language." To this very reasonable request it was not so easy to accede to as it may seem.

Such expressions as "a depression advancing from the westward," "a secondary depression developing over the Channel," "an anti-cyclone spreading northward," are more than mere statements of fact; they convey to all who are acquainted with meteorology much additional information depending on the weather conditions described, which it would take several paragraphs to describe simply and in non-technical language.

Now that hostilities have ceased, the opportunity has been taken to revise the daily weather reports in order to make them more useful and more convenient for reference. The simplified morning report of war days has been transformed into a British daily weather report, in which all the information from the United Kingdom is included, and is issued before noon. Later in the day an International daily weather report is issued, in which all the data from foreign countries appear. In addition, a special two-page supplement, containing all upper air observations from the observatories of the Meteorological Office and meteorological stations of the Air Ministry as well as from some in France, is published daily at noon.

WEATHER MAPS FOR THE BRITISH FORCE IN RUSSIA.

Whenever forecasts have to be prepared, reports from many stations must be collected and a weather map drawn; and if drawn it should be issued to all whom it can reach in time. Thus on every war front, daily weather maps have been regularly issued, often several times daily, and at this moment one is furnished to the British Force in North Russia; and in all future operations the same will be required. This intimate co-operation between the different meteorological services which aviation necessitates, increases the importance of Imperial and international consultation, in order that information may be provided on all routes, and at all stations as nearly as practicable in a common form, and with the least possible delay.

Now that meteorological records are being more largely worked upon and will continue to be worked upon in the future, it is of the highest importance that there should be at a central institute as complete a collection of them as possible. Also, that at that institute, an highly efficient system of registration and indexing should be in operation so that inquirers and students may be referred readily to all sources of information, whether published matter, manuscript records, or investigations that have been carried out and then filed away. The last group is not the least important, for work of this kind may be needlessly repeated unless there is a ready reference to what has already been done.

There is a large amount of information of such statistical

character published in this country already; weekly and monthly weather reports of the United Kingdom appear regularly; but for the war the climatological atlas of the United Kingdom would have been published by the co-operation of the Meteorological Office and the Royal Meteorological Society. Pilot charts of the North Atlantic and the Indian Ocean appear monthly, and contain much information relating to these ocean areas, which have been collated from the valuable meteorological logs contributed by ships' officers.

A Network of Meteorological Stations.

The British Empire possesses a very numerous and widely flung network of meteorological stations, numbering about 1,000 in all, besides those which record rainfall only, and the ships which keep meterological logs; these stations are organised under the meteorological services of this country, of the Dominions, of India, and of the Crown Colonies, so that they furnish us with opportunities for investigating almost any problem that may arise in meteorology, if competent meteorologists make full and proper use of them.

Bermuda, the Windward Isles, St. Helena, Ascension Island, the Falkland Islands, and South Georgia, provide a chain of stations from which, although they are not quite so conveniently situated as could be wished, the meteorological conditions over the Atlantic Ocean may be investigated, and the supplementary observations taken on sea-going steamers can be controlled. Their results can be compared with those which the islands of the Indian Ocean can provide, viz., Socotra, Seychelles, Mauritius, and Keeling Island, or again with those from the numerous islands of the Pacific.

Africa has been mentioned as the site of two air routes, and here there are many subjects of great meteorological interest. The Egyptian and Sudan Service has, during 15 or 16 years of its existence, thrown much light on the conditions prevailing over North-Eastern Africa.

National Co-operation.

National co-operation offers fewer difficulties in the way of uniformity, but in so widely distributed an Empire as ours local conditions vary so widely that more points of difference arise than would occur in a more compact geographical location. Conferences of the directors of all the various British meteorological services are the natural means for obtaining greater co-ordination, and to some extent these have been provided by the periodical International Conferences of Directors or meetings of the International Meteorological Committee. There are, however, greater advantages to be gained from Imperial meteorological conferences which can easily be held just before the international meetings. The present time is very suitable for such a conference and it is to be hoped that nothing may prevent it from being held at an early date.

Discussion.

Maj.-Gen. Brooke-Popham said the information to be got in France during the war as regarded meteorology was of the greatest possible value. They tried to do without a special meteorological service when the war started, but it was found absolutely necessary to have a local service, and it was started early in 1915.

In a short time the information received from it was quite remarkable for its accuracy, and they could not have done without it. The most important thing from the aviation point of view was that the information had to be got through very quickly.

Conditions were somewhat different now from those that prevailed in France. The local meteorological service there only concerned a rather small area of the world. In future the area the service would have to cover was vastly greater, and it might concern—as it did at present—the whole of the Atlantic, the North Sea, and right away to Egypt.

He thought that would rather introduce complications, and alter the conditions of the service that would be required. Col. Lyons said the information was got out at present by maps and particulars that were printed in the maps, but he thought in future they would have to have it by telegram if it was going to be of real value.

In France they had a regular code system. Something like that would have to be evolved for civil aviation. Using a code would reduce the length of the telegrams and increase the rapidity with which the information would be got out.

Lieut.-Col. Ogilvie's Comments.

Lieut.-Col. A. Ogilvie said the lecture was one of the most stimulating to the imagination that he had heard for a long time. The vital point as regarded civil aviation seemed to be the fact that it would depend upon the weather. One could see no serious difficulty in the construction or operation of the machines. They might be a little bit expensive to work at first, but the thing in which it was really difficult to see the complete path open ahead was the meteorological question, and that lecture showed a sort of line of development which was coming.

Such difficulties as the weather presented were going to be particularly applicable in this country, where the weather was very bad. That was really an advantage. The weather conditions being very bad, the subject became so serious that one had to get after it and put it right. It was the same with regard to the pilots. He remembered Wilbur Wright telling him in 1908 that we should have the best pilots, as our particular conditions were so much worse than those of other countries that our fellows would have to be better than theirs to cope with them.

Similarly, as regarded the weather, the difficulties would be so great that we should have to develop systems and organisations, and study in every way meteorological questions, so as to enable us to operate at all. Two difficulties as regarded the weather seemed to be particularly prominent. The first was that of getting the knowledge of the conditions that were coming—such as fog, wind, and rain—and the second was the means of overcoming them.

Such a lecture as they had just heard did not enable machines to land in fog, rain, and so on, but it helped them to get the knowledge of where the fogs and rainstorms were going to be.

The Lecturer's remarks about the Nile struck him as being interesting, because some time ago he was messed up in an aeroplane expedition on the Nile, and those particular conditions were forcibly impressed on the minds of those concerned. Their machine did not do 120 miles an hour. Its maximum was quite 60, and it was not a particularly sensitive machine to any kind of weather conditions, and they were particularly sensitive pilots—he thought most of the old pilots were rather nervous and agitated people—and as soon as there were any gusts they used to hurry down.

They learnt after a considerable amount of experience that the wind was always blowing in an extremely steady way at certain times of the day. They got perfect flying weather from 7 to 10 in the morning, and from about 4.30 in the afternoon until it was dark. The wind during those times was blowing perhaps 30 miles an hour.

When they left Wadi Halfa at the beginning of the railway crossing the desert to El Hamid, although it was calm so far as the machine was concerned, it was going in a 30-miles-an-hour wind. Towards 10 o'clock or so the river appeared like a sheet of glass, but a little later, when the sun began to heat the ground, one saw ripples coursing over the surface of the river, and they knew that in half an hour or so those gusts would be coming up their way—they were going along at a modest 2,000 or something like that—and sure enough, after a decent interval after seeing those ripples, they began to " get the wind up " at the height at which they were flying.

On one occasion when they had to carry on till 12 o'clock the weather was horrible and the machine difficult to handle. He wished to emphasize the international nature of meteorological questions. Col. Lyons had expressed the matter very ably, but he would like to back up everything he had said. Aviation was not a thing one could do by oneself, and he thought it would probably have a very big effect on the whole inter-nationalisation of the world.

Major Wimperis.

Major H. E. Wimperis said the lecture by the honoured head of the chief meteorological service of this country must interest everyone connected in aviation. There were two sides to the meteorological work, ascertaining the best route, and supplying information which would enable one to judge what the weather was likely to be at the date one proposed to start to fly along the selected route.

For the latter the physics of the atmosphere had to be studied and problems as to the friction of fog and wind. It was difficult to get a continuous chain of observations in the upper air. Stationary balloons with observers attached were fascinating to meteorologists but rather deadly to aviators.

Lieut.-Col. H. T. Tizard said the air conditions only became such that the meteorologists could deal with them in forecasts at fairly great heights, and as flights would probably be in future comparatively short and low forecasts could not be supplied with the rapidity and accuracy that would be of any use to aviators.

He thought the telegraph and telephone would be of no use for the purpose. A system of wireless should be established for this purpose, if necessary, by using continuous-wave wireless telegraphy for meteorological purposes and keeping other commercial uses to the ordinary wave telegraphy. Aviators should help the Meteorological Office by supplying the kind of information they required.

Unpleasant Kite Balloons.

Mr. J. S. Dines said he spoke rather as a member of the Meteorological Office than as representing the Meteorological Society. He was intimately concerned with the preparation of the reports Col. Lyons had talked about, and he emphasised how grateful they would be if the users of the reports would give them their opinions and criticisms.

They were asked to send reports by telegram and sent them regularly, but did not know whether they were quite what was wanted. If suggestions for their improvement could be made it would be of great service. What Major Wimperis said about kite balloons not being nice for airmen was true.

As Col. Tizard suggested, aeroplanes could take up thermometers and record the temperatures and in some way get a fairly good idea of the drift of the wind at different levels. He hoped

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that in future there would be that co-operation, and that the meteorologists would get a great many reports of upper air conditions from aerodromes.

Ship Observatories.

Mr. T. F. Gaynor asked the Lecturer if it would not be an important acquisition to the international meteorological service, especially for trans-Atlantic aerial navigation in the immediate future, if a few suitably designed station-ships were permanently stationed at regularly-spaced distances apart along known parallels of latitude—say 40 degrees and 50 degrees North latitude—fully equipped with meteorological instruments and telegraph devices, to observe conditions at their respective localities and report frequently to flying aircraft and to the American and European land stations and be maintained by the British and American Governments?

Forecasts for Atlantic Flights.

Mr. F. H. Bramwell asked how much the percentage of accuracy in the forecasts fell off after various periods. A man starting to fly the Atlantic would want to know what chance he had of reasonable Atlantic weather some 20 hours or so after the time he left the ground, or probably more like 30 hours after the forecast was prepared by the Meteorological Office.

Lt.-Col. Lyons's Reply.

Lt.-Col. Lyons, replying to the discussion, said with reference to the remark that the war front in France was a small area, the area for which the forecast was supplied was small, but the area from which the material was obtained was not small. It ranged from Iceland to North Scandinavia and down to the Algerian coast.

In Egypt the conditions were simpler and more stable, and the area became more manageable and distinctly smaller. In Egypt, as a rule, dealing with the ordinary weather forecast, nothing farther off than Malta directly affected them, in less than a couple of days. For use with telephones or wireless messages a code was necessary at the Meteorological Office, specially worked out to simplify and shorten the transmission of returns and forecasts.

He had experienced the strong night winds over the desert. He had never satisfied himself as to the reason for them. The information given by aviators to the meteorological service in France and in this country had been of the greatest value

He had not the figures in his head as to the falling off in accuracy of forecasts. It was an important point and should be followed up. He would like to take a particular case and look that up, and send the inquirer the information.

The Meteorological Office would be pleased to have the fixed stations suggested by Mr. Gaynor, but the practical difficulties would probably postpone them for a long time.

The President, in proposing a vote of thanks to the Lecturer, remarked that we had progressed a good deal since the days of Col. Ogilvie's memorable expedition up the Nile by what Col. Ogilvie called two frail pilots, but whom other people would call two of the pluckiest pilots that ever stepped.

In the near future he thought we should have aircraft which would stand anything but the most violent gale. It was to the credit of the Meteorological Office that they had advanced so far in securing a perfect organisation. He hoped the International Congresses and discussions now taking place would result in securing the co-operation of all the services interested in meteorological information for aviators in this country and abroad.

SAMUEL PIERPONT LANGLEY.

From a somewhat unexpected source—the "Johannesburg Star"—one gleans some interesting biographical notes concerning Samuel Pierpont Langley, the American pioneer, who, at the end of the nineteenth century, succeeded in constructing an aeroplane capable of flying. That it was not the first machine to fly was due to a chain of accidents such as often robs pioneers of the fruits of their labour.

Of all those who in these early days investigated the possibilities of dynamic flight, Langley was, undoubtedly, the best equipped by training, experience, and natural aptitude. He was the scientist of world renown, an engineer of uncommon merit, and his ultimate non-success was due mainly to an unbelieving Press whose criticisms and ridicule caused the cutting off of the funds which would have made a continuation of his experiments possible.

Langley was the descendant of a substantial and intelligent family of New England, among whom were skilled mechanics, business men, clergymen, and teachers, including a President of Harvard University.

He was born in Roxburg, Mass., on Aug. 2nd, 1834, and was educated at Boston—he was trained in architecture and civil engineering, and followed his profession in St. Louis and Chicago for seven years. Thereafter a natural fondness for astronomy prompted him to give up his business and devote himself to the construction of telescopes, after which he journeyed to Europe and spent three years in Observatories, Institutes, and Art Galleries.

Upon his return he was made an Assistant in the Harvard Laboratory, and later Professor of Mathematics and a Director of the Observatory at Anapolis. At 32 he was made Professor of Astronomy and Physics of the Western University of Pennsylvania, and Director of the Allegheny Observatory. During a stay of 20 years in this position, he commenced his experiments in aero-dynamics, starting in 1887, and continuing for over three years. The results of his tests are counted even now among the most valuable contributions to the science.

Whilst at the Western University, he persuaded the railway corporation to adopt a standardised time system for the operation of the trains, the time being signalled along many thousands of miles of railway twice a day from a Solar clock operated by Langley, thus linking astronomy and railway operation. Another of his astronomical triumphs was the investigation of sun spots and the invention of the bolometer, an instrument of such delicacy and precision that it indicates accurately variations in temperature of less than one hundred thousandth of a degree centigrade, and by this means he was able to analyse in detail the heat of the moon in the lunar spectrum.

In 1886, following a long succession of astronomical investigations of an original and far-reaching character, he became an assistant secretary of the Smithsonian Institute, with the privilege of continuing his research work at Allegheny Observatory, and he held this position until his death on Feb. 27th, 1906.

Unlike most other investigators in the field of mechanical flight Langley did not follow rule-of-thumb methods. He engaged first in the most painstaking research to determine and classify the fundamental principles involved; his progress begun in the laboratory and ended in the workshop.

His aeronautical work was divided into the following stages:—(1) His experiments in aero-dynamics at Allegheny Observatory, where for three years he confined himself exclusively to the making of tests for determination of principles and the development of data to be used later in constructing models and man-carrying machines.

(2) His experiments with rubber and steam-driven models, the result of which was to enable him to construct a steam-propelled model which flew for more than three-quarters of a mile.

(3) He then experimented with a ¼ scale petrol engine-driven model, and, after successful demonstration, constructed a full size man-carrying machine, propelled by petrol engine. It was not, however, until some years after his death, in the autumn of 1914, that this machine was successfully flown by Mr. Glenn H. Curtiss at Hammondsport, New York, in an attempt to antedate the Wright patents.

The principal piece of apparatus which figured in Langley's experiments was a large whirling table with a radius of 30 ft. which consisted of two diametrical wooden arms revolving in a plane 8 ft. above the ground.

It was driven by a gas engine of 1½ h.p. during the early days of experiments, but as this was found to be inadequate, it was later driven by a 10 h.p. steam engine, and a set of step pulleys furnished a variable speed device and according to the gear employed 25-50-100 or 200 revolutions of the table could be obtained for a thousand revolutions of the engine. During the last of the experiments the gear ratio of the bevels was changed again, and a new system of pulleys installed, so that at 120 revolutions of the engine per minute, 48-24 and 12 revolutions of the whirling table per minute was secured, corresponding respectively with 100-50-25 miles per hour at the end of the arms. The full usefulness of this whirling table was reduced by its position in the open, and the consequent effects of air currents. Nevertheless, some of Langley's results obtained with this apparatus were wonderfully accurate.

THE PROPOSED INSTITUTE OF AERONAUTICAL ENGINEERS.

A meeting was held at 180, Sutherland Avenue, Maida Vale, on Thursday, Sept. 11th, to discuss the formation of an Institute of Aeronautical Engineers.

Some twenty members of the profession attended, and Mr. L. Howard Flanders took the chair.

A letter from Mr. A. E. Berriman, wherein he strongly protested against the use of the title "Institute of Aeronautical Engineers" on the ground that it implied competition with the functions of the Royal Aeronautical Society, and against the formation of such an association because the R.Ae.S. did in fact fulfil the legitimate functions of such an association, was discussed at some length, and it was the general decision of the meeting that the functions of the two associations were entirely different.

Mr. Howard Flanders' proposal that the new society should be also a Defence Association—which would perform for its members the legitimate functions of a trade union—was then discussed at some length. As might have been expected, the meeting generally disliked the idea of a trade union. It was generally conceded that technical workers of the educated class needed some protective organisation to look after their interests. It was decided that the provisional council should obtain a statement of the legal standing of a Defence Association, firstly when registered as a Trade Union, and secondly not so registered, in order that prospective members might weigh the relative advantages of the two positions.

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PATENTS INDEX

The subjoined list of recent inventions has been specially compiled by The Aeroplane from the current Official Patents Records.

Patents Applications.

Blackman, P. Landing-dock for aerial machines, etc. No. 16282. June 28th.
Brockelbank, C. H. Drift-indicators. No. 15929. June 24th.
Davis, E. A. Maps, etc., for motor vehicles and flying-machines. No. 15912. June 24th.
Drew, H. V. Aeroplanes. No. 16175. June 27th.
Gunn, F. Belts for aviators. No. 15852. June 24th.
Hefford, A. Clinometers for aircraft. No. 15980. June 25th.
Holt, H. E. S. Parachutes. No. 16260. June 27th.
Last, J. J. Means for determining angle of inclination of aircraft during flight. No. 15801. June 23rd.
Lesseps, M. de. Propellers for aerial or marine propulsion. No. 16159. June 26th.
Mooney, D. J. Fittings for metal aircraft construction. No. 16287. June 28th.
Page, F. H. Power unit for aircraft. No. 16245. June 27th.
Schneider, J. J. M. A. E. Shock-absorbing apparatus for landing carriage of aeroplanes. No. 16008. June 25th.
Snook, C. W. Means for turning aeroplanes. No. 16139. June 26th.
Tomlinson, H. Control of aeroplanes, seaplanes, and flying-boats. No. 15857. June 24th.
Whitham, F. E. Webs for aeroplane wings, floor coverings, etc. No. 16272. June 28th.
Whitham, F. E. Roofs, etc., of buildings, aeroplane wings, etc. No. 16273. June 28th.
Anderson, W. J. Aeroplanes. No. 16482. July 2nd.
Baratte, F. H. F. Aeroplane tail-supporting means. No. 16417. June 30th.
Barclay, S. F. Arrangements for prevention and extinction of fire aboard aircraft. No. 16438. July 2nd.
Bertrand, E. Aeroplane wings. No. 16407. June 30th.
Bertrand, E. Wings of aeroplanes. No. 16609. July 2nd.
Blackman, P. Clinometer for aircraft. No. 16441. July 2nd.
Blundell, E. O. Aircraft flying-position indicator. No. 16553. July 2nd.
Brizon, J. Speed indicator for aircraft. No. 16918. July 5th.
Brown, G. C. Heavier-than-air airship. No. 16392. June 30th.
Brown, W. Silencer for aeroplane engines, motor engines, etc. No. 16524. July 2nd.
Bygrave, L. C. Navigational apparatus for aircraft, etc. No. 16840. July 5th.
Cerruti, F. A. Aeroplanes. No. 16560. July 2nd.
Disney, C. Streamline bracing. No. 16799. July 4th.
Freeman, W. Parachutes. No. 16639. July 3rd.
Green, L. G. Propellers for aircraft. No. 16695. July 3rd.
Henshaw, T. A. Aircraft. No. 16656. July 3rd.
Hill, A. R. Aircraft. No. 16583. July 2nd.
Holt, H. E. S. Parachute flares. No. 16823. July 4th.
Howard, R. A. Method of building up boss of three-bladed airscrew. No. 16743. July 4th.
Kilburn, D. A. E. Method of enabling aeroplanes to ascend from or descend on land or water. No. 16873. July 5th.
Mackworth, J. D. Inflation systems for non-rigid aerostats No. 16772. July 4th.
Mackworth, J. D. Valve gear for balloons, etc. No. 16841. July 5th.
Mooney, D. J. Metal fittings for aircraft. No. 16683. July 3rd.
Nevin, G. Dirigible airship. No. 16664. July 3rd.
Rae, H. F. Flying-boat. No. 16369. June 30th.
Russon, J. W. Electric level indicator for aircraft when night-flying. No. 16883. July 5th.
Schneider, J. J. M. A. E. Aeroplanes. No. 16409. June 30th.
Summers, L. F. Clothing for aviators, etc. No. 16869. July 5th.
Warneford, W. J. Device to prevent stealing of motor-cars, motor-boats, aircraft, etc. No. 16525. July 2nd.
Warneford, W. J. Device to prevent stealing of motor-boats, motor-cars, aircraft, etc. No. 16857. July 5th
Wilson, C. L. Means for operating controls of aeroplanes. No. 16472. July 2nd.

Complete Specifications Accepted, prints of which can be obtained on and after July 17th, 1919.

128262. July 5th, 1917. Cowtan, D. M., and Piccolomini, H. C. P. Girders and similar structures for aircraft and other purposes.
128266. July 6th, 1917. Hervieu, G., and Marechal, P. M. G. Portable sheds, hangars, and other similar structures.
128268. July 6th, 1917. Lecuyer, M. Flying-machines.
128277. July 11th, 1917. Vickers Ltd., Challenger, G. H. and Duncan, T. S. Means for controlling the fire of guns carried by aircraft.
128283. July 14th, 1917. Sopwith Aviation Co., and Kauper, H. A. Means for synchronising the firing of a gun with the rotation of a propeller upon aeroplanes.
128291. July 19th, 1917. Bruce, R. A. Fastenings of detachable or foldable aeroplane wings.
128294. July 20th, 1917. Calthrop, E. R. Method of, and apparatus for, destroying aerial craft.
128300. July 26th, 1917. Sopwith Aviation Co., and Hodgson, A. T. Fairlead.
128301. July 27th, 1917. Ellis, F. A., and Ellis, F. A. Screw propellers for aeronautical machines and the like.
128304. July 27th, 1917. Aeronautical Instrument Co., and Brewer, G. Balloons.
128310. July 30th, 1917. Wood, W. H. Manufacture of propellers and other parts of aircraft.
128313. July 31st, 1917. Blackburn Aeroplane and Motor Co., Booth, H., and Copley, J. W. Pulleys particularly applicable for the control or other flexible connections employed in aircraft.
128314. July 31st, 1917. Blackburn Aeroplane and Motor Co., and Booth, H. Folding wings of aeroplane flying machines.
128319. Aug. 1st, 1917. Sage and Co., F., and Feary, N. A. T. N. Fairings for the struts of aircraft.
128322. Sept. 7th, 1917. Brown, E. E., and Mooney, D. J. Metal construction for aircraft.
128329. March 1st, 1918. Thomas, G. H., and Hiscocks, S. W. Construction of laminated spar for aircraft.
128341. May 14th, 1918. Holle, A. A. Control of aeroplanes.
128345. May 16th, 1918. Taylor, W. Gyroscopic level indicator for use in aircraft, ships, and the like.
128352. June 6th, 1918. Grand, S. E. Parachute device for aeroplanes.
128367. June 15th, 1918. Kitchen, E. Stabilising and speed-increasing devices for aeroplanes and airships.
128388. July 18th, 1918. Joseph, E. L. Means for anchoring the ends of wires subject to tensile stress.
128421. July 3rd, 1918. Parnall and Sons, and Bolas, H. Means for cowling the rotary engines of aircraft.
128422. July 3rd, 1918. Thomas, G. H., and Tippen, F. J. Airships.
128423. July 3rd, 1918. Thomas, G. H., and Tippen, F. J. Airships.
128430. July 11th, 1918. Blackburn Aeroplane and Motor Co., Booth, H., and Petty, G. E. Flying-boats.
128457. Aug. 15th, 1918. Boulton and Paul, and North, J. D. Engine fairings or casings for aircraft.
128481. Oct. 3rd, 1918. Clowes, G. Portable steps for use in rigging aeroplanes.
128495. Nov. 26th, 1918. Silk, R. A. Platforms for use when adjusting the compasses of aircraft.

Complete Specifications Accepted, prints of which can be obtained on and after July 24th, 1919.

128,593. Jan. 3rd, 1917. Brock, A. Aerial photography.
128,599. Aug. 2nd, 1917. Blackburn Aeroplane & Motor Co., and Booth, H. Lifting-attachments for aeroplane flying-machines and other aircraft.
128,602. Aug. 2nd, 1917. Back, W. E. Control of flying-machines.
128,603. Aug. 2nd, 1917. Gledhill, A. H. Apparatus for releasing bodies from aircraft.
128,605. Aug. 3rd, 1917. Blackburn Aeroplane & Motor Co., and Booth, H. Method of construction of boats or floats.
128,609. Jan. 3rd, 1917. Brock, A. Aerial photography.
128,611. Aug. 7th, 1917. Blackburn Aeroplane & Motor Co., and Booth, H. Hulls or floats for hydro-aeroplane flying-machines.
128,615. Aug. 8th, 1917. Fuller Accumulator Co., and Brown, H. C. Lamps or lanterns for aeroplane flying-machines and other aircraft.
128,619. Aug. 9th, 1917. Hutchings, W. Machine for measuring the blades of aircraft and marine propellers.
128,621. Aug. 10th, 1917. Flower, S. A. Transverse frames of airships.
128,622. Aug. 13th, 1917. Coles, S. O. Cowper-. Construction of metal wing for flying-machines.
128,629. Sept. 11th, 1916. Paulhan, L., and Chevardiere de la Grandvilla, H. J. L. M. de. Propellers particularly applicable to aerial machines.
128,630. Aug. 16th, 1917. Portadown Weaving Co., and Greeves, T. J. Transparent flexible material applicable for aerial wings and other purposes.
128,634. Aug. 18th, 1917. Austin Motor Co., and Austin, Sir H. Method of mounting an aeroplane propeller and means for use therewith for carrying a gun which fires axially through the propeller.
128,636. Aug. 18th, 1917. Calthrop, E. R. Aeroplanes and parachute-launching devices therefor.
128,643. Aug. 22nd, 1917. British & Colonial Aeroplane Co., and Reid, W. T. Aircraft fuselages.
128,644. Aug. 22nd, 1917. British & Colonial Aeroplane Co., and Reid, W. T. Engines for aircraft.
128,651. Aug. 23rd, 1917. Mayrow, J. J. Fuselages of aeronautical machines.
128,657. Aug. 28th, 1917. Mordey, H. F., Lane, W., and Houghton, P. H. Propellers for aircraft.

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COMMERCIAL AERONAUTICS & CIVIL AERIAL TRANSPORT

AIRY NOTHINGS.

By "MEDWAY."

We live in the era of standardisation. We are even told that things are to be carried so far as to entail the standardisation of the engines to be used on the Imperial aerial routes before these routes themselves are in existence. Personally, I should prefer to start by tackling simpler branches of the subject.

For instance, there will no doubt be a considerable number of meetings at which Under-Secretaries of Government Departments and other shining lights of the political world will desire to apply dope to the Aircraft Industry and the general public. It would save a lot of time, which is otherwise bound to be wasted by manufacturers and representatives of the Press in attendance at such meetings, if the officially inspired utterances were standardised and printed in advance.

The standard speech would, of course, need to be replete with that loquacious reticence which enables nothing to be said in a large number of words. It would require to indicate the overpowering goodwill of the Government towards the Aircraft Industry and the pioneers of commercial aviation, and equally the determination of the same Government to do nothing whatever which could possibly involve any expenditure at all of public funds.

Diplomatic Verbiage.

The preparation of the speech is really a job for the same tactful people as are charged with the duty of giving expression to the whole-hearted adherence of the Government to a policy of Free Trade combined with a complete system of Import Duties and a substantial Imperial Preference. In the meanwhile, despite my lack of experience in the stringing together of diplomatic verbiage, I put forward the following merely as a rough first draft to serve as a basis upon which the elaborately finished article could be built up:—

Gentlemen,—I am giving you the pleasure and honour of my company to-day for the purpose of making it abundantly clear that the Government, which is so fortunate as to be represented by me, intends to treat Commercial Aviation in such a way as to ensure the speediest possible development of aerial services, the supremacy of the British Industry, and the total avoidance of any financial expenditure in aid of aerial enterprise.

One of our first duties is to dispose of the Government's own property in the shape of aeroplanes and airships. In this connection, it must be clear that any unfortunate risk of realising inadequate prices for this property can be eliminated by the total destruction of the property in question. Various alternative courses of action also suggest themselves. The property might be given away, or it might be sold at an exorbitant price.

To Relieve the Government of Responsibility.

We have to consider the immense potential value of aircraft services to the community. We have also to consider the pockets of those whose one and only idea is an immediate temporary reduction of taxation. It would be extremely nice to recover much of the cost of the war by opening up and increasing the value of territories in many of the comparatively undeveloped portions of the Empire. The process must involve some capital expenditure, and it would, therefore, be still nicer if you, gentlemen, consented to incur that expenditure and relieve the Government of all responsibility.

I need hardly say that even the most socialistic members of the community do not desire to nationalise properties or services so long as these cannot fail to show a loss. If, however, as I hope and expect, you are all willing to club together in a patriotic spirit and carry us through this difficult period, the nation will be only too pleased to take over the enterprises at a nominal figure directly they have reached that period where a regular and substantial profit is assured.

Just at the moment it is the duty of the Government to set you all an example in economy. The form of economy most easily practised and appreciated by the majority of voters—who, as you must recognise, are the people who matter—consists of spending no money at all. The truer economy, which consists of investing money in order to increase its value, is not nearly so obvious or easily explained. Fortunately, words cost nothing; I will therefore provide you freely with as many as you require, or even more. Explanations, however, postulate brains, and brains are an expensive commodity in which wise Governments must be strictly economical.

Benevolent Neutrality.

The Air Ministry possesses a certain number of machines, and the Admiralty has reported that when the political situation has cleared up—as it may do within the next ten years or so—it may be able to give an approximate estimate of the number of aircraft or aerodromes that it may or may not require. You will agree that nothing could be more explicit or satisfactory. These two departments are prepared to combine in making the great sacrifice which is entailed by offering to sell their property to the highest bidder. This, in itself, you will recognise as a great inducement. You will also be permitted to read the weather forecasts in the "Times," and the Post Office has undertaken to adopt an attitude of benevolent neutrality.

The Postmaster-General has even gone so far as to permit me to assure you, on his behalf, that in the preparation of your schemes you are fully at liberty to utilise the facilities of the mail, telegraph, and telephone services at the customary rates. It is even conceivable—and this you will agree is a most gratifying assurance—that at some remote period the proposition of carrying certain limited classes of matter by the aerial method may be given some slight consideration, provided, of course, that you are able to quote rates per ton conveyed which compare favourably with those prevalent on the nationalised railways of the country. This should be an easy matter.

A Donation of Regulations.

As for the other Government Departments, I understand that the War Office is willing to subsidise you by the free gift of its valued esteem and gratitude. Mean-

while, the Board of Trade and the new Ministry of Transport are waiting, with their tongues out, to present you gratuitously with thousands of regulations as to how machines may not be built and services may not be operated.

What we aim at is close collaboration between the Government and the Industry. In the first instance we provide the risk—inasmuch as you never know how your prospects may be affected by our legislation. You merely provide the money. From that point onwards you take the risk and, if things go well, we will ultimately take the money.

As the poet has so aptly put it, "By just exchange, one for the other given." It would be impossible to conceive a more promising form of collaboration—for that matter you could not conceive a more promising Government. We make promises, leaving you simply to make progress.

Then, again, both deeds and words are required to bring our great mutual scheme to full fruition. We will provide all the words, leaving you merely to supply the deeds. The future of such a scheme is boundless, and, if you go into it in a business-like manner, we, with some trifling assistance from you, will retain that supremacy in the air which you—I mean we—have gained during the war. (Applause.)

A CLUB FOR THE AIRCRAFT INDUSTRY

By BACCHUS (Retired).

More than one natural history book has told us that man is a gregarious animal, which fact is chiefly the *raison d'être* for mothers' meetings, night clubs, and thieves' kitchens, and is equally a *sine qua non* of war or peace.

But for this characteristic in the species life would be but an empty shell, and the amenities of the punch-bowl and of the tea-table would remain the subjects of one's dreams rather than of actual experience.

The man, therefore, who invented the club was a benefactor to mankind. He provided an opportunity whereby a natural instinct could find expression; and once the club came its success was assured.

Now, as is generally known, there exist clubs for all manner of purposes: for ensuring the arrival of the annual turkey with its attendant dainties, for evading sundry Acts of Parliament and bye-laws, and for co-ordination of feasting, sport, and study.

When aeronautics first became a reality it was natural that there should arise an Aero Club, and it was equally natural that such a club should be patronised chiefly by sportsmen of relatively independent means, for in those days the privilege of working for 18 hours a day at a badly constructed aeroplane in a poorly equipped shop was a luxury known only to the man of means.

When war broke out the enlargement of the Flying Services brought into the aeronautical world and into the Royal Aero Club a crowd of people who were strangers in a strange land: they were mostly men who had been concerned with affairs more profitable than the heroic pastime of throwing good money after bad at Brooklands, Shellbeach, or elsewhere.

Most of them were cognisant of the buying, selling, and hiring of motor-cars and motor-bicycles, and they thought in terms of so much per centum commission.

They took the King's Commission; some of them died for their country with gallant promptitude; others were content merely to assume the King's uniform and to pursue those paths of military probity which led them nowhere nearer than within 50 miles of the firing line.

Many of them entered, for the first time, the outer circle of that mysterious world where certain things are done, and where certain other things are not done, and they noticed that the inhabitants of this newly discovered sphere, whose principal duty in the scheme of things was to officer the British Navy and Army, did not chose to forgather in their social occasions with persons engaged upon the prosecution of commerce.

As a result, those new recruits to the Service hierarchy who possessed a lack of foresight and proportion and who forgot that with the return of peace they would themselves find necessary a return to the pursuit of the essential shilling, decided that it was not *comme il faut* for them to share their club with an unnecessarily large number of their class who did not enjoy the privilege of wearing the King's uniform.

Now, the net result of this craving for seclusion has been to bar civilians from election to the Royal Aero Club, except in the case of individuals who are a force in the land, and although no official declaration has been made on the subject, the shelving of a number of candidates concerned with commercial aeronautics seems a fairly plain hint that the existing membership of the Club, as represented by the committee, does not wish to associate itself at the cocktail bar and in the dining room with members of the Aircraft Industry.

If a definite statement to this effect were issued the ground would be cleared.

Every individual and every community of men is entitled to select congenial associates. None will quarrel with that principle, and if the officers and gentlemen, permanent and temporary, who at present permeate the R.Ae.C. want to congregate alone, they are welcome so to congregate.

What has been said in this article is uttered without animus; it is merely a statement of things as they exist, and is designed to point to the need for a Club for the use of those engaged in the civilian Aircraft Industry.

Such a club, if it is to be a useful institution, and not merely an establishment in which evasions of the drink regulations are facile, must be properly organised, and the proprietors must be of such standing as will ensure the club a definite status from its inception. If its foundation is laid with worthy objects in view there is no reason why it should not be governed by an authoritative body which has already established a reputation among those concerned with commercial aeronautics.

The institution which comes naturally to one's mind in this connection is the Society of British Aircraft Constructors, an association of the most firmly established and reputable aircraft manufacturers in the country.

A committee of its members might very well be appointed to consider the whole question and to decide on what lines a club should be formed which would be of most practical utility to the industry.

A well-equipped clubhouse situated in the West End would be necessary, with a first-class kitchen (and cellar). In addition to the apartments to be found in most clubs, such as dining room, smoking room, library, and billiard room, there might very usefully be an information bureau where all notices and documents of a general and not confidential nature, which circulate in the Aircraft Industry, might be inspected.

Also facilities might well be granted for the inspection of approved catalogues of goods handled by such members of the S.B.A.C. as chose to supply them, as well as up-to-date lists of the current prices of standard materials and fittings used in aircraft construction.

The conduct of private business is objectionable in any club, but a series of small private rooms might be provided in which members could meet and discuss business, an arrangement which would remove any excuse for the conduct of commercial affairs in any other part of the building, and thus would assure members that they would receive no molestation from others whose commercial enthusiasm might at times overmaster their good taste.

Now that most buildings in town with large rooms have been commandeered for war service it would be difficult to select a clubhouse with a lecture hall, but if this were possible a large room, which would seat up to 500 people, would be invaluable for lectures on all manner of subjects concerning aeronautics, when non-members could be received for the interchange of ideas.

The soul of any club is its secretary, and for a club of the character outlined a man is required who, for preference, is well acquainted with the different classes of people who are concerned with commercial aeronautics.

It must be remembered that no man can serve both God and Mammon. Equally a secretary who is also an officer cannot serve his King and his club at the same time, and a civilian who has no other interests is therefore essential for the post.

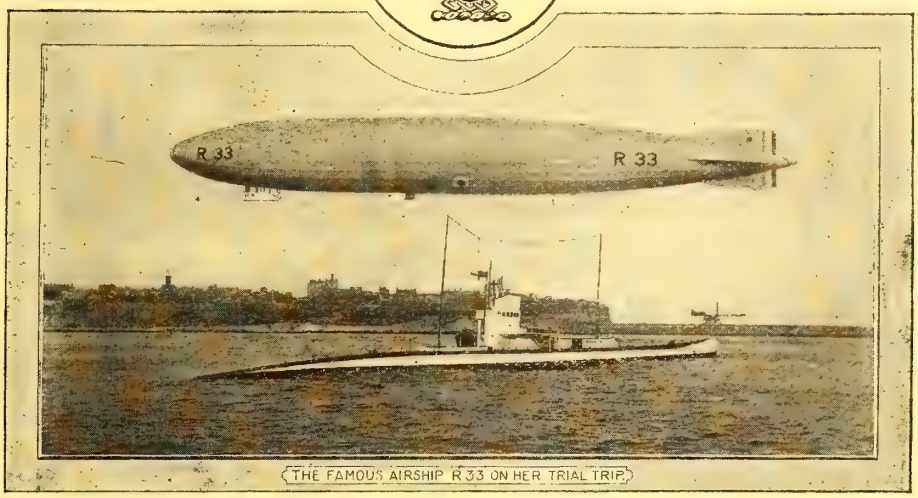
The committee should be men of the best class found in the Aircraft Industry, and in order that the new club should be organised on seemly lines it might be well to insist that the first members of the committee should be members of some other recognised club.

As regards membership, there is no reason why it should be limited to the administrative staffs of firms belonging to the S.B.A.C., but any person for whose respectability two members of the S.B.A.C. were willing to vouch should be eligible, subject to the approval of the committee.

A well-established club for the use of members of the Aircraft Industry would be of undoubted use for the interchange of information and ideas, and to encourage cordial relations between the different interests concerned.

It would certainly pay those firms who have been making riches out of aircraft to put up the necessary capital, not only as a direct financial investment, but for the good of the Industry as a whole.

Incidentally, it should be quite possible to admit to the membership of the club a limited number of approved members of His Majesty's Forces who are concerned with aircraft production.



THE FAMOUS AIRSHIP R 33 ON HER TRIAL TRIP.

— RIGID AIRSHIPS FOR WAR, MAIL & PASSENGER SERVICE —

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NEWCASTLE-UPON-TYNE. **Works: Barlow, near Selby, Yorks.**

LONDON OFFICE: 8, GREAT GEORGE ST., WESTMINSTER, S.W.1.

TELEGRAMS: "ZIGZAG PARL, LONDON." TELEPHONE: VICTORIA 4010.

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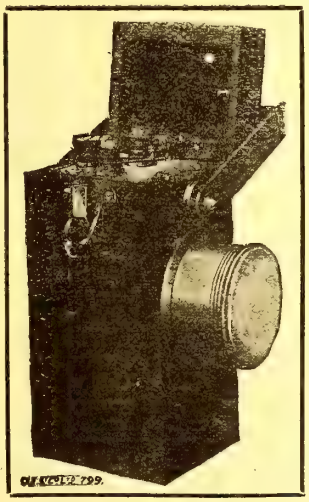
The accumulator is absolutely unspillable even if inverted.

There are no cable connectors to unfasten. The whole of the connections are contained in the case.

The cell can be taken out for charging or changing by simply opening the lid and lifting the cell from the case.

The switchgear is operated by a simple screw on the lid. A touch of the finger puts the light on or off.



H.D. Y 4 Hand Lamp. And the price is only **32/6** each.

The cell gives 12 hours' light on one charge, and can be recharged in about 7 hours.

For garage, factory, workshop or the home the lamp is very suitable.

Always available, with a light of exceptional brilliance. Easily operated and of very light weight.

The bulbs are large and don't easily burn out.

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CIVIL AERIAL TRANSPORT NOTES.

GREAT BRITAIN.

CIVIL AERODROMES.

The following lists of aerodromes are issued as an addition to the lists recently published. It may be seen that in the majority of cases the aerodromes referred to below can only be considered as possible emergency landing-grounds.

Attention is again drawn to the fact that these lists are purely provisional and subject to alteration or amendment from time to time.

LIST D. (c.)

Aerodromes licensed as suitable for Avro (504K) and similar types of aircraft only. Except in very few instances accommodation does not exist. The licences have also been issued for limited periods only.

Aerodrome.	Nearest Railway Station.	Nearest Town.
Aylesbury (Race Meadow)	Aylesbury	Aylesbury
Conway (The Morfa)	Conway	Conway
Ashgate (Caushouse Farm)	Chesterfield	Chesterfield
Leicester (Aylestone Lane)	Leicester	Leicester
Derby (Race Course)	Derby	Derby
Marden	Cullercoats	Newcastle-on-Tyne
Stratford-on-Avon	Stratford-on-Avon	Stratford-on-Avon
Lochee Park	Dundee	Dundee
Perth (North Inch)	Perth	Perth
Warrington	Warrington	Warrington
Stoke-on-Trent (Sparrow Terrace)	Stoke-on-Trent	Stoke-on-Trent

LIST E. (A.)

STATIONS NO LONGER IN USE BY THE R.A.F.

These stations have been passed to the Government Surplus Property Disposal Board. They will be relinquished as soon as the Government property thereon has been disposed of. In many cases the aerodromes are now under cultivation, but it is probable that the sites still form the best emergency landing-grounds in the immediate neighbourhood.

Aerodrome.	Nearest Railway Station.	Nearest Town.
Hickling Broad (S)	Catfield	Yarmouth
Killingholme	Habrough	Grimsby
London Colney	Radlett	St. Albans
Shoreham	Shoreham	Shoreham-by-Sea
Seaton Carew	Seaton Carew	West Hartlepool

REFERENCES.—(S) seaplane station; (C) known to be under cultivation or otherwise unsuitable for landing.

LONDON—PARIS AIR SERVICES.

Date.	Type	Left Hounslow	Arr. Paris	Left Paris	Arr. Hounslow	Pass	Weather
Sept. 8th	D.H. 4a	12.30 p.m.	2.45 p.m.			0	
	D.H. 16			12.30 p.m.	2.54 p.m.	2	
Sept. 9th	D.H. 4a	12 30 p.m.	2.40 p.m.			2	
	D.H. 16	4.7 p.m.	6.12 p.m.			2	
	D.H. 9			12.40 p.m.	3.8 p.m.	1	Fog in Channel
Sept. 10th	D.H. 9	12.33 a.m.	3.25 p.m.			0	
	D.H. 4a			12.45 p.m.	2 46 p.m.	2	do.
Sept. 11th	D.H. 4a	12 30 p.m.	2.45 p.m.			2	
	D.H. 4a			12.30 p.m.	2.25 p.m.	2	
Sept. 12th	D.H. 16	12.30 p.m.	2.45 p.m.			4	
	D.H. 16			11.25 a.m	1.25 p.m.	2	
	D.H. 4a			12.30 p.m.	2.34 p.m.	2	
Sept. 13th	D.H. 4a	12.30 p.m.	3.0 p.m.			2	Thick fog
	D.H. 16			3.20 p.m.	5.45 p.m.	4	

Express parcels were carried on every flight except on one each of September 9th and September 12th, when the Under Secretary of State for Air and the Controller-General of Civil Aviation chartered, and were flown in, a D.H.16.

AVRO NORTHERN STATIONS.

The Avro Northern Stations, of which Blackpool is the parent, have now taken up 20,000 passengers. The stations in questions are Birkdale (Southport), Manchester, Fleetwood, Morecambe, Waterloo Sands (Liverpool), Rhyl, Douglas, and Windermere. Preston has been licensed and it is hoped that active operations will soon be undertaken there.

A "Travelling Circus" has now been established which will tour various towns in turn, spending a few days at each, to give demonstrations and take up passengers. The dates arranged so far are:—Barmouth, Sept. 15th to 20th; Nottingham, Sept. 22nd to 24th; and Derby, Oct. 6th to 11th.

A LONDON TO ROME FLIGHT.

In the last issue of THE AEROPLANE an Air Ministry announcement was given. It stated that Lt.-Col. W. D. Beatty and Lt.-Col. W. O. Raikes, of the Air Ministry, had left Hounslow for Italy in a Bristol "Fighter" on Sept. 6th at 11.5 a.m.

They arrived at Lyons at 5.50 p.m. The next morning they started out at 6.30 a.m. They were at Fréjus at 8.5 a.m., arrived at Pisa at 1.50 p.m., and left at 3.15 p.m. The "Times" correspondent states that at 4.38 p.m. in the middle of the Campagna, north of Civita Vecchia, within 50 miles of Rome, their propeller dropped off. In spite of this they made an excellent landing.

They spent the night with the machine. While awaiting the arrival of a car from Rome, a fire swept over the Campagna and destroyed the machine. These fires are common after the drought of summer.

The journey was made to arrange certain outstanding points with regard to civil aerial communication.

BRIGHTON.

During the week ending Sept. 13th, 90 flights were made by the Avros at the Ladies' Mile Aerodrome, Brighton, and 185 passengers were carried. Two cross-country flights were made to Chichester and return—one return journey was made in 15 minutes.

CARDIFF.

S. Instone and Co., steamship owners and general export and import merchants, of Cardiff, have purchased from the Air Ministry a large machine with Rolls-Royce engines. They have engaged as pilot Lieut. F. L. Barnard (late R.A.F.), who is said to have made the record number of cross-Channel flights.

Owing to the serious delays which have occurred during the last three months in the transport of papers, samples, and other light goods, the company decided to start their own service of express communication. If the experiment proves to be a success, the firm will acquire a fleet of aeroplanes. Airships might also be used for commercial purposes.

CHICHESTER.

Twenty passengers were taken up in an Avro machine, which flew over from Brighton on Sept. 11th. Weather permitting, Thursday flying will continue to take place at Chichester.

DUNDEE.

During the latter part of the week ending Sept. 13th Aerial Photos, Ltd., of Edinburgh, held a very successful meeting at Fochlee Park, Dundee. Numbers of prospective passengers waited their turn to be taken up in the Avro machines.

Sir Wm. Don and his daughter were the first passengers. At the conclusion of the meeting Captain Simpson (late R.A.F.) gave a display of stunt flying.

MARGATE.

Avro joy flights at Manston numbered 319 during the week ending Sept. 13th. Among the many passengers were Miss Currie, the Marquis de Ruvigny, the Comte de Ruvigny, and Dr. Saner. These passengers have been most enthusiastic, taking flights day after day. The Comte de Ruvigny is especially keen on stunting.

A blind man waited many hours one day for his flight, determined to loop and experience every flying sensation. The weather has been perfect, and everything is going with energy and success on the aerodrome.

NORWICH.

The "Daily Sketch," "Evening Standard" and "Illustrated Sunday Herald" free flights announced to be given next Sunday have been postponed.

PAIGNTON.

Three three-seater Avro seaplanes were in commission here during the week ending Sept. 13th. One machine arrived from Hamble. There were 174 flights made and 264 passengers were taken up.

PERTH.

Aerial Photos, Ltd., of Edinburgh, were very busy taking up passengers in their Avro machines at North Inch, Perth, during the first part of the week ending Sept. 13th. The damage caused to the machines by the gale at Dunoon has been repaired. The young Earl of Kinoull was one of the many passengers carried. The inhabitants of Perth are so enthusiastic over flying that they propose holding another meeting soon.

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As manufacturers of weldless steel tubing, as tube manipulators, and as steel press-workers, we have a world-wide reputation for all-round excellence. Multitudinous are our products, and our reputation is behind every item.

We are right in the forefront with our "Apollo" tubular box spanners. They are becoming increasingly popular in progressive engineering workshops. We make several patterns—including a special set for Ford Cars—all of which leave absolutely nothing to be desired in tubular spanner construction. Ask for our Spanner catalogue and price list. We can supply aircraft parts in big quantities, as in this connection we are specialists in tapering, bending, trapping, welding, and all other classes of tube manipulation and presswork.

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I.L.O. AERO OIL

THE Pilot is after all the man who matters—he can bear witness of a lubricant's efficiency when flying at an altitude of 20 or 30 thousand feet. That, too, is the time that matters. For this reason the makers of Dick's Aero Oil are grateful in acknowledging the many congratulatory letters that reach them from Pilots in regard to this Oil.

They take this opportunity of expressing their thanks and reiterating their assurance that the quality will remain unchanged until such time as it can be improved.

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C.V.&S.14.

LONDON.

CRICKLEWOOD—During week ending Sept. 12, Handley Page, Ltd., carried 40 passengers and 1,200 lb. of freight on their London Paris air service. The average time for the journey was 3 hours 29 min. Arrangements have now been completed for the passengers to be carried to and from the destination aerodromes in landaulette motor-cars.

HOUNSLOW.—During the week ending Sept. 13th 118 flights were made and 189 passengers were taken up. Over 6,400 passengers have been taken up by the Avros at Hounslow since May 1st. The following cross-country flights were made during the week :—One to Hythe and back, one to Margate, one to Weston-super-Mare. Two new machines were flown down from Manchester and arrived safely.

Mrs. Atkey, of Chelsea, is learning to fly on an Avro at Hounslow and made her first instructional flight a few days ago. It is believed that she is the first woman to undergo a course of training for a pilot's ticket since the war.

A three-seater Avro biplane flying from Hounslow to Southend, piloted by Lieut. E. A. Sullock (late R.A.F.) and carrying two passengers, crashed in Southwark Park on Sept. 9th. The pilot stated that a cylinder blew off at a height of 2,500 ft. over Bermondsey. The park or the river appeared to be the only landing-place. On landing, the back of the machine broke. All escaped practically uninjured.

A Vickers-Vimy commercial aeroplane left Amsterdam on Sept. 15th at 1.40 p.m., and arrived at Hounslow at 4.30 p.m., thus completing the 300-mile journey in 2 hrs. 50 mins.

Eight passengers were carried, including the Chief Technical Naval Officer of the Dutch Aviation Corps and his wife, and two Dutch engineers of the Royal Dutch Aero-Dynamic Laboratory. All the passengers were complete with luggage, and while the Channel was being crossed at 500 ft., owing to dense clouds, the party enjoyed a salmon mayonnaise lunch.

KINGSBURY.—The "Daily Sketch," "Evening Standard" and "Illustrated Sunday Herald" arranged to give free flights at the Kingsbury Aerodrome on Sept. 14th.

SOUTHAMPTON.

With the return of the fine weather during the past week, the Supermarine Flying Boat Service was resumed at Bournemouth, the Isle of Wight and Southsea. The rough and heavy weather during the preceding fortnight had been all against comfortable flying for passengers. With the calm sea and good weather, many of the visitors availed themselves of sea and coastal flights, also trips over and round H.M. warships lying in Bournemouth Bay.

The pilot of one machine flying from Southampton to Bournemouth on Sept. 12th, reported that about four miles off Hurst Castle he sighted a mine. Half a mile further on was one of the Government tugs from Yarmouth. The pilot circled his machine passed low down near the tug, and pointed out to the captain the position of the mine. It was then observed that the course of the tug was altered, and on reaching the mine a boat was put out. Nothing has since been heard of the subsequent proceedings so far as the mine is concerned, as the pilot then headed to continue his journey into Bournemouth.

WESTON-SUPER-MARE.

Capt. D. G. Westgarth Heslam is now in charge of the Avro Aerodrome at Weston, and has been flying with great energy and success since he took over. During the past week only one three-seater was at work. This made 81 flights and took up 161 passengers.

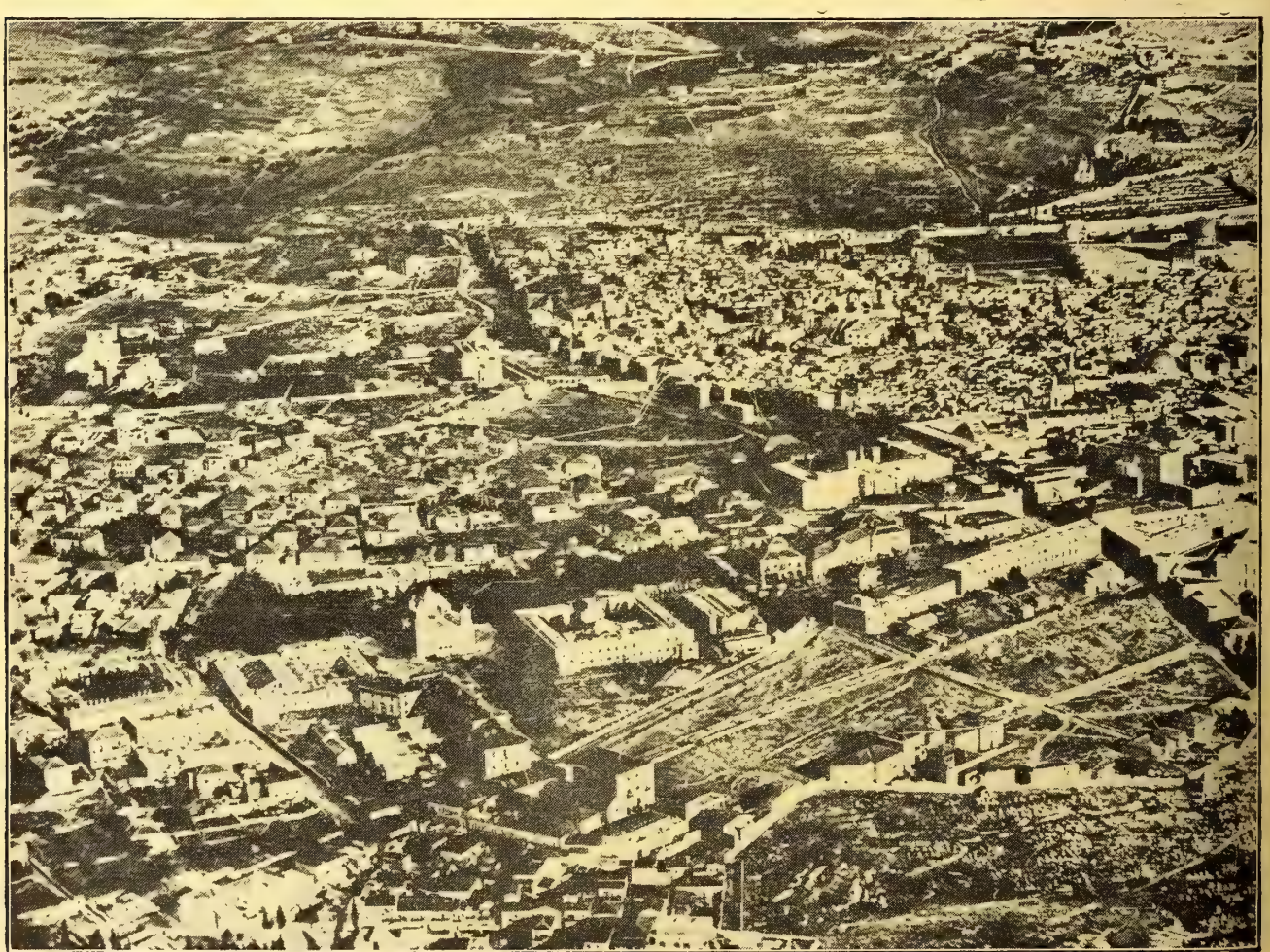
SWANSEA.

No flying was possible on the 7th, 8th, and 9th inst., owing to the weather, but nevertheless the Avros here—namely, three-seaters—made 204 flights and took up 244 passengers on the remaining days of the week.

CANADA.

An undated cutting from a local paper has been received from a correspondent in Victoria, British Columbia, which states that on a certain day seven visiting newspaper men made flights in the aeroplane "Pathfinder" in the afternoon, and a number of other visitors, including two ladies, were taken up on the next morning to see Victoria from the air. Among the brave journalists who took a trip on the first afternoon were Mr. W. J. S. Skidmore and Mr. J. H. PJalmer. [This is surely a new spelling for the universal night attire.—ED.]

The lifting power of the "Pathfinder" was well tested. Pilot Clemence, who did all the flying, had to coax the machine when taking off on one of the trips. In the front cock-pit was squeezed the hefty form of one of the editors, whose official weight was given at 225 lb. Another editor with 215 lb. to his credit was taken up for fifteen minutes.



An Oblique Photograph of Jerusalem taken from the air. The Mount of Olives can be seen in the background.

G R

SURPLUS

GOVERNMENT PROPERTY FOR SALE

By Direction of the Disposal Board. Ministry of Munitions

Aeroplanes.
New and second-hand, with and without Engines, A.W.F K.8; B.E.2 E.; B.E.2.D.; Bri tol Scout; Bristol Fighter; Caudron; De Hav. 4, 6, 9, 9a; F.E.2.B.; Sopwith Scout; Sopwith 2-seater; Sopwith Bomber; S.E.5.

Seaplanes.
New and second-hand, with and without Engines. Fairey Seaplanes, Short 184.

Flying-Boats.
New and second-hand, with and without engines. N.T.2.B., H.16, F.3.

Aeroplane, Seaplane, and Flying Boat Spares
Floats, etc.

Engines (various).

Engine Spares.
Radiators, all types, Carburettors, all types, Magnetos, all types, Carburettor spares, Magneto spares. For Aircraft only.

Wheels and Tyres.
New and second-hand Aero Wheels, Tyres, Inner Tubes, and Aero Wheels complete.

A.G.S. Parts (all kinds).
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Bullivant Steel Wire Hawser, various sizes and lengths. Steel cable, various sizes and lengths.

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2 and 4-bladed, all types, new and second-hand

Alloy Steels to Air Board Specifications.

Carbon Steels to Air Board Specifications.

Sheet Steel to Air Board Specifications.

Steel Tubing to Air Board Specifications.

Tool Steels.
A wide range of Cast Tool Steel including Rounds, Hexagons and Flats comprising Various Brands, *i.e.* A.W., Jessops, Premier, Speedicut, Novo, Flathers, Jonas Colver and Paragon, also a quantity of Superior Cast Tool Steel Rectangular, suitable for Gauge and Bevel manufacture. Material lying at Waddon Depot, near Croydon.

All inquiries and applications for Permits to view should be addressed to the Controller, Aircraft Equipment Section, Disposal Board, Ministry of Munitions, Kingsway, London, W.C.2 Telephone: Regent 6700. Material can be viewed at the Depots, Regent's Park Hendon, Aintree and Wadaon. Samples can also be seen at the Show Room, York House. Tenders should be addressed to Room 536, York House, Kingsway. Goods are to be sold by private treaty unless otherwise stated

NOTE.—For the detailed list of Surplus Government Property for sale, apply at the nearest bookstall or to a local newsagent (to whom a standing order should be given) for

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3D "SURPLUS" 3D

The Official organ of the Surplus Government Property Disposal Board, compiled by the Director of Publicity, Ministry of Munitions, Whitehall Place, London, S.W.

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The Dunhill "Plane" Coat.

The R.A.F. "Plane" Coat is made on the best form Trench Coat design, in heavily proofed Twill of the favourite Khaki Mixture, or in Blue-Grey Twill.
Unlined, for Summer wear, the price is ... 4 Gns.
Lined Check, with oil-cambric inter-lining 5½ Gns.
With superfine pure heavy fleece detachable lining ... ... 7 Gns.

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LIMITED.

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All the passengers were stunted, experiencing the sensations of the loop, spinning nose dive, falling leap, and half rolls. They enjoyed the trip immensely and wrote long articles on the flight to their daily papers. [The "falling leap" is a new stunt, apparently.—Ed.]

The Aerial League in British Columbia is very busy carrying passengers at £4 for 15 minutes and taking them for urgent business trips.

BELGIUM.

It is intended that an aviation week shall be held at Ostend during next year open to aviators of all nations save those who were unfortunate enough to choose the wrong side in the late hostilities.

DENMARK.

The Danish correspondent of The Aeroplane writes :—

The arrival of Colonel Henderson, presumably on an Avro seaplane, is announced at Copenhagen, where the Naval air station at the Royal Dockyard had been prepared for his visit.

Other Allied aerial visits have been made by French Morane-Saulnier aircraft and by an Italian squadron, including Caproni. It was announced from London that Lieut. Brack-Papa, on the 700 h.p. Fiat biplane, would fly to Copenhagen before going to the Amsterdam Exhibition, but he has not arrived.

A spare Salmson engine having arrived by steamer, the Farman twin-engined Goliath now takes up passengers, piloted by Lieut. d'Ors. The visit of this French aeroplane has resulted in the formation of A/S Dansk Flyvekompagni (the Danish-French Flying Co., Ltd.) by Lieut. Krause-Jensen, which is to maintain a Paris-Copenhagen air service.

The discharged Flying Sub-Lieut. Pollner, lately an inspector of the Danish Sablatnig Co., is trying to form a new aerial company—Paul Pollner's Passenger and Post Packet. There are now five Danish air traffic ventures. Pollner has bought one of the four Rumpler biplanes which were flown up originally for the planned enterprise of Lieut. Foltmann. Two of these machines were abandoned by the German pilots. The farmer on whose ground one landed advertised for the owner to come and fetch it and to pay indemnity for harm to the corn, or he would sell it by auction. The second Rumpler biplane has been sold so many times over by auction at Roskile that the present owner cannot be found.

The Danish Air Shipping Co. indulges in provincial joy-ride business. The machines are flown by Army pilots on leave. The company will shortly start a flying school with a German chief pilot named Hubrecht. The moving power of the company is the sportsman Tholstrup, who has taken over a Fokker model VII scout and a Brandenburg seaplane beside a number of L.V.Gs. from a German business relation of his, who is the manager of the last-named works.

The Danish Air Express carries out at present only provincial joy-rides with one Sablatnig biplane, piloted by a German. As the German Sablatnig Company has acquired the late Naval air station in the city Aabenraa of the Sleswig part of Germany which is to be returned to Denmark, an air service to Copenhagen will likely be operated.

The Slesvig pilot Schmidt recently flew with a British Red Cross officer from Berlin to Copenhagen on a modern 230 h.p. Albatros and was out for a Danish circuit and altitude flight. On the return flight to Berlin, with an actor and his wife in the dark, he crashed as he had forgotten his map. He has returned to Slesvig for fresh efforts on a Sablatnig biplane.

The Danish Air Traffic Company is preparing for co-operation on the international air routes, but is not to get the Danish monopoly as was first planned. This is because the Air Bill before the Danish Parliament has been changed thus, that while a concession is still required for running a service, this concession does not give sole rights for that route.

The Naval experimental mail service has been stopped, and has left a good impression of reliability. It is to be resumed on an enlarged scale to Flensborg, when Sleswig returns to Denmark. On the 230 h.p. Benz-engined Friedrichshafen mail seaplanes, Flt. Lts. Thile, Lichtenberg, and Just-Rasmussen carried out a reliability flight last week with passengers. They flew from Copenhagen to the submarine base at the island Æro, via the air station Slipshavn, where petrol was replenished, and round Sealand back to the capital (520 kilometres).

At the request of the police the two first-named officers flew last Sunday with detectives in search of a jewel thief, who was believed to have stolen a yacht in efforts of crossing the Sound to Sweden.

Messrs. Nielsen and Winther have closed their aircraft department. They have lost a case brought against them by a Danish and a Finnish pupil for accidents while training at the firm's flying school. As the manager, the former Flt. Lt. Ussing, had not tested the machines, Blériot monoplanes, after changing the taxying planes for flying ones, the pupils both got their tuition fee and breakage deposit back, and one obtained indemnities for personal injuries.

FINLAND.

Hugo Ahlberg's Munition Works at Abo, in Finland, are being transformed for the manufacture of aeroplanes and automobiles, with a joint stock of five million marks that can be tripled.—Hi.

FRANCE.

In addition to the military aerial services in the Near East described in the "Naval and Military Aeronautics" section of to-day's issue, the French military aviation service is running a civil aerial post between Constantinople and Bucharest. This route was opened on July 8th. The use of this line has brought Paris postally within six days of Constantinople. The following regulations are observed : (1) No letters are taken exceeding 50 grammes in weight; (2) Each letter is surtaxed one franc; (3) The total weight of correspondence carried by each postal aeroplane is 110 lb.; (4) Postal aeroplanes leave each Monday and Friday at 6 a.m. The service has so far been a complete success.

M. Chevillard, who left Toussus-le-Noble on Sept. 1st, flying a dual-control Farman biplane (F46 school type), reached Madrid on Sept. 9th.

It is understood that M. Louis Bleriot is acquiring the assets of the S.P.A.D. company, which is now in liquidation.

The "Aviette" on which M. Poulain attempted recently to win the Prix Peugeot, offered for a flight of twenty metres on a man-driven aeroplane, is of the following dimensions : Upper plane, 6 m. 50 by 1 m. 2; lower plane, 4 m. by 1 m. 40; bearing surface, 14 m. 66; weight of bicycle, 11 kilos. Total weight, 21 kilos. 200.

Certain manufacturers have announced their intentions as to the machines to be exhibited in the Salon de l'Aeronautique. M. Maurice Farman says that his firm will exhibit a "Goliath" fitted and upholstered in the latest fashion of aerial luxury, an F.40 school biplane and a tiny biplane fitted with a 40 h.p. Le Rhone motor. The Voisin firm intend to show a large model of their four-engined biplane, as the real machine is too large to rest happily on the stand. If possible, the fuselage of the big machine will also be shown in order that people may see to what degree comfort in the air has increased since the war ended. The Nieuport firm will show a type 29 biplane, one or two flying boats, and a small racing biplane.

An Italian Caproni machine, carrying 24 passengers, landed at Lille on Sept. 14th. The next morning it started for the Amsterdam Exhibition.

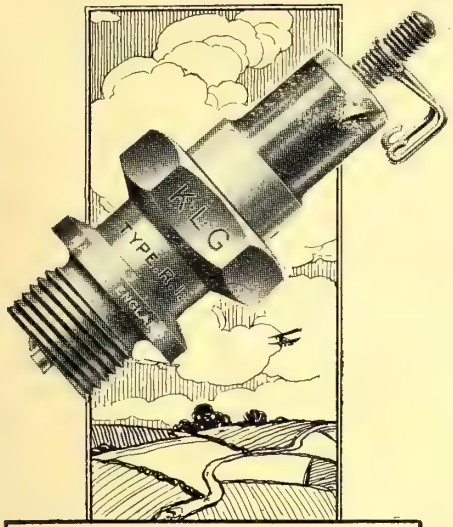
M. Paul Poiret, a Parisian costumier, and two of his mannequins were due to arrive at Hounslow from Paris on Sept. 16th with the principal costumes to be used in the production of "Afgar" at the London Pavilion on the next day. They intended making the trip on Sept. 15th, but were prevented from leaving, as one of the mannequins had not complied with the necessary passport regulations.

On Sept. 11th, Maj.-General the Rt. Hon. J. E. B. Seely, C.B., C.M.G., D.S.O., M.P., and Maj.-General Sir F. H. Sykes, K.C.B., D.S.O., were flown by Lieut. Shaw (late R.A.F.), in an Airco machine from Le Bourget to Deauville, where they were interviewed by Mr. Lloyd George.

GERMANY.

Defeated in the war, the Germans are making every effort to achieve a victory in peace. While the politicians wearily debate the future of the world with particular reference to the advantage of their own countries, the German commercial bodies are working consistently and determinedly to restore their country's lost supremacy in trade. In the aeronautical industry this effort to become commercially pre-eminent is clearly indicated by the recent opening of many aerial passenger services throughout Germany.

The following services are at present in operation. They are organised by the Deutsche Luft Reiderei and controlled by the Hamburg-Amerika Line. The machines used are five-seated A.E.G. biplanes and two-seated D.F.W. biplanes. (1) Berlin-Weimar. (Twice daily.) Fares, single, 450 marks; return, 700 marks. (2) Berlin-Frankfurt. Fares, single, 600 marks; return, 700 marks. (3) Weimar-Frankfurt. Fares, single, 450 marks; return 700 marks. (4) Berlin-Leipzig. Fares, single, 350 marks; return, 500 marks. A second service is run by the Rumpler Company with machines carrying 2 passengers and 440 lb. of goods. (5) Leipzig-Weimar. Fares, single, 200 marks; return, 300 marks. (6) Berlin-Hamburg. Fares, single, 450 marks; return, 700 marks. (7) Berlin-Warnemunde. Fares, single, 400 marks; return, 600 marks. The Sablatnig firm also runs a service on this route with a continuation to Copenhagen. (8) Hamburg-Warnemunde. Fares, single, 350 marks; return, 500 marks. (9) Berlin-Hannover. Fares, single, 450 marks; return, 700 marks. (10) Berlin-Westphalen. Fares, single, 500 marks; return, 700 marks. (11) Hannover-Westphalen. Fares, single, 500 marks; return, 700 marks. (12) Berlin-Breslau. Fares, single, 500 marks; return, 750 marks.



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For every Plug purpose the K.L.G. Standard Model R.1 has no equal. It is a one-piece Plug throughout and possesses all the advantages of detachable Plugs without any of their disadvantages. This model has been adopted as standard by many leading Motor Car Manufacturers.

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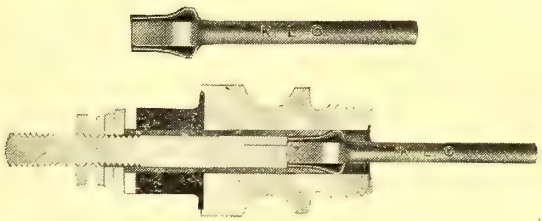

THE K.L.G. PLUG CLEANER.

This cleaner consists of a triple pronged scraper made in one piece from steel. By simply inserting this right into the Plug and giving it several turns backwards and forwards it removes the carbon from the whole surface of the mica insulation, and, of course, cleans it away from the end of the Plug as well. The use of this simple cleaning device maintains the "K.L.G." Plugs in good condition always. Price 6d. each.

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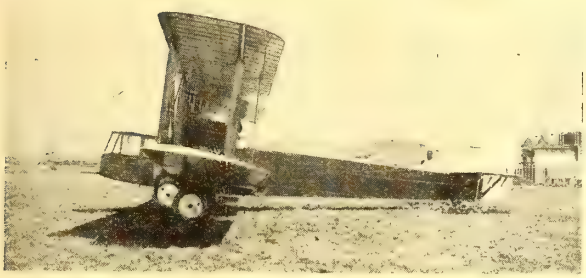
Grahame-White Rolls-Royce Aero-Limousine.



This machine, which can be seen in flight at Hendon, has been designed specially for pleasure and commerce. It is not an adapted war machine. Fitted with two 320 h.p. Rolls-Royce engines. It has a maximum speed of 115 m.p.h., and a flight radius of 4 hours. The limousine, luxuriously upholstered, and containing an electrically heated carpet, carries 4 to 6 passengers. The pilot, with whom communication is maintained by speaking tube, sits in a separate compartment above and at the rear of the passengers' quarters.

THE GRAHAME-WHITE COMPANY LTD.

Head Office and Works: **The London Aerodrome, Hendon, N.W.9.** *Phone: Kingsbury* 120 (8 *lines*).

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Another service between Berlin and Munich will shortly be opened by the Rumpler Company. A new company is also in course of formation to open routes between Cologne, Hamburg, Bâle, Stuttgart, Frankfurt, Munich, and Breslau. This company will possess 200 aeroplanes.

The Danish Correspondent of THE AEROPLANE writes :—

It is now announced that the 230 h.p Benz-engined seaplane flown by Captain-Lieut. Christiansen, with Ship-Officer Wladika as observer, to Bergen and delivered there, was built by the Lübeck-Trawemünde Aircraft Works after the revolution.

Three L.F.G. seaplanes, fitted with 230 h.p. Benz engines and with cabins for three passengers, have been in service between Stralsund and the seaside resorts on the island Rügen. Flights to schedule time could not be carried out owing to lack of fuel. Two hundred and thirty-six flights, covering 7,061 kilometres, were made in one month from July 24th. The average speed made was 93 m.p.h. The flights made were chiefly passenger-carrying and going in search of thieves. A doctor was fetched in one for an operation which had to be performed quickly.

The nucleus of the coming German air police force has been formed by the Karlshorst Squadron under the command of Captain Kastner. They have two speedy scouts, supplied by the Home Office, and two giant aeroplanes for quantity transport of policemen. A landing ground is prepared by the Swiss frontier. More stations are to be built in Hamburg, Breslau, and Hanover.

The D.F.W. commercial biplane, with enclosed cabin for three passengers, the arrival of which near the E.L.T.A. was announced in large advertisements in the Dutch papers, was flown by Lieut. Diemer, carrying a lady and gentleman as passengers. "Flugsport" intimates that its presence was unpleasant to the Aero Exhibition authorities. It states that Mr. de Jonge, of the passage office (which it calls the spy office) offered immediately on its landing 3,000 fl. by a passenger who wished to fly to Copenhagen next morning, so that the machine might leave the exhibition. The arrival of more D.F.W. aeroplanes is announced, and the German journal lets its Dutch correspondent say that the German aeroplane trade has indisputably attained a pre-eminent success, which is justified, as the E.L.T.A. can show nothing even approaching the D.F.W. machine.

HOLLAND.

E.L.T.A. NEWS.

An Airco D.H.9R aeroplane, fitted with a 450 h.p. Napier engine and piloted by Capt. Gathergood, covered a closed circuit course of 137 miles at the Amsterdam Aircraft Exhibition at a speed of 145 miles per hour.

Thirty-five competitors finished the course in the closed circuit race. The D.H.9R. won over the next machine by 10 min. The speed of 145 m.p.h. beats the British record for a closed circuit, which was also held by a Napier-engined Airco machine, by approximately 15 m.p.h. The D.H.9R returned to England on Sept. 11th, and arrived at Hounslow in 2 hr. 8 min.

ITALY.

The carriage of "express" letters from the capital to Sardinia by aeroplane is announced as having begun from Aug. 6th last.—T. S. H.

According to the "Morning Post" of Sept. 11th, a gambling house at Capri, kept by Alfred Green, a British subject, has been raided by the police, who flew at night from Naples by aeroplane for the purpose.

The police realised that if they crossed to the island (which is 20 miles south of Naples) by the regular steamer their arrival would be known. They therefore travelled in a seaplane in the dark and thus made a successful raid on the place, in which baccarat was being played. Besides the proprietor, they captured a beautiful woman who acted as a decoy and a score of cosmopolitan frequenters of the place, who are well known in Naples. Money and gaming materials were also seized.

An aerial service between Milan and Rome began on Sept. 6th and is running regularly. The journey is made via Pisa, where a landing is made. The Milan morning papers are now delivered in Rome by noon on the same day.

The Seaplane Circuit of Sicily, to be flown on September 14th, was open to three categories of aeroplanes :—(1) F.B.A. seaplanes (160 h.p. Isotta Fraschini V.L.B. motors); (2) seaplanes of any type with two or more seats; (3) single-seated seaplanes. In the first category 19 entries were received, in the second 13, and in the third 4. The cash prizes, which range from £400 in the case of Palermo to £80 from the Société Vinicale Marsala Florio, amount in all to £3,120. A number of gold medals and silver cups were also given by various public bodies.

NORWAY.

The Handley Page biplane piloted by Major T. Gran which crashed on a roof near Christiania on Sept. 6th cannot be repaired easily owing to the extent of the damage. On Sept. 9th Capt. Stewart, one of the passengers, left for England, where it will be decided whether the machine will be repaired. The attempt to fly to Stockholm will not be abandoned, but it is not decided whether it will be done this autumn even if the machine is repaired, as it will be rather late in the year for flying.

The Danish correspondent of THE AEROPLANE writes :—

An incident showing how aeroplanes are coming to the fore as the means of transport in a case of emergency occurred the other day when the General Consul Akselsen from Flakstad received news that his children were on the point of death. He was staying at a Copenhagen hotel. As no steamers were due to leave and the railway journey to Northern Norway takes two and a half days, he availed himself of aeroplane transport. As there were no machines in Copenhagen, he ordered one by cable from the Thulin Aircraft Works in Landskrona, crossed the Sound in a speedy tug, and set off in an aeroplane immediately on crossing in spite of a strong head wind.

PERSIA.

One learns from a private source that Italy is starting a flying ground in Persia, an officer pilot from the neighbourhood of Menaggio having left for that destination.—T. S. H.

UNITED STATES OF AMERICA.

According to an official statement issued by the U.S.A. War Department News Bureau on August 20th, instructions are being issued to discontinue at once enlistments for the heavier-than-air and for the lighter-than-air branches of the air service.

The Rt. Hon. Winston Spencer Churchill, M.P., Secretary of State for Air, has sent a letter to Mr. John A. Jordan, the superintendent of the Cleveland-Chicago division U.S. air mail. The letter has been forwarded to Washington. It contains data on British air systems, enquires for data of the U.S. air mail and states that Great Britain is seeking every possible method to improve and develop aerial travel.

"The aerial mail service between New York and Washington and New York and Chicago has already saved the country $170,000 a year over the railway mail, and when the multi-motored aeroplanes are in operation there will be an annual saving of $1,500,000."

Assistant Postmaster General Otto Praeger made that statement before the Cleveland Chamber of Commerce, which held an aviation week in celebration of the one hundred days' perfect mail service between Cleveland and Chicago.

Alva Bradley, chairman of the aviation committee of the Cleveland Chamber of Commerce and vice-president of that body, read the following resolutions adopted by the directors of the Chamber :

"*Whereas*, For the past one hundred consecutive days the aerial mail service between Cleveland and Chicago has been operated successfully, thereby demonstrating the practicability of mail transportation by this means; and

"*Whereas*, The aeroplane terminal facilities in both Cleveland and Chicago are inadequate to accommodate even the present limited traffic; and

"*Whereas*, Owing to the increase of aerial transportation, an urgent need for Federal regulation of aircraft traffic is apparent; now, therefore, be it

"RESOLVED, That the Cleveland Chamber of Commerce urges upon Congress the desirability of enacting suitable legislation regulating aircraft traffic, and that the Chamber of Commerce further petitions the Post Office Department, in co-operation wherever practicable with the military and naval aviation services, to extend the aerial mail service as rapidly as possible throughout the United States, and especially to provide suitable terminal facilities in those cities where such mail service is now in operation."

Mr. Praeger said he expected the aerial mail to be in operation to Minneapolis, Omaha and St. Louis by early spring, when multi-motored ships, carrying as much as 3,000 pounds of mail, would be available.

As a result of the joint activities of the Cleveland Aviation Club and the Cleveland Chamber of Commerce twenty-two Ohio cities, including Cincinnati, set about establishing landing fields in the week ending Aug. 30th.

The "Aerial Age" of America states in its issue of Sept. 1st that five hundred American aeroplanes have been sold and delivered to individual owners since March, 1919. Over that number could have been sold if the manufacturers could have produced them more quickly, but they have been completing their Government contracts.

The demand for pleasure aeroplanes at $7,500 is as great as that for training machines at $2,500, and many buyers have acquired training aeroplanes only because they could not get pleasure machines. Over a hundred people are awaiting delivery of Curtiss Orioles and flying-boats.

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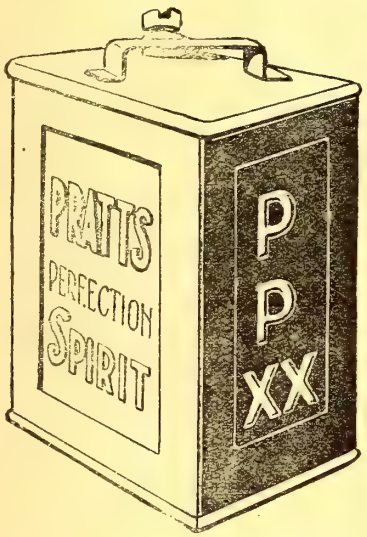

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AERO PLUGS

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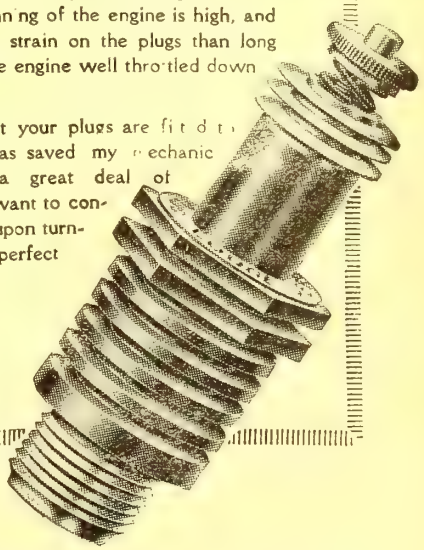
Here is the opinion of Captain E. D. C. Herne (late R.A.F.) of the Porthcawl Flying Services.

"In consequence of a great deal of trouble with another make of sparking plug, necessitating resetting of the gaps after every few hours' flying, I fitted sixteen of your sparking plugs to two 90 h.p., R.A.F. engines installed in Armstrong-Whitworth aeroplanes which I am using for taking up passengers

Up to the time of writing one engine has done 100 hours' flying and the other 75 hours, and in not a single instance has one of your plugs needed attention: I have not even had to clean one. I consider this to be little short of marvellous, because the plugs have been working under unfavourable conditions The engines are air-cooled, and when "taking off" and landing a large number of times daily the average time of "all out" running of the engine is high, and puts far more strain on the plugs than long flights with the engine well throttled down

The fact that your plugs are fitted to my engine has saved my mechanic and myself a great deal of work, and I want to congratulate you upon turning out so perfect an article."



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If you want the same service you need the same plugs.

Write for particulars of aero plugs stating make and type of engine,

THE LODGE SPARKING PLUG CO., LTD., RUGBY.

Sweet Orr & Co., overall manufacturers, of New York, on August 20th sent out a salesman in an Aeromarine flying-boat. He flew from New York to Poughkeepsie and return, making numerous stops en route. Many orders for goods were given by clothing firms to the flying salesman. As a result of the success achieved the company announced that they would place orders for three similar type Aeromarine flying-boats.

Aeroplanes have recently been used in the Alabama mountains for locating illicit distilleries. Deputy-Marshal J. A. Wall made a trip over the territory and announced later that he expected that several arrests would be made.

The Central Committee of the Knights Templar Conclave which was held in Philadelphia in the week ending Sept. 13th arranged with the Philadelphia Aero-Service Corp. to provide hangars and flying accommodation for the Knights who came to the conclave by aeroplane. Provision was also made for a continuous free automobile service from the aerodrome to the centre of the city.

The Alaska Aircraft Transportation Company, of Seattle, Wash., incorporated under the laws of that State for the purpose of building and operating aeroplanes in Alaska for carrying freight and passengers, will make its first aerodrome at Valderz. They are planning to have, ultimately, landing grounds at all the important spots in Alaska to supplant the present difficult methods of transportation.

The president of the company, Mr. Tod M. Date, has had twelve years' experience with transportation problems in the north. He was formerly associated with the Standard Aircraft Corp., at Elizabeth, N.J., and the Naval Aircraft Factory at the League Island Navy Yard.

The aeroplane to be used is being designed to carry approximately six tons of freight. It will have a total supporting surface of 3,360 ft. and will be driven by four engines developing 400 h.p. each.

AERONAUTICS AT THE BRITISH ASSOCIATION CONGRESS.

The British Association Congress at Bournemouth held during the week ending Sept. 13th produced many papers dealing with the applications of science to the late war.

Aeronautices naturally figured to a considerable extent.

Before the Engineering Section, Dr. Leonard Bairstow, C.B.E., read a paper dealing with the progress of aviation during the period of hostilities; Wing Commander T. R. Cave-Browne-Cave, C.B.E., one on Airships; Capt. J. Robinson described the experimental work connected with the application of directional wireless to aircraft navigation, and Major T. Vincent Smith read a paper on Wireless in the R.F.C.

These technical papers will be dealt with in detail in future numbers of Aeronautical Engineering.

A paper read before the Economics Section by Sir Charles Bright on "Inter-Imperial Communication through Cable, Wireless, and Air" dealt generally with the utilitarian value of these three methods of communication.

Speaking of air mails and aerograms, Sir Charles said that while the mail to Australia took over five weeks, the aeroplane of to-day could cover the distance in 12 days. In those regions which were practically immune from fog or gale, air mails should have a considerable future, both as outstripping the mail ship over long journeys and as beating any telegraph system over comparatively short distances.

Lord Northcliffe said in a letter to Sir John Alcock:—"Just as in 1913, when I offered the prize, I felt that it would soon be won, so do I surely believe that your wonderful journey is a warning to cable monopolists and others to realise that within the next few years we shall be less dependent upon them unless they increase their wires and speed up." The letters and parcels that had been carried in the "Airco" aeroplanes between Folkestone and Cologne went to prove what could be done in this direction under properly organised conditions. The service was started on March 1st, and during that month 21 trips were made with 708 bags of mail outwards and 75 inwards. The letters could be sorted en route, sorting boxes being fitted to the aeroplane.

It seemed quite likely, too, that the aeroplane could be turned to account for the purposes of a highly efficient express letter service between different important centres throughout the United Kingdom. Mr. Holt Thomas, the controlling force of the Aircraft Manufacturing Company, had devised an ingenious plan of what he called aerograms for coming to the assistance of comparatively short distance telegrams or cablegrams by forming an "aerial connecting link," wherever congestion arose, between given telegraphic and telephonic systems. This promised to be of special use for the purposes of more rapid communication between, say, London and Paris, where telegraphic congestion occurred en route—in this case on the trans-Channel cables.

Great developments would now undoubtedly take place in the transport of correspondence by aeroplanes. The principal problem was really that of reducing the weight of the correspondence to such dimensions as were consistent with economy. Various expedients to this end had been suggested, but if systems of scientific language condensation were employed, a lengthy business communication could easily be transmitted on a sheet of paper the size of an ordinary postcard.

In a reference to the question of air communication Sir Charles said that the welfare of the Empire was likely to be considerably influenced by the position we eventually took up in these matters, whether we were first in the field, and the actual value of the air routes which we controlled. In days to come air stations would be at least as important as coaling stations were now. There could be little doubt that Egypt was admirably situated to become the Clapham Junction of the air.

The ultimate success of inter-Imperial commercial aviation really resolved itself into closely thought-out organisation backed up by no stinting—without actual waste—of the wherewithal to carry things out. It would remain for the Air Ministry, in concert with the Foreign Office, to work out the aerial navigation treaties with other countries, prepare the necessary aerodromes, meteorological and wireless stations, and make trial cruises with different types of machines in the various routes.

UNCONTROLLED CIVIL AVIATION.

The following letter has been received:—

Sir,—Apropos the incident of an aeroplane or some aeroplanes having caused trouble at Doncaster Racecourse this last week, and which caused Lord Lonsdale, as one of the stewards of the meeting, to at once telegraph the Air Ministry for assistance, you may have noticed that the A.M. replied by wire to Lord Lonsdale and asked for a report as to the full particulars of the case and the numbers of the machines.

To an ordinary observer of things in which one has no financial or any such interest, and therefore no necessity to acquire any knowledge of the regulations or working of the regulations of the "Air," it seems peculiar that the Air Ministry, after apparently admitting responsibility for the "incident" at Doncaster and the inconvenience to the Stewards, who no doubt had plenty to think about in controlling the meeting, which, by the way, was an instance of real organisation, should be bothered to send details of the matter to the A.M.

Why, I should like to know, could not the whole thing be dealt with by the police, who must have seen the machine and probably had every opportunity of "taking its number" and forwarding a report to the A.M.? Why not? I am quite sure Lord Lonsdale had no wish to act as "policeman" for the Controller of Civil Aviation.

We have been told on many occasions that the Civil Aviation people are, as it were, in "civvies"—we know that tailors in these days are very busy, and perhaps, therefore, one can excuse the uniforms still being worn, but procedure is presumably in "civvies"; anyway, the Controller told us so in more than one of his after-lunch or after-dinner speeches, and therefore I hope this incident will be dealt with in a "civil" manner and not necessarily on the lines of court-martial.

This matter at Doncaster is very serious and must not be repeated, because not only are lives endangered, but horses are also valuable, apart from which horse-racing is a real business and large sums are involved.

Passing to another "incident" this last week, you may have noticed at Bournemouth on Wednesday a land machine which flew over the sea, along the sands towards Boscombe, only about 50 ft. above the heads of the large crowds of people, and that on reaching Boscombe it appeared to crawl up the cliff, over the heads of the crowds there, and slowly disappear from view before turning round to do the "stunt" again. This machine had no number or mark on it at all. Now, I understand that all aircraft have to have numbers and be capable of being recognised when in flight.

Will the Air Ministry also inquire into this case, or, if we think of spending another day by the sea this year, are we to have momentary fears of this kind through Civil Aircraft un-Controlled?

I thought the exhibition of the old F.E. relic of the Air Board crawling along was bad enough, although there were cheers as it passed over the pier, but still it did have a number, even if a complicated one, but one would perhaps forgive that point, although I fail to see why aircraft should have these complicated numbers, such as P—ACK—1. Why not P 1225, which any policeman would recognise, and thus relieve people like Lord Lonsdale from furnishing reports "by request."

OBSERVER.

You couldn't see it from below

but it's nevertheless a fact—a fact which every flying man and aircraft manufacturer should note—that the majority of the machines competing in the Aerial Derby, including the three which were placed 1st, 2nd and 3rd, at the end of the race, were fitted with

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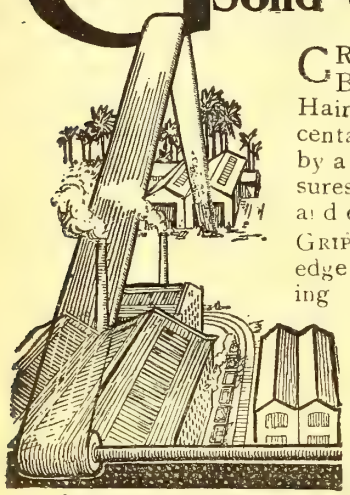
GRIPOLY
Solid Woven Belting



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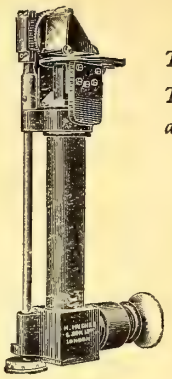

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AIRCRAFT FINANCE

CURRENT TOPICS

PETROL WILL NOT BECOME CHEAPER.

Petrol is not likely to become cheaper. This is the view held by those competent to judge the position. Happily, though the price of petrol has a direct bearing upon operating costs of aviation, it is not a supreme factor. In the course of time, however, when conditions of working have settled down on a more scientific basis, the price of petrol will become an item to be reckoned with.

THE OIL SHARE BOOM EXPLAINED.

This being so, the Aircraft Industry is particularly concerned with the sensational boom in oil shares now providing the outstanding feature in the Stock Exchange. This boom, of course, began over a year ago: it is now assuming a more remarkable phase which adds to the significance of the fact that it has already endured for more than twelve months. "After the boom, the slump," is nine cases out of ten a sound and logical inference, and no one need question the truth of the aphorism. But is it argued that the exception will be provided by oil shares, because the movement is not based upon the exaggeration of some extraordinary development of a temporary character, but upon a definite and permanent change in industrial organisation and method?

Thus the rise in coal as a fuel must eventually enforce the adoption of transportation facilities to the consumption of oil, which is economically cheaper in every way. It is already taking place, this change over to oil, and, with a constantly increasing demand for petrol for motor transport also, it is reasonably argued that petrol cannot become appreciably cheaper.

THE BASIS OF OPERATING COSTS.

Aviation in opening out commercially without the cheap, pre-war level of petrol is fortunate, inasmuch as a revision of the calculation is not necessary. This will be inevitable, however, if the price is established on a higher level. Incidentally, one ought to qualify the assertion that the boom in oil shares may prove the exception to the ordinary boom by pointing out that there are oil shares and oil shares. It is not solely the plausible financier who labels and embroiders his goods to mislead the gullible public.

WHITEHEAD SHARES BEING PEDDLED.

It appears that there are people who are attempting to sell Whitehead Aircraft Ordinary shares by backdoor methods. A case in point has just come to hand. Fifty shares have been offered to someone in the country who apparently has not followed the developments of the undertaking, for a lump sum of £20. This works out at 8s. per share. It is calculated that the shares are worth 4s. to 5s. to the prospective purchaser, and so it would be foolish, at all events highly speculative, to pay more than 4s. unless, of course, one is conversant with the inner movements of the business.

THE ACTIVITY OF ROLLS-ROYCE.

As regards Aircraft and kindred share values there is a considerable activity in Rolls-Royce, which are commanding up to 50s., it being said that the concern is now prospering exceedingly, and is booked up with orders for a long time ahead. There is also a constantly increasing demand for Darracq, but Sunbeams have been on offer at 38s. Armstrong-Whitworths announce an interim dividend at the usual rate of 1s. per share, free of income-tax, up to 5s. in the £. Assuming that the shares are maintained on a 12½ per cent. tax free dividend basis for the year, they would represent 6½ per cent., free of tax, to the purchaser at 38s., this would be equal to 9 per cent. on an investment subject to tax. Aircraft Manufacturing shares remain very much neglected, with both classes of preference standing about 14s.

INSURANCE MATTERS.

Underwriters are showing a keen interest in the regular air service inaugurated between London and Paris. They are fully alive to the possibilities of the situation; so far, there has not been any effect on the Insurance market. Business in aviation insurance generally is moderately brisk. Inquiries are numerous and come from all parts, including the United States, and there is said to be some activity in civil aviation in Italy.

JOHN SPENCER AND SONS' RESULTS.

John Spencer and Sons, of Newcastle, have been intimately concerned with Aircraft, but their chief business is steel making and engineering. The dividend for the past year is to be only 6 per cent. instead of the 10 per cent. paid for the two preceding fiscal periods. Apparently, this is prompted by a policy of caution, for the figures available suggest that business was on a larger scale. Thus the gross profits at £99,400 is £25,300 higher. The net results do not compare so favourably. However, provision for the usual funds is on a larger scale, the allowance for renewals and improvements being £20,800, against £9,600; for depreciation £40,000, instead of £36,000. For the three years up to the outbreak of war the dividend was on a 6 per cent. basis.

AERONAUTICAL LIFE INSURANCE.

An insurance on the life of a passenger by the R.33, was effected for the cruise to the Continent and back on what appear to be very attractive terms to the insured. The amount at risk was £1,000, and the premium about £2, equal to 4s. per cent. Of course, the amount is really small. An American, who intends flying at home, has just covered himself for £100,000 here Clearly, he appreciates the merits of Aviation insurance.

BANKRUPTCY: A COMPOSITION.

W. J. STEVENSON.—The affairs of the debtor, who is the inventor of a chemical compound (acetate cellulose) have been before the Court upon the adjourned hearing to approve a composition of 10s. in the £ to unsecured creditors, which proposal has recently been entertained by the statutory majority of the creditors. The proofs of debt and proveable claims together amounted to £1,259, no realisable assets being disclosed by the debtor. Having regard to that fact and also to the fact that no patent had yet been granted in respect of the invention the Official Receiver had considered that the terms of the proposal were reasonable and calculatd to benefit the general body of the creditors. An order was made approving the proposal.

ENGINEERING PROPRIETARY, LTD.—DISCLOSURES.

Under a winding-up order made against this company, which was incorporated on July 17th of last year for the purpose of carrying on business as manufacturers of aircraft and component parts, the statutory meetings have been held. A statement of affairs submitted disclosed unsecured liabilities £4,347 and loans on debenture bonds £5,000, exclusive of debentures for £4,000 held as collateral security under contingent liabilities ranking pari pasu with those for £5,000. The assets, estimated to realise £7,387, leaving £2,387 to meet the claims of the unsecured creditors after payment of the loans on debenture bonds, comprised Robert Taylor's invention £5,000, good book debts £1,150 and a claim valued at £750. The company was incorporated with a nominal capital of £100 divided into shares of £1 each, and the Chairman reported that he did not propose to go into the facts which must be known to all those who were present. This was one of a "jumble of companies," and, although there was mention of a transaction involving £10,000 here, and another of £10,000 there, it was quite plain with its small capital, no such money had in fact passed, the items being merely cross entries in the books of the divers companies. There had, however, been some cash paid to this concern, and regarding a sum of £4,000 said to have been lent by a Mrs. Taylor that would have to be investigated. There were also other payments, and whether the money had gone into the directors' pockets or in some other direction would have to be ascertained. Lloyds Bank was a creditor for £3,000 odd, which money he supposed could be traced: but to his mind this was one of the several companies wasting its time with fictitious transactions with the result that there would have to be a great deal of investigation. There had been dealings with another company called Associated Aircraft, Ltd., by paying money to which Engineering Proprietary Ltd., had been wasting its own funds because it was now found that it had disappeared during the bankruptcy proceedings of one of the directors of that undertaking.

There was one matter to which he said he must especially allude, and that was this. Just when the winding-up proceedings were pending the directors put all the furniture, which was the only tangible asset, out of the reach of the company by leasing it to another company.

In any event the directors would have to bear the responsibility of their reprehensible conduct. Quarter day was coming and it was just possible that the company now holding the furniture might not pay their rent, when the landlord would distrain upon the furniture.

In reply to questions Mr. Nathan, a director, agreed that the directors of the company purchasing the furniture were the same as those of this company. But this concern was threatened with winding up and the other company wished to take its offices. The directors of Motor Maintenance and Associated Aircraft were also

the same: but he denied the suggestion that the furniture was transferred to put it out of the reach of the creditors of this company, which was never intended to be more than a holding company for shares. In the absence of a quorum, the meetings were formally adjourned for a week.

RUSHMORES, LTD.

Rushmores, Ltd., manufacturers of aeroplane spares, etc., Peterborough Road, Parsons Green, London, S.W.

A meeting of the creditors of the above was held on Aug. 26th, at the Cannon Street Hotel, London, E.C., when Mr. O. Sunderland, of the Automobile Trades Guardian Association, 15, Eastcheap, E.C., was elected to the chair. He submitted a statement of affairs which disclosed liabilities to unsecured creditors of £53,521 14s. 1d., while the assets were estimated to realise £37,539 13s. 4d.

The principal creditors were the Ministry of Munitions, whose claim had been agreed at £40,000.

The company was originally known as Rushmore Lamps, Ltd., and it took over a business from a company which had a similar name. In 1917 the name was changed to Rushmores, Ltd.

The reason for the present position was the conditions which had arisen out of the war. While hostilities were in progress the company undertook war work and took up the manufacture of aeroplane parts, and production was becoming very satisfactory when the armistice occurred. Since then the company had attempted to return to peace work. A large contract was entered into with another company, which had since gone into liquidation. In connection with that contract there would be a claim against the Motor and Aircraft Supplies Co., Ltd., for any loss that was made, but a firm in Birmingham had entered into negotiations for the taking over of the contract. If those negotiations were successful and the contract was taken over, the claims against the company would be considerably reduced.

On the motion of Mr. E. H. Hawkins (Messrs. Poppleton, Appleby and Hawkins), seconded by Mr. A. Houstoun, a resolution was unanimously passed in favour of the voluntary liquidation of the company being continued, with Mr. Sunderland as the sole liquidator, and an informal committee of five of the principal creditors was also elected

A CHANGE OF TITLE.

From Aug. 5th, 1919, the style and title of the Air Navigation Company, Ltd., was changed to the Air Navigation and Engineering Co., Ltd. At their Blériot Spad works at Addlestone, Surrey, they are manufacturing a light car called the Blériot Whippet. It is a smart-looking little car and is fitted with an 8 h.p. engine. The provisional price is fixed at £175.

"ASCOL" SALE.

Consequent upon the liquidation of the Motor and Aircraft Supplies Co., Ltd., and the sale of all assets, the liquidators are now desirous of disposing of all the remaining stock both in Long Acre and at the works, and wish to do so quickly to enable them to vacate the premises by the 29th inst. There are many items which can be used for trades other than that of aircraft manufacture.

THE SUPER-SPECIAL TRAIN.

Aircraft Transport and Travel, Ltd., have issued a pleasing little book with a blue cover entitled "The Super-Special Train." It contains the story of one of the first civilian flights of great distance to be made in this country. The flight is that of Mr. Gordon Selfridge from Hendon to Dublin and back on June 25th. The story is entertaining, and the book is good to keep as a memento of that first long oversea flight. It is rather a pity that the book has been produced so long after the flight occurred.

On the last pages it is stated that the Private Hire Department of the Company is at the disposal of everyone who is prepared to pay the special fee required for one to be carried from point to point at 100 miles an hour. The fee varies from 5s. to 10s. per mile, according to the circumstances, and the charge for any particular flight may be ascertained by ringing up Victoria 7932.

The Company now has its own meteorological department which keeps the pilots informed of the weather which will be found ahead, at every stop on a flight.

GOOD LANDINGS.

To secure the co-operation of municipalities in the establishment of landing fields, the following article on "Good Landings," appearing in various magazines, is quoted in the official "News Letter" from Washington. The language is so quaint and so distinctly American that it deserves a wider circulation:—

For Aeroplanes and Seaplanes Wanted Everywhere and Soon. A new society has been founded which is intended to afford safe havens for our aviators. It is called the Good Landing Society. This new society, however, is new in name only. In reality it consists of the members and machinery of the Treasure and Trinket Society, one of our most useful war associations. With the ending of the war these worthy women, having quaffed deeply of the joys of work and the delights of service, have turned to other fields of usefulness, and picked the most important one of all—the one that has most pressing need of immediate attention. And there is suggestion, yes, inspiration—in their action. Why scrap useful war organisations simply because the war is over? Why not keep the organisation a going concern, but give a new work to do? Every city, town and village should have a landing station for aeroplanes and seaplanes. Those that are first with them will be first on the mail routes, first on the excursion routes, first on the package and parcel delivery routes, and first on the service routes.

These routes are being instituted NOW. The aeroplanes and seaplanes are here. They are not due to arrive next year, next month, or even next week. They are in operation and being extended as rapidly as landings are provided. In every city and town there is a war organisation of some kind. Don't scrap it. Give it a new job. Set it to work at providing a good landing for aircraft. Put your city or town on the aviation map and put it there before your rivals. Remember the early-bird cities will be the distributing centres, and slow-going neighbouring burgs will get their aerial mail, messages and parcels *via* your trolley lines and auto 'buses.

THE GLAD HAND.

The Germans are evidently intent on doing real business with this country, as the following extract from a letter shows:—

"We herewith take the liberty to approach you that in . . a . . . Luftreederei Akt. Ges. has been founded which shall serve to the private aerial traffic. Thinking that you have interest for such an undertaking in the German occupied territory, we inquire if you are disposed of partaking financial or material.

"Awaiting the favour of your reply."

Though the English grammar may be defective, the intention is evidently good, and the German shows his wisdom in believing that English design, together with German enterprise and organisation, would be able to capture the aerial transport work of the world. But will he receive the glad hand so easily in this country as he desires?

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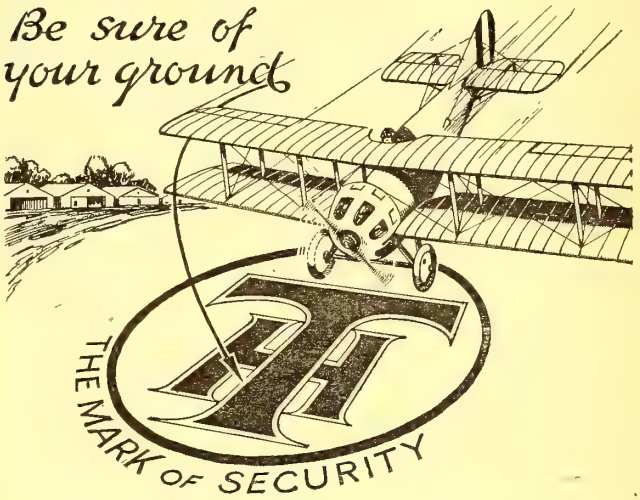

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THE GOVERNMENT AND AIRSHIPS.

The following longer account of the Conference on Government policy in regard to airships held at Australia House on Sept. 8th is published in the lack of any complete official report. The Air Ministry state that they have no official report to issue, and that the Press Association account is available for use by all. The general and technical Press were not asked to send representatives to the Conference.

About 100 representatives of commercial organisations were present.

General Seely said they were gathered together in order to see what could be done to the best advantage for the State in disposing of such surplus aircraft of lighter-than-air type as the Government had in possession, and to assist generally the lighter-than-air industry. Any nation which depended only upon Service vessels would be greatly handicapped by comparison with other nations which had commercial airship services. The Government had decided that airships were to be handed over to the Air Ministry. At a conference with the Admiralty it was agreed that in future it would be the duty of the Air Ministry to tell the Admiralty what could be done in the air, for the Admiralty then to state their requirements, and for the Air Ministry then to carry out their wishes. General Seely read a letter from the Admiralty in which it was stated that the Admiralty had recently reviewed, in the light of the latest appreciation by His Majesty's Government of the general political situation, the size of the Fleet and its attendant craft. The development of rigid airships was not yet at a stage where any fixed proportion of the fleet could be laid down. The immediate object must be to cut down expenditure, and the Admiralty had come to the conclusion that for their purpose not more than two rigids would at present be required, one of them being of the latest type. This conclusion was reached on the assumption that the Air Ministry would encourage commercial enterprise in development and construction, and that they would in the future be responsible for development, and able to supply the Admiralty in reasonable time with airships should they be required for naval purposes.

They had a very large number of non-rigid airships, mostly designed to escort ships and overcome the submarine menace. He thought about 85 of these were now in existence, of which five were called the North Sea type, good, serviceable vessels, of considerable size. In regard to rigids, what would be available depended upon what was decided by those present, in consultation with General Sykes's department. Supposing it were decided to have all the airships now building of which there were plans, there would be a very considerable number. The R.33 and the R.34 were now in existence; the 36, 37, 38, and 39 were in various stages of completion, and the 40 was planned. That meant that if they found it worth while, with the assistance of the Government, to take up all the airships available, there would be four and possibly more to operate the service.

Government Conditions.

On behalf of all the Government Departments concerned, General Seely assured his hearers that they would give every assistance that could profitably be given to a well-organised concern which would take over those ships under the conditions which, of course, it would be necessary to impose. The conditions would be similar to those which applied to such ships as would be available in case of emergency to be handed over to the Government, under very generous terms in view of the fact that the airship business was exceedingly costly. Assistance with regard to wireless telegraphy and meteorological information would be put whole-heartedly at their disposal, and the Post Office were anxious to help in every way they could. Experimental work would be continued, and information so obtained would also be available, as well as other technical information. He could not commit the Government to any subsidy, but he pointed out the enormous advantage in having so large a quantity of material now offered to them at what would be a very low rate. As those ships were surplus to Government requirements, of course they would not attempt to charge anything like the full price for them.

With regard to sheds and personnel, General Seely said that one huge shed was more than one-third completed. Probably anyone who wished to operate would wish to do so farther south—probably at Cairo—which would seem to be a central point. This shed would take the largest airship now built, and with a little additional length would take the largest airship they could at present contemplate, which would be of five million cubic feet capacity. The problem of the terminal points for airship services was most intricate and difficult. He thought he was right in saying that airships had travelled about two million miles with only one accident, through fire, involving destruction of the ship. That was a remarkable record, and showed what could be done. Recent efforts had shown that travel in the air was an accomplished fact, and that it had a very large percentage of efficiency. The promoters would have another great advantage in the very large number of demobilised personnel who would come back to a service such as they might start. Taking it all over, he thought the prospects for starting such a service were favourable, and he earnestly hoped that meeting would bear fruit. It would be most unfortunate if this country, which managed to secure air supremacy during the war, should lose it in the days of peace. He did not think there was much likelihood of that happening, but the lighter-than-air business was one in which they wanted the help of everybody. Germany got a long way ahead of us in it before the war, and we had nearly overhauled her now in our technical knowledge. If we were to confine ourselves only to service work there would be a great risk of falling behind in the race for supremacy in lighter-than-air. The future for it was boundless. It might be many years before it reached full fruition, but there was a vast future for airship travel.

Foreign Capital Question.

Sir Lionel Fletcher remarked that he thought that the attitude of the Government was going to be one of benevolent neutrality. A very important point, he thought, was whether the articles of association of the company should allow any foreign money, however clean, to be admitted. He thought they should get from the Post Office a pronouncement as to which route was to be developed first, and it would be an advantage if there was a priority list of routes to follow. He understood the Government would assist in any way with regard to designs, but he would like to know if they would take a strong line on that point. He would also like to know what stations were available for civil purposes, and whether they were to be sold or rented to the company. Could the company rely on the Government's support in every national way?

General Seely: Absolutely. He added that it would be an advantage if the capital were all British, especially in view of the fact that any scheme would have to provide for ships being taken over by the Government in time of war. On the other hand, it might well be that an airship company would be in a totally different position from any other, in that it constantly had to cross friendly States, to whom it might be desirable to give a share, so he would not like to lay down that all capital must be British. The scheme must be one which was approved, as regards its capital and directorate, by the British Government. With regard to design, he thought the divergence from our military type might become great, although it was likely to be less in the case of the airship than in the case of the aeroplane. He should think it would probably be wise for the Government to let the company design any kind of airship it wished, because, although it would not be as useful for service purposes, perhaps as a specially designed ship it would be more useful than no ship at all. With regard to the routes, it would be a convenience if they followed routes which would be best from an Imperial and strategical point of view, but he did not think they could impose any such conditions. Probably the Indian route was the one which promised the greatest chances of success. Most of the present stations would be at their disposal, but he did not think he could say definitely now whether they would be let or sold. It was a very urgent matter on the grounds of public economy that they should come to a decision at the earliest possible moment. He therefore begged them to put themselves in communication with each other and General Sykes with the least possible delay, and he hoped that within a month they would be in a position to come to the Government with a definite proposition.

Sir Trevor Dawson said he thought the scheme would be of great benefit to the Empire. He thought the only course to pursue was to get a few of the best financial people in the country and others interested in airship construction together, and try to form a large company to carry out the Government's wishes. Messrs. Vickers wished to assist the Government in every possible way.

General Seely said that both he and General Sykes considered it was essentially a case for one big concern rather than for competing concerns.

Sir Glynn West, on behalf of Armstrong, Whitworth, and Company; a representative of Sir William Beardmore and Son, and others present promised their support.

General Seely said he had received cordial letters from Lord Weir, who took a great interest in the scheme, Viscount Cowdray, Sir Owen Philipps, Lord Inchcape, Viscount Northcliffe, Viscount Furness, and Lord Montagu of Beaulieu, who were unable to be present.

A suggestion was made that Sir Trevor Dawson should call a meeting of everybody interested, and Sir Trevor said he would be glad to do so.

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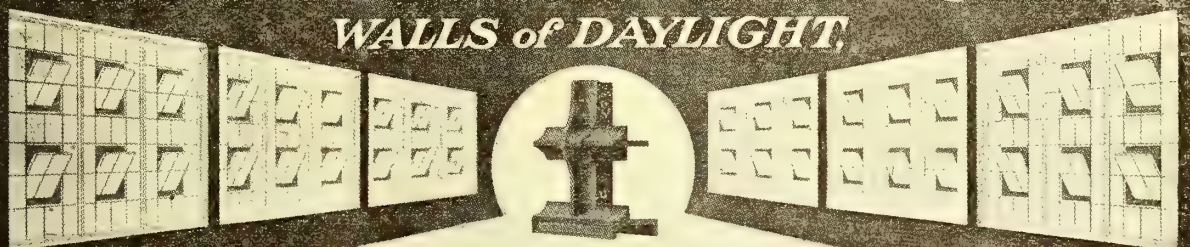

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EXTRACTS FROM "THE LONDON GAZETTE."

GREAT BRITAIN.

NAVAL.

FROM THE "LONDON GAZETTE."

ADMIRALTY, August 12th.

R.M.—The commn. of Capt. N. B. Ward is terminated on transfer to the R.A.F., August 1st.

MILITARY.

WAR OFFICE, September 8th.

REGULAR FORCES.—OVERSEAS FORCES.—CANADA.—Can. Art.—Temp. Lt. (actg. Capt.) F. C. Higgins to be temp Capt., and to remain secd. to the C.A.F., July 1st.

2ND CENT. ONTARIO R.—Temp. Lt. J. C. McKeever ceases to be secd. for duty with the C.A.F. as Lt. (Flying), Aug. 23rd.

MANITOBA R.—Temp. Capt. (actg. Lt.-Col.) A. C. Maund, D.S.O., relinquishes his Can. commn. on appointment to a commn. in the R.A.F. in the rank of Maj., July 31st.

Can. A.S.C.—Temp. Capt. D. Carruthers ceases to be secd. for duty with the C.A.F. as Lt. (Flying), Aug. 23rd.

CAN. ORD. CORPS.—Officers cease to be secd. for duty with the R.A.F.:—Temp. Maj. H. R. Northover, M.C., Temp. Lt. G. F. Antell, June 30th.

WAR OFFICE, September 9th.

REGULAR FORCES.—COMMANDS AND STAFF.—The following relinquish their appointments:—GENERAL STAFF.—G.S.O., 2nd Grade—Temp. Capt. W. E. de B. Whittaker, Gen. List, and relinquishes the temp. rank of Maj., Aug. 8th

INFANTRY.—R. War. R.—Lt. W. H. G. Milnes, M.C. (attd. R.A.F.), resigns his commn., Sept 10th.

GENERAL LIST.—Lt. A. V. Faulks, from R.A.F., to be temp. Lt. for duty as a Cost Accounting Officer, June 16th

Sec. Lt. H. D. Giblett, from R.A.F., to be temp Sec. Lt. for duty as Cost Accounting Officer, May 19th.

ROYAL ARMY CHAPLAINS DEPARTMENT—The Rev. R. V. O'Shaughnessy, temp. Chapln. to the Forces, 3rd Class, relinquishes his commission on transfer to the R.A.F., Aug. 1st.

WAR OFFICE, September 10th.

REGULAR FORCES.—ROYAL FLYING CORPS.—MIL. WING.—The following appointment is made:—Flying Officer.—Temp. Sec. Lt. (on prob.) R. H. Blackmore, Gen. List, and to be confirmed in his rank, from March 1st to June 19th, 1918.

INFANTRY.—DURH. L. I.—Sec. Lt. W. B. Judd (attd. R.A.F.) is cashiered by sentence of a General Court Martial, June 12th.

WAR OFFICE, September 11th.

REGULAR FORCES.—OVERSEAS FORCES.—CANADA.—Can. Mach. Gun Corps.—Temp. Lt. F. Hotrum ceases to be secd. for duty with the R.A.F., Aug. 22nd.

WAR OFFICE, September 12th.

REGULAR FORCES.—OVERSEAS FORCES.—CANADA.—QUEBEC R.—Temp. Lt. (actg. Capt.) C. F. Falkenberg, D.F.C., to be temp. Capt., Feb. 9th; Temp. Capt. C. F. Falkenberg, D.F.C., ceased to be secd. for duty with the C.A.F. as Flight Comdr., Aug. 23rd.

MANITOBA REGT.—The following officer retires in the British Isles:—Temp. Capt. W. A. Carrothers, D.F.C., Sept. 1st

WAR OFFICE, September 13th.

REGULAR FORCES.—ESTABLISHMENTS.—R.A.F.—Mil. Wing.—The following appointment is made:—Equip. Offr., 3rd Cl.—Temp. Lt. C. F. Bushnell (Serv. Bn. R. War. R.), and to be transferred to R.F.C., Gen. List, Sept. 4th, 1917.

MEMORANDUM.—Lt. K. H. Leake, M.C., from h.p. list, is restd. to full pay whilst empld. with the R.A.F., Jan 28th.

AIR FORCE.

AIR MINISTRY, September 9th.

R.A.F.—The following temp. appointments are made at the Air Ministry:—Staff Officers, 3rd Class—(Air.)—Flt. Lt. G. J. C. Maxwell, M.C., D.F.C., A.F.C., Aug. 29th, vice Flt. Lt. E. O'D. Crean; Flt. Lt. L. A. K. Butt, Sept. 1st, vice Flt. Lt. W. A. A. Chauncy.

The following temp. appointments are made:—Staff Officers, 2nd Class—(Air.—Capt. G. A. Scott, from S.O.3, Feb. 12th, and to be actg. Maj. till April 30th; (P.) Maj. E. V. H. Mackenzie, June 25th; (Q.) Capt. A. Smith, from S.O.3, May 30th.

Staff Officers, 3rd Class (P.).—Lt. R. Elphick, June 14th; Capt. D. C. Hydes, from S.O.4 (1st Grade), April 1st; Lt. G. S. Lardner, July 1st.

FLYING BRANCH.—Sec. Lts. to be Lts.:—(Hon Capt.) H. J. Bullock, Aug. 25th, 1918 (substituted for notification in "Gazette," July 29th); H. Rhodes, D.F.C., Nov. 30th, 1918; G. A. Lynch, Dec 17th, 1918; F. A. Downes, Feb. 8th.

Sec. Lt. P. C. Bailey (late Gen. List, R.F.C., on prob.) is confirmed in rank as Sec. Lt. (A.), March 15th.

A. F. Williams (Lt., Mon. R., T.F.) is granted a temp commn. as Sec. Lt. (O.), May 23rd, 1918, and to be Hon. Lt.

The following relinquish their commns on ceasing to be empld.:—Sec. Lt. (Hon. Lt.) A. H. Waddy (Lt., Beds. R.), Feb. 9th; Lt. B. C. M. Ward (Lt., E. Surr. R.), Feb. 13th; Sec. Lt. F. L. Norden (Lt., R. Scots R.), July 1st; Lt. E. T. Weigall (Lt., R.H. and R.F.A.), July 20th; Sec. Lt. (Hon. Lt.) W. H. Norman (Lt., R.A.), Aug. 7th; Sec Lt. W. Coker, D.F.C. (Lt. (T./Capt.), E. Surr. R.), Sept. 3rd.

Transferred to unempld list:—Sec. Lt. W. M. Atkin, Sec. Lt. W. A. Bell, Sec. Lt. I. W. Beverley, Sec. Lt. H. P. Boucher, Sec. Lt. E. H. Bradley, Sec. Lt. R. F. Brown, Sec. Lt. T. G. Davidson, Sec. Lt. H. E. A. Doxsee, Sec. Lt. J. T. Galligan, Sec. Lt. C. H. Godfrey, Sec. Lt. F. L. Graisley, Sec. Lt. J. B. Hoag, Sec. Lt. H. A. Hubbard, Sec. Lt. A. R. Mark, Sec. Lt. F. G. Winlow, Feb. 1st; Lt. J. R. Cudemore, Feb. 7th; Lt. H. H. S. Fowler, Feb. 27th; Sec. Lt. H. S. Boocock, March 8th; Lt. G. D. Batcup, March 30th (substituted for notification in "Gazette," April 29th); Lt. R. O. Rabbitt, April 1st; Sec. Lt. J. Sewell, April 3rd; Sec. Lt. C. M. Alchorn, April 10th; Capt. E. L. Foot, April 11th; Lt. H. F. Griffith, April 16th (substituted for notification in "Gazette," June 6th); Lt. G. T. Bysshe, Capt. E. H. Pullinger, April 17th; Lt. F. Westing, April 25th; Sec. Lt. F. J. Ellis, May 1st; Sec. Lt. L. H. Tuppen, May 8th; Sec. Lt. C. Craib, Lt. R. S. Warwick (substituted for notification in "Gazette," Aug. 1st), May 19th; Sec. Lt. J. A. Mitchell, May 25th; Lt. R. H. W. Empson, May 27th (substituted for notification in "Gazette," June 27th); Lt. J. J. C. Hamman, May 29th (substituted for notification in "Gazette," Feb. 21st); Sec. Lt. A. D. Cruickshank, May 30th; Sec. Lt. H. G. Walsh, June 13th; Sec. Lt. A. A. Moir (substituted for notification in "Gazette," July 20th); Sec. Lt. V. U. T. Watson, June 14th; Sec. Lt. G. J. Cross, June 19th; Lt. A. W. Slater, June 28th; Sec. Lt. W. S. Hanley, July 2nd; Sec. Lt. D. M. Fleming, July 5th; Lt. F. J. Horrell, July 6th; Lt. R. T. Hall, Sec. Lt. R. C. Hargrave, Sec. Lt. V. T. Harris, July 11th; Sec. Lt. H. Atherton, Lt. H. F. Cole, Capt. R. B. Corfield, A.F.C., Lt. P. La T. Foster, Sec. Lt. S. H. Hagerman, Sec. Lt. P. A. Hainstock, Sec. Lt. G. M. Hallatt, Sec. Lt. A. W. Hardy, Sec. Lt. E. F. Harrington, Sec. Lt. P. E. Hart, Sec. Lt. N. A. Walker, Sec. Lt. R. I. Walker, Sec. Lt. N. Wardlow, Sec. Lt. H. Wittup, July 12th; Sec. Lt. A. Hart, July 13th; Lt. R. Fitton, July 24th; Lt. A. Hanna, July 29th; Flying Officer P. Bushell (substituted for notification in "Gazette," Aug. 19th); Flying Officer E. V. J. Fenelon, Aug. 1st; Flying Officer A. D. Fraser, Aug. 4th; Pilot Officer B. R. Hartley, Pilot Officer G. T. Miles, Aug. 5th; Sqdn. Ldr. A. B. Adams, Aug. 6th; Flying Officer J. T. Wyre, Aug. 8th; Pilot Officer A. H. Miller, Pilot Officer A. R. Murray, Aug. 10th; Pilot Officer (Hon. Flying Officer) P. Franklin, Aug. 13th; Pilot Officer H. G. Shaw, Aug. 14th; Pilot Officer J. S. Clark, Pilot Officer C. H. Howitt, Aug. 15th; Flying Officer L. Acton, Flying Officer D. M'Dening, Pilot Officer S. H. Hall, Aug. 16th; Pilot Officer J. E. Stevens, Pilot Officer J. M. Wilkie, Aug. 18th; Flying Officer A. Forson, Pilot Officer (Hon. Flying Officer) D. Wood, Aug 19th; Pilot Officer A. E. Harris, Aug. 21st; Flying Officer T. W. B. Hinch, Flying Officer R. E. L. McBean, Flying Officer E. R. McCamon, Pilot Officer E. E. Middleton, Aug. 22nd; Flt. Lt. M. D. Barber, Aug 23rd; Pilot Officer (Hon. Flying Officer) J. T. I. Brownlee, Aug. 25th; Pilot Officer D. Denne, Pilot Officer W. Strang, Aug. 26th; Pilot Officer C. C. L. Baldwin, Aug. 27th; Pilot Officer (Hon. Flying Officer) T. Comrie, Flying Officer H. T. R. Ford, Pilot Officer J. S. Gourlay, Flying Officer H. L. Smith, Aug. 28th; Flying Officer C. St. C. Acheson, Pilot Officer H. R. Acteson, Flying Officer A. B. Agnew, Flt. Lt. E. Anthony, Flying Officer C. W. Hamilton, Pilot Officer J. G. McGregor, Pilot Officer W. G. Morris, Aug. 29th; Pilot Officer G. W. Curry, Aug. 30th; Flying Officer C. H. G. Sanders, Sept. 1st; Flying Officer A. N. Donnet, Sept. 3rd; Pilot Officer J. H. Fitzgerald, Flying Officer E. W. Percival, Sept. 4th; Flt. Lt. G. Donald, D.F.C., Flying Officer H. E. Kathkins, Sept. 5th; Pilot Officer A. G. Holder, Sept. 6th; Flying Officer J. P. Seabrook, Sept. 9th.

The following relinquish their commns. on account of ill-health caused by wounds, and are permitted to retain their rank:—Capt. H. F. Davison, Aug. 29th; Lt. W. S. V. Oliver, Aug. 21st.

The following Lts. resign their commns.:—D. E. P. Chaplin (Lt., R.H. and R.F.A.), Sept. 6th; W. H. G. Milnes, M.C. (Lt., R. War. R.), Sept. 10th.

The initials of Sec. Lt. G. W. Thornton-Inman are as now described, and not "D. W.," as stated in "Gazette," Aug. 26th.

The name of Lt. Philip Wilson is as now described, and not "P. Wilson" as stated in "Gazette," June 6th.

The name of Lt. E. C. Cockburn is as now described, and not "Cockwin" as stated in "Gazette," March 25th).

The notification in "Gazette," June 3rd, concerning Lt. G. F. Dell is cancelled.

The notification in "Gazette," July 18th, concerning Sec. Lt. R. W. Silk is cancelled.

The notification in "Gazette," Aug. 15th, concerning Lt. G. F. Bell is cancelled.

The notification in "Gazette," Aug. 26th, concerning Sec. Lt. A. K. Doull is cancelled.

ADMINISTRATIVE BRANCH.—Lts. (O.) to be Lts.:—K. S. Herring, M.C., March 18th (substituted for notification in "Gazette," April 15th, wherein this officer was described as Lt. R. R. Herring); T. Whitaker, April 17th.

Capt. G. R. Kevill-Davies (Capt., Dgn. Gds.) relinquishes his commn. on ceasing to be empld., July 7th.

Transferred to unempld. list:—Lt. (actg. Capt.) A. C. Carter, Jan. 10th; Sec. Lt. G. H. Tait (Cam'n Highrs., T.F.), Feb. 18th (substituted for notification in "Gazette," July 15th, wherein this Officer was described as G. H. Tait); Lt. N. A. Birks, Feb. 19th; Sec. Lt. F. H. Bronskill, March 3rd; Sec. Lt. E. Davey, March 15th; Sec. Lt. C. H. Dawson, April 10th (substituted for notification in "Gazette," June 10th, wherein this Officer was described as Sec. Lt. C. H. Dawson); Lt. (Hon. Capt.) J. F. C. Bennett, April 20th (substituted for notification in "Gazette," May 13th); Lt. F. R. Bush, May 25th; Sec. Lt. R. O. Hamilton, May 28th; Sec. Lt. F. W. Crawford, June 5th; Lt. J. W. Chapman, June 14th; Sec. Lt. F. Dunlop, June 15th; Sec. Lt. R. W. Silk, July 3rd; Sec. Lt. C. E. Harrison, July 13th; Sec. Lt. E. K. Fellowes, July 14th; Capt. B. M. B. H. Gyll-Murray, July 24th; Flying Officer H. G. L. Fletcher, Aug. 2nd; Pilot Officer A. S. Hartley, Aug. 10th; Flying Officer E. C. Batchelor, M.C., Aug. 13th; Pilot Officer M. H. McManus, Aug. 14th; Pilot Officer S. Gilchrist, Aug. 24th; Flying Officer J. M. Atkinson, Aug. 26th; Pilot Officer W. L. Wade, Aug. 28th; Flying Officer C. L. H. Dickinson, Pilot Officer S. W. Harrison, Aug 29th; Pilot Officer (Hon. Sqdn. Ldr.) H. de L. Willis, Sept. 8th; Flying Officer J. R. Webb, Sept. 9th.

The notification in "Gazette," June 25th, 1918, concerning H. E. Rea is cancelled

The notification in "Gazette," July 15th, concerning Sec. Lt. J. C. Duncan is cancelled.

TECHNICAL BRANCH.—Maj. G. P. Grenfell, D.S.O., is graded for purposes of pay and allowances as Lt.-Col. while empld. as Lt.-Col., Grade (A.), May 1st.

Sec. Lt. (Hon. Lt.) (actg. Lt.) L. W. Allen, M.C., to be actg. Capt while empld. as Capt., Grade (B), April 1st, 1918 (substituted for notification in "Gazette," Nov. 19th, 1918).

Sec. Lt. K. E. V. Beswick to be Lt., Oct. 11th, 1918.

Sec. Lt. (Hon. Lt.) E. A. Gulson (since demobilised) to be Lt., April 2nd, 1918, without pay and allowances of that rank prior to Nov. 1st, 1918 (substituted for notifications in "Gazettes," April 11th and May 23rd).

H. E. Rea is granted a temp. commn. as Sec. Lt., Grade (B), June 21st, 1918.

Lt. K. L. Williams (Lt., I.A.R.O.) relinquishes his commn. on reversion to I.A.R.O., May 17th.

Transferred to unempld. list:—Sec. Lt. B. Finnigan, March 17th; Lt. R. G. Watts, March 24th; Capt. (actg. Maj.) L. S. Metford, April 4th; Sec. Lt. R. A. Wright, May 7th; Lt. G. Curgenven, Lt. A. W. Mansfield (substituted for notification in "Gazette," July 15th), June 21st; Lt. G. F. F. Eagar, M.C., June 23rd; Sec. Lt. J. C. Duncan, June 11th; Capt. M. B. Walker, July 12th; Flying Officer S. J. Furze, Aug. 1st; Flying Officer A. G. Forbes, Aug. 19th; Pilot Officer J. R. Cross, Flying Officer H. S. Evamy, Aug. 21st; Flying Officer C. P. Beadon, Aug. 22nd; Flt. Lt. T. N. Gilbert, Aug. 23rd; Pilot Officer A. V. Jones, Flying Officer (Hon. Flying Officer) E. P. Lyon, Aug. 25th; Pilot Officer P. Heard, Aug. 28th; Flying Officer N. Couve, Sept. 3rd.

Maj. L. C. Hope relinquishes his commn. on account of ill-health, and is permitted to retain his rank, July 25th (substituted for notification in "Gazette," Aug. 5th).

The notification in "Gazette," May 13th, concerning Sec. Lt. J. Sewell is cancelled.

MEDICAL BRANCH.—Capt. (actg. Maj.) C. J. G. Taylor, M.B. (Surg. Lt., R.N.V.R.), relinquishes his commn. on ceasing to be empld., Aug. 1st.

Transferred to unempld. list :—Capt. W. S. T. Connell, Feb 3rd; Capt. T. R. Hunter, Aug. 22nd.

The nomination in "Gazette," Aug. 8th, concerning Capt. (actg. Maj.) C. J. G. Taylor is cancelled

MEMORANDA.—Lt. G. H. Hill is granted the hon. rank of Capt., March 31st (substituted for notification in "Gazette," May 27th).

The following Cadets are granted Hon. commns. as Sec Lts. :—179774 C. W. S. Averill, Jan. 6th, 153359 L. A. L. Crawshay, Jan 8th; 180648 E. H. Whittaker, Jan. 14th, 508291 E. F. Smythe, Jan 16th, 181976 F. J. N. Moore, Jan. 17th, 184411 H. E. Collyns, 183776 R. R. Small, Jan. 18th; 179058 R. A. D. Johnstone, Jan. 19th; 179742 D. J. Jupp, Jan. 20th; 106426 C. S. Harman, 182039 W. Nithsdale, Jan. 31st; 220252 B. G. Calver, Feb. 12th; 188600 C. R. A. Pennington, Feb. 13th; G97816 G. D. Nicholl, Feb. 17th; 630443 G. C. Hamilton, Feb. 20th; 236113 A. Elword, Feb. 21st; 535239 N. S. F. Pippard, Feb. 23rd; 490260 G. F. W. Skinner, Feb. 25th; 77529 S. C. Elkington, 492250 W. J Legge, Feb. 28th; 880389 W. S. Camp, March 1st; 175382 C. B. Ely, March 6th; 305857 E. C. Read, 117338 C. L. Walton, March 8th; 37692 W. R. Benson, March 12th; 149712 A. C. Baker, March 13th; 97127 H. Howarth, March 14th; 534917 F. S. Barnes, 117647 F. J. Tyzack, March 15th; 181342 G. E. Cunningham, 137179 C. L. Drower, March 20th; 2803[illegible] W. P. Calvert, March 23rd; 98057 J. L. Sharp, March 24th; 22636 F. H. Clarke, 99900 E. V. Chapman, March 26th; 84490 L. B. Southon, March 27th, 57847 S. O. G. Wilson, March 29th; 30887 C. V. Grace, 210201 J. H. Sturgeon, March 31st; 93248 E. M. Cook, April 16th; 3559 A. L. Heaume, April 17th; 366272 A. W. Holder, April 19th; 273552 C. H. Anstey, April 21st; 177116 O. J. C. Mayo, May 1st; 31087 R. H. Cater, 117702 C. H. Tinsley, May 3rd; 175301 K. A. Tayler, May 4th; 176873 R. Heape, May 28th; 137026 H. D. Nicholson, 137106 T. J Savage, May 31st; 178258 B. W. G. Hutchins, 50788 R. P. C. Hurcomb, June 18th; T354817 W. E. Francis, July 4th.

The following relinquish their commns on ceasing to be empld. :—Temp. Hon. Lt. W. J. Parkinson, Feb. 23rd; Capt. W. A. A. Chauncy (Capt., Yorks. R.), Sept. 3rd; Maj. R. H. Woods, M.C. (Capt., K.R.R.C.), Sept. 7th; Lt. P. H. Morrissey, M.B.E. (Paymaster, R.N.), Sept. 1st.

Transferred to unempld. list :—Sec. Lt. A. E. Cripps, from (S.O.), June 3rd; Lt. (actg. Capt.) R. B. Longridge, from (S.O.), June 27th (substituted for notification in "Gazette," July 22nd); Capt. S. M. Wood, from (S.O.), July 25th; Flt. Lt. W. Burkinshaw, from (S.O.), Aug. 29th; Pilot Officer D. L. C. Evans, from (S.O.), Aug. 31st; Col. (actg. Brig.-Gen.) R. E. T. Hogg, C.M.G., C.I.E (Maj (Bt. Lt.-Col.) Indian Army), resigns his commn., July 10th, and is granted the Hon. rank of Brig.-Gen.

AIR MINISTRY, September 12th.

R.A.F.—The following officers have been granted short service commns. in the ranks stated, with effect from Sept. 12th (except where otherwise stated). They will retain their seny. in the substantive rank last held by them prior to the grant of the short service commn., except where otherwise stated :—

SQDN. LDRS.—R. P. Willock (A.), T. B. Meyer (T.), W. Sowrey, A.F.C. (A.).

FLIGHT LTS.—C. G. Murray (S.O.), J. L. Robertson (S.O.), F. Hudson, M.C. (A.), E. D. Johnson, A.F.C. (A.), L. A. McDougald (T.), E. N. E. Waldron (Ad.), A. D. Spiers (T.), H. O. Fellowes (Ad.), H. J. Edgar (A. and S.), W. H. E. Kemp, A.F.C. (A.), H. O. Barnaby (S.O.), D. W. Clappen (T.), A. C. H. Groom, D.F.C. (A.), N. Keeble, D.S.C. (A.), C. G. Hetherington, M.B.E. (T.), A. L. Messenger (A.), E. J. P. Burling, D.S.C., D.F.C. (A. and S.), D. W. King (T.), T. L. Williams, M.C. (Ad.), W. H. Oakey (T.), C. A. Rea, A.F.C. (A.), H. V. Worrall, D.S.C. (A. and S.), A. E. Siddons-Wilson (T.), G. A. Richardson (T.), R. F. Osborne (T.), L. P. Ferris-Scott (Ad.), T. Le G. Pynches (T.), H. Cox (T.), F. J. Vincent (A. and S.), D. F. Lucking (T.), A. G. N. Belfield (Ad.) H. G. Etheridge (T.).

FLYING OFFICERS (FROM FLT. LTS.).—G. W. Hemming, D.S.C. (A.), R. C. Savery, D.F.C. (A.).

FLYING OFFICERS.—W. J. Standish (T.), R. V. Kann (A.), R. C. Bryant (A.), F. L. Barnard (A.), A. G. Jarvis (A.), H. C. Peirce (T.), L. L. Brown (A.), G. W. Lee-Barber (T.), L. C. Tyson (S.O.), H. J. Birtles (S.O.), E. C. Kelly (A. and S.), J. G. Walser, M.C. (A.), W. H. Howell (S.O.), A. H. Barnard (T.), A. F. Warner (T.), R. A. W. Powell (Ad.), H. E. Kirk (Ad.), T. A. Langford-Sainsbury, A.F.C. (A.), H. O. Brown, M.M. (A.), L. S. Punnett (A.), G. A. Lingham, D.F.C. (A.), P. D. Robins (A.), R. H. Bright (T.), C. H. Pownall (Ad.), G. L. Ormerod (A.), W. R. P. Allen (T.), S. M. Park (A.), D. H. Carey (A. and S.), A. J. Fyfield (T.), A. T. Shaw (T.), W. G. Pudney (A.), H. H. Sharp (T.), M. W. Baseden (A.), J. D. de Pencier (A.), G. A. Curtis (T.), F. H. G. Shepard, A.F.C. (A.), H. L. Woolveridge (Ad.), W. W. McConnachie (A.), E. R. Bruce (A. and S.), J. W. Milner (A.), K. A. Vosper (A.), J. L. Denman (S.O.), T. E. Drowley (T.), R. W. Godfrey (A.), G. R. Howsam, M.C. (A.), C. Eaton (A.), S. G. Linssen (T.), A. J. E. Broomfield, D.F.C. (A.), T. Rose, D.F.C. (A.), J. S. G. Wrathall (T.), J. T. Paine (A.), J. H. Dale (T.), S. R. L. Poole (T.), C. E. Horrex (A.), A. E. Sweeting, (A.), L. G. Harvey (A.), F. G. A. Robinson (A.), K. D. Marshall, D.F.C. (A.), H. E. F. Saunders (T.), W. N. Plenderleith (A.), A. L. A. Perry-Keene (A.), G. L. Blake (A.), L. G. Stevenson (T.), J. T. Rogerson (A.), R. W. Warner (Ad.), C. F. C. Wilson (A.), D. N. Dickson (A.), A. G. Knight, M.B.E. (Ad.), H. C. McDonald (A.), W. J. Sivewright (A.), B. R. Rolfe (A.), G. H. Howarth (A.), H. M. Struben (A.), J. H. Jennings (T.), F. Susans, M.B.E. (T.), J. Freeman-Fowler (Ad.), G. H. Bittles (A. and S.), F. G. Brockman (T.), H. E. Fenwick (A.), A. H. Scaife (T.), A. H. Burmann (S.O.), A. Walters (T.), B. C. Adamson (T.), W. F. Duff (S.O.), F. J. H. Ayscough (A.), M. W. Nolan (A.), C. E. Amoore (T.), W. Chapman (T.), H. B. Day (Ad.), J. W. Gage (T.), H. S. Alger (T.), A. J. Martin (T.), A. E. W. Finch (T.), H. P Bridges (S.O.), W. C. Farley (T.), C. J. Polden (T.), S. G. Newport (T.), T. H. Sills (S.O.), H. W. Nicholl (T.), A. Grimshaw (A.), J. L. Miles (T.), G. Baker (T.), J. J. Ironmonger (T.), H. J. Lucas (T.), W. J. Cleasby (T.), H. F. Webb (S.O.), G. L. G. Watson (T.), E. S. Baker (T.), H. A. L. Way (T.), W. R. Fairbairn (Ad.), F. C. Worton (T.), J. E. C. Hammond (T.), S. C. Rose (T.), A. P. Woollett (T.), A. T. Wells (T.), A. J. Somers (S.O.), W. B. Francis (T.), G. W. Sturman (T.), A. Walters (T.), E. I. T. Duffield (T.), McD. Goodall (T.), J. S. Viner (T.), H. J. Adkins (T.), E. P. Dampier (Ad.), G. C. Maillard (Ad.), R. J. K. Haynes (T.), I. W. Hutchins (T.), G. J. Stroud, M.B.E. (T.), R. E. H. Allen (T.), A. H. Baker (T.), E. F. Thorpe (T.), W. Dickison, D.S.M. (T.), E. Parrett (T.), A. S. Berry (T.), E. V. E. Andrewartha (T.), C. A. Longhurst (T.), H. D. Fletcher (Ad.), J. F. Young (A. and S.), E. G. King (T.), G. W. C. Ravenhill (A.), H. F. J. Taylor (Ad.), A. W. Southall (A.), N. C. Waltho (A.), A. L. Courtenay-Dunn (A.), C. H. Flinn (A.), R. G. Mullette (A.), F. Cardwell (A.), C. E. Knight (Ad.), R. N. Walter (Ad.), A. M. Reidy (T.), J. M. Russell (Ad.), H. G. Sullivan (A.), A. C. Lobley (A.), R. L. G. Wright (A.), T. G. Bird (A. and S.), H. J Gemmel (A.), V. G. A. Bennett (A. and S.), A. E. Pitcher (T.), S. Bingham (T.), R. G. Sims (T.), D. R. L. Powell (T.), E. W Husband (T.), J. Mahoney (Ad.), R. W. Stevenson (Ad.), T. A. Higgs (Ad.), F. Dunlop (Ad.), D'A. D. A. Greig (A. and S.), J. B. Stockbridge (A and S.), J. W. Bell (S.), T. L. Grey (T.), H. J. de Waal (Ad.), J. B Slater (Ad.), I. G. C. Edgar (A.), J. S. Card (Ad.), G. A. F. Gibson (T.), C. Fenn (Ad.), A. H. Allan (T.), H. C Haywood-Gibbons (Ad.), L. N. Sargent (Ad.), E. C. K. Kingston (A.), W. A. G. Goldsworthy (Ad.), N. Dainty (T.), W. A. Kyte (T.), J. McCarthy (Ad.), G. W. Robinson (Ad.), H. Cartwright (Ad.), V. B. Kanford (Ad.), H. A. Williams (Ad.), H. J. Bamber (Ad.), R. W. Stewart (Ad.), T. H. Jolley (Ad.), C. J. Elliott (Ad.).

OBSERVER OFFICERS.—H. Wisnekowitz, M.C., W. L. Rutledge (with effect from Aug. 16th), R. A. C. Brie, J. C. Wallace, R. S. Langan, D.F.C., H. A. Boniface.

It is intended that officers employed as Stores Officers or on "Q" duties shall belong to the new Stores Branch when formed. Officers appearing in this "Gazette" who are at present so employed will be transferred to this branch on its formation, and will accept these short service commissions on that condition. They will then come on to the rates of pay of that branch, but will meantime be permitted to draw the higher rates laid down in the new scheme for officers on the General List. Any officer posted to the Stores Branch on its formation will then have the option of declining his short service commission.

R.A.F.—FLYING BRANCH.—Maj. A. A. B. Thomson, O.B.E., A.F.C., is graded for purposes of pay and allowances as Lt.-Col. whilst empld. as Lt.-Col. (A.), from May 1st to June 30th.

Sec. Lts. to be Lts. :—I. M. Moffat, Nov. 27th, 1918 (substituted for the notification in the "Gazette" of April 11th); H. Booth, Nov. 30th, 1918; J. V. Scottorn, Dec. 26th, 1918; P. J. Baker, C. G. G Fortune, March 1st; F. W. B. Anderson, July 24th.

Sec. Lt. R. A. Wade (late Gen. List, R.F.C., on prob.) is confirmed in rank as Sec. Lt. (A.), April 23rd.

The following relinquish their commns. on ceasing to be empld. :—Lt. (Hon. Capt.) (actg. Capt.) F. M. Hicks, Feb. 2nd; Sec. Lt. (Hon. Lt.) T. F. Blight (Lt., Manitoba R.), June 6th; Sec. Lt P. S. M Wilkinson (Lt., Wilts. R.), June 25th; Capt. A. Knight, M.B.E. (Lt., Loyal N. Lancs. R.), June 30th; Lt. G. Thompson (Lt. (temp. Capt.), Brit. Col. R.), July 8th; Lt. G. L. S. Rowell (Lt., R.A.), Aug. 5th; Lt. H. F. Attwater (Lt., North'd Fus.), Sept. 1st; Sec. Lt. C. H. Woolwin (Lt., Midd'x R.), Sept. 4th.

Transferred to the unempld. list :—Sec. Lt. S. W. Albertson, Sec. Lt. H. D. Anderson, Feb. 1st; Sec. Lt. W. Spriggs, D.F.C., Feb. 13th; Lt. J. S. Castle, Feb. 19th; Lt. A. Taylor, Feb. 26th; Lt. N H. Auret, March 5th; Sec. Lt. C. F. Cawley, Sec. Lt. L. M. Thompson, March 15th; Sec. Lt. (Hon. Lt.) C. R. Cook, April 14th; Lt. J. C. Huggard, Sec. Lt. L. R. G. Langmead, April 15th; Sec. Lt (actg. Capt.) J. S. Harvey (substituted for notification in "Gazette" of Aug. 26th); Lt. F. A. D. Vaughan (substituted for notification in "Gazette" of June 6th), April 16th; Lt. J. D. Clemence, April 19th; Sec. Lt S. W. Cobb, Capt. D. P. Collis, April 29th; Lt. H. A. White, May 11th; Sec Lt. F. C. Wareham, May 15th; Sec. Lt. F. C. Ward, May 18th; Sec. Lt. W. A. Middleton, May 20th; Lt. T. Louw, May 29th, Sec. Lt. A. B. Anderson, June 12th (substituted for notification in "Gazette" of Aug. 19th); Sec. Lt. R. A. Lund, Lt. A. W. Scott, June 13th; Sec. Lt. (Hon. Lt.) W. W. E. Clarke, June 14th; Lt. F. W. Lowen, June 17th; Sec. Lt. (Hon. Lt.) C. H. Brown, July 7th; Sec. Lt. F. Nottingham, July 10th; Sec. Lt. G. Hanson, Sec Lt. R. Harper, July 11th; Sec. Lt. G. W. Axtell, Sec. Lt. H. F. Farncomb, Lt. S. Haydis, Sec. Lt. K. Hayward, Lt H. E. Hirst, Sec. Lt. H. L. Lobb, Sec. Lt F. H. V. Nostrand, Sec. Lt C. H. Seffrey, Sec. Lt. H. Thomas, Lt. H. W. Turner, Sec. Lt. T. J. Wilson, July 12th; Sec. Lt. H. L. Lucena, July 14th; Sec. Lt. C. R. Crichton July 18th; Lt. E. T. Thorpe, July 26th; Lt. C. T. E. Smith, July 28th; Capt. L. W. M. Lloyd, July 29th; Lt. H. R. Clarke, A.F.C., July 31st: Pilot Officer F. Clayton, Aug. 2nd; Pilot Officer G. M. Edwards, Sqdn. Ldr. S. H. B. Harris, A.F.C., Aug. 11th; Pilot Officer W. Stevens, Aug. 14th; Flying Officer J. H. Hayward, Flying Officers, W. L. C. White, Aug. 15th; Flying Officer V. S. Green, Flight Lt. J. M. Warnock, Pilot Officer W. R. Waterman, Aug. 16th; Pilot Officer H W. Spalding, Aug. 17th; Pilot Officer R. P. Gain, Aug. 19th; Flight Lt. H. E. Crawfurd, A.F.C., Flying Officer G. W. Mumford, Sec. Lt. N. J. Nock (submitted for notification in "Gazette" of Sept. 2nd), Aug. 20th; Pilot Officer H. A. Gibson, Flying Officer J. H L. Gower, Pilot Officer C. H. Hobson, Pilot Officer J. D. H. Lewis. Pilot Officer H. R. Murray, Pilot Officer R. C. Styles, Flying Officer D. J. Waterous, D.F.C., Aug. 22nd; Flying Officer E. A. Hulme, Aug. 23rd; Flying Officer W. E. L. Courtney, Pilot Officer M. W. Edwards, Aug. 24th; Flying Officer A. E. Hill, Pilot Officer (Hon. Flying Officer) H. V. Taylor, Flying Officer R. J. K. Ward, Aug. 25th; Pilot Officer H. W. Robinson, Pilot Officer C. B. Smith, Aug. 27th; Flying Officer J. Austin-Sparks, D.F.C., Pilot Officer F. Bland, Flying Officer D. Davidson, Aug. 28th; Flying Officer W. A. Campbell, Flying Officer T. E. Howlett, Pilot Officer D. MacDougal, D.F.C., Pilot Officer J. Pinch, Aug. 29th; Pilot Officer G. W. Bucklow, Pilot Officer R. E. Hardwidge, Aug. 31st; Flight Lt. M. B. Blake, Pilot Officer D. E. Williams, Sept. 2nd; Pilot Officer C. W. G. McIntyre, Flying Officer J. H. Southey, Sept. 9th; Pilot Officer A. Bendelstein, Flying Officer H. H. Levin, Sept. 10th.

Capt. G. S. Creed (Lt., S.A. Defence Force) relinquishes his commn. on account of ill-health, Aug. 25th.

Lt. J. E. Lewis relinquishes his commn. on account of ill-health caused by wounds, and is permitted to retain his rank, Sept. 3rd.

Sec. Lt. R. H. Harlow relinquishes his commn. on account of ill-health, July 12th (substituted for notifications in "Gazettes" of Feb. 4th and Sept. 2nd)

Lt. C. W. Wridgway (Lt., Midd'x R.) resigns his commn., Sept. 13th.

The initials of Capt. A. N. Wyatt are as now described, and not "A. M." as stated in "Gazette" of June 27th

The surname of Sec. Lt W Cougle is as now described, and not "Gougle," as stated in "Gazette" of Dec. 10th, 1918, on page 14573 (substituted for notification in "Gazette" of April 18th).

The surname of Sec. Lt W. R. Forster is as now described, and not "Foster" as stated in "Gazette" of July 1st.

The notification in "Gazette" of Sept. 6th, 1918, concerning M. A. Watts is cancelled.

The notification in "Gazette" of Feb. 18th concerning Capt. F. M. Hicks is cancelled.

The notification in "Gazette" of April 1st concerning Sec Lt. W. H. Brown is cancelled.

The notification in "Gazette" of July 22nd concerning Lt. O. R. Gayford, D.F.C., is cancelled.

The notification in "Gazette" of July 29th concerning Lt. J. Stewart is cancelled.

The notification in "Gazette" of August 5th concerning Sec. Lt. H. Thomas is cancelled.

ADMINISTRATIVE BRANCH.—The following Sec. Lts. are graded for purposes of pay and allowances as Capts. whilst empld. as Capts. :—E. Bentley, to June 25th; (Hon. Lt.) A. G. Buxton, J. E. Carter, W. R. Fairburn, to May 31st; A. H. Jones, (Hon Lt.) H. O Newland, J. B. Slater, May 1st.

The following Sec. Lts. are graded for purposes of pay and allowances as Lts. while empld. as Lts :—J. E. W. Billings, to June 30th; T. Caine, R. N. H. Cole, J. S. Card, H. J. de Waal, E. I. T. Duffield, (Hon. Capt.) W. C. Green, M.C., H. C. Haywood-Gibbons, W. F. Hopkins, J. G. Le Brun, to June 25th; (Hon. Lt.) T. Mumford, F. H. Stapleton, to June 30th; H. J. Thomas, May 1st

Sec. Lt. H. J. Grant is graded for purposes of pay and allowances as Lt. while empld. as Lt., from (T.), May 1st

The following relinquish their commns. on ceasing to be empld. :—Lt. (Hon. Capt.) R. J. Porter (Capt. and Qrmr., R. Innis. Fus.), June 21st; Sec. Lt. C. W. Clutson (Sec. Lt., Glouc. R.), Aug. 19th

Transferred to unempld. list :—Sec. Lt. G. C. D. Lindsay, April 24th;

Sec. Lt. J. Patenaude, April 30th; Sec. Lt. (Hon. Lt.) J. A. Bonnyman, M.B.E., May 30th; Lt. S. B. Browning, June 16th; Maj. R. D. Anderson, O.B.E., July 25th; Sec. Lt. C. S. Thompson, M.B.E., July 29th; Flight Lt. P. P. Capelli, Aug. 17th; Flying Officer A. Holden, Aug. 20th; Flying Officer A. C. Simpson, Aug. 21st; Pilot Officer R. N. Lamb, Aug 22nd; Flying Officer L. A. Christian, D.F.C., Aug. 23rd; Sqln. Ldr. M. Marsden, Aug. 26th; Flying Officer C. Wrigglesworth, Aug. 27th; Pilot Officer J. D. L. Garrod, Sept. 3rd.

The following relinquish their commns. on account of ill-health, and are permitted to retain their rank :—Lt. C. Lyons, Aug. 29th; Lt. P. Sormani, Sept. 5th; Sec. Lt. R. R. W. Millward (caused by wounds), Aug. 28th.

Sec. Lt. (Hon. Lt.) A. G. Buxton relinquishes his commn. on account of ill-health contracted on active service, and is granted rank of Capt., Sept. 3rd.

TECHNICAL BRANCH.—Capt. A. H. Kendall is graded for purposes of pay and allowances as Maj. while empld. as Maj., Grade (A), May 1st (substituted for notification in "Gazette," Aug. 1st, wherein this officer was described as Capt A. K. Kendall).

The following Sec. Lts. are graded for purposes of pay and allowances as Capts. whilst empld. as Capts., Grade (A) :—A. G. Rigdon, E. J. Thorpe, May 1st.

The following Sec. Lts. are graded for purposes of pay and allowances as Capts. whilst empld. as Capts., Grade (B) :—(Hon. Lt.) G. F. Antell, G. Baker, (Hon. Lt.) W. J. Cleasby, to June 30th; L. A. Lavender, (Hon Capt.) E. R. Tongue-Croxall, A. Walters, May 1st.

Sec. Lt. (Hon. Lt.) S. Waring is graded for purposes of pay and allowances as Capt. whilst empld. as Capt., Grade (B), from (Ad.), May 1st.

The following Sec. Lts. are graded for purposes of pay and allowances as Lts. whilst empld. as Lts., Grade (A) :—W. J. Coadwell, W. R. Day, to July 31st; R. McG. Freemantle, M.B.E., J. W. Hutchins, L. E. Heather, H. O. Keenan, E. G. King, J. B. Meilke, M. F. Morris, H. W. Nicholl, J. A. Owen, P. R. Pratt, C. H. Paget, T. J. E. Thornton, J. Turnley, E. J. Williams, H. Williams, May 1st.

The following Sec. Lts. are graded for purposes of pay and allowances as Lts. whilst empld. as Lts., Grade (B) :—(Hon. Lt.) A. Daniels, T. A. Dimon, (Hon. Lt.) T. L. Grey, J. A. Joyce, C. A. Longhurst, P. G. Price, F. B. Reed, C. O. Towler, to July 31st, May 1st.

Sec. Lt. A. F. Stevens is graded for purposes of pay and allowances as Lt. whilst empld. as Lt., Grade (B), from (Ad.), May 1st.

Sec. Lt. H. Dear to be Lt., without pay and allowances of that rank, April 2nd, 1918 (substituted for the notification in the "Gazette" of March 7th).

Sec. Lt. E. G. King (late Gen. List, R.F.C., on prob.) is confirmed in rank as Sec. Lt., Grade (A), July 5th, 1918 (substituted for the notification in the "Gazette" of Sept. 10th, 1918, wherein this officer was described as E. C. King).

Sec. Lt. F. Denham (late Gen. List, R.F.C., on prob.) is confirmed in rank as Sec. Lt., Grade (B), July 20th, 1918.

Sec. Lt. C. C. N. Wade (Capt., K.O.Y.L.I.) relinquishes his commn. on ceasing to be empld., Aug 2nd (substituted for notification in "Gazette," July 22nd).

Sec. Lt. P. O. Lovett relinquishes his commn. on ceasing to be empld., March 12th (substituted for notification in "Gazette," April 1st).

Transferred to unempld. list :—Sec. Lt. (Hon. Lt.) W. H. Brown, M.C., March 5th; Sec. Lt. H. B. George, July 6th; Capt. P. K. Paul, July 23rd; Sec. Lt. C. R. English, July 25th; Flying Officer F. Knight, Aug. 8th; Flight Officer J. Clinskill, Aug. 11th; Pilot Officer E. J. Harding, Aug. 16th; Pilot Officer (Hon. Flying Officer) G. W. North, Aug. 20th; Flying Officer G. A. B. Wheldon, Flying Officer A. Wyatt, Aug. 21st; Flying Officer C. W. Triggs, Aug. 22nd; Flying Officer R. C. Wallace, Sept. 3rd; Flying Officer R. E. Pudney, Sept. 9th; Pilot Officer (Hon. Flying Officer) J. C. Graydon, Sept. 10th.

Lt. C. B. Maddocks relinquishes his commn. on account of ill-health contracted on active service, and is permitted to retain rank, Aug. 29th.

The notification in "Gazette," July 4th, concerning Lt. C. B. Dick-Cleland is cancelled.

MEDICAL BRANCH.—Capt. W. H. Cam is transferred to the unempld. list, Aug. 2nd.

MEMORANDA.—The following Lts. are granted hon. rank of Capt. :—F. L. Mond (decd.), May 1st, 1918; A. L. Chick, A.F.C., Oct 13th, 1918.

The following Overseas Cadets are granted temp. commns. as Sec. Lts. with effect from Feb. 15th, and relinquish such commns. with permission to retain rank from the day following termination of the standardised voyage in the case of those claiming immediate repatriation, and from the day following demobilisation in England in all other cases :—796 E. Addleton, 107079 J. A. J. Boulton, 316817 I. J. H. Black, 177685 F. O. Cole, 46668 R. Ellis, 5241 N. F. Esselen, 316162 G. Farmer, 316779 G. C. Godfrey, 316219 H. F. C. Greenwood, 312025 B. F. Gibbs, 30604 D. P. Hogg, 171590 J. J. Higgins, 316002 E. J. Horney, 171676 S. Hampton, 316028 A. Long, 418924 H. Marshall, 87669 W. H. MacMinegal, 154360 W. Nixon, 114563 W. Pipe, 316351 C. Relph, 178835 J. S. Sheddon, 181826 R. S. Sanders, 154657 G. A. Williams, 12836 S. A. Watkins, 1262323 W. F. Wright.

The following Cadets are granted hon. commns. as Sec. Lts. :—180021 A. S. H. Cook, Feb. 5th; 202922 W. Robb, Feb. 28th; 1935 W. W. Varney, March 5th; 8538 A. R. H. Stewart, March 23rd; 59277 I. N. Elder March 26th; 70675 T. E. Tiffin, March 30th; 157723 S. S. Burridge April 6th; 178043 S. Charnock, April 8th; 405043 R. L. Taylor, April 18th; 137027 R. G. Netting, April 19th; 1369 W. H. McPherson, May 1st; 95234 C. L. MacDonald, May 3rd; 137298 R. Boyd, May 5th; 64793 B. J. Starling, July 1st.

Lt.-Col. (actg. Brig.-Gen.) J. A. Houison-Craufurd, C.M.G., C.B.E. (Maj., retd. I.A.) (Hon. Lt.-Col. in Army), relinquishes his commn. on ceasing to be empld., June 1st, and is granted the hon. rank of Brig.-Gen. (substituted for notification in "Gazette," July 25th).

The following relinquish their commns. on ceasing to be empld. :—Temp. Hon. Capt. R. J. Bray, Feb. 8th; Temp. Hon. Lt. T. Spencer, Aug. 16th; Temp. Hon. Lt. C. Watt, Aug. 31st; Capt. P. Sidney (Capt., North'd Fus.), Sept. 2nd.

Flight Lt. E. D. Cole is transferred to the unempld. list, from (S.O.), Aug. 20th.

The notification in "Gazette," July 25th, concerning 5647 Cadet J. N. Cartier is cancelled.

PERSONAL NOTICES.

MILITARY.

ENGAGEMENT.

MALTBY—PATERSON.—An engagement is announced between Major Paul Copeland Maltby, D.S.O., A.F.C., Royal Welch Fusiliers, attached Royal Air Force, younger son of Mr. and Mrs. C. J. Maltby, Walgrove, Harpenden, Herts, and Winifred Russell, eldest daughter of Mr. and Mrs. J. H. Paterson, 6, Moray Place, Edinburgh.

MARRIAGE.

KINGSCOTE—PAUL.—On Sept. 9th, at St. Margaret's, Westminster, at 2.15 p.m., by the Rev. S. J. Marriott, Vicar of South Queens Ferry, assisted by the Rev. R. French, Lt.-Col. A. R. F. Kingscote, M.C., R.A., younger son of the late Col. Howard Kingscote, and Marjorie Paul, widow of Percival Paul, and younger daughter of Mr. and Mrs. Douglas Hindley, of Folkestone.

PRESTON—DONALDSON.—On Sept. 8th, Capt. Overton Preston, M.C., R.A.F., second son of the late Martin Inett Preston and Mrs. Preston, The Park, Nottingham, was married at the Registrar's Office, Henrietta Street, Covent Garden, W.C., to Victoria Mary, third daughter of the Rev. Peter Donaldson, M.A., B.D., late Pro-Consul at Salonika.

BIRTH.

LEARMOUNT.—On Sept. 11th, at "Bienvenu," 86, Rosebery Road, Muswell Hill, N.10, the wife of Major L. W. Learmount, D.S.O., M.C., R.A.F., of a son.

AIR FORCE.

DEATH.

COULSON.—Lieut. W. E. Coulson, R.A.F., aged twenty, who was killed in Lincolnshire whilst flying from Cologne on the 5th instant, was buried with military honours at Epsom on Sept. 11th. During the war he had been shot down and made a prisoner in Germany.

ENGAGEMENTS.

CROSBIE—MATTINGLY.—The marriage arranged between Flt. Lt. D. S. Crosbie, R.A.F., and Dorothy Grace Mattingly will take place very quietly at the church of St. Mary-le-Strand on Wednesday, Oct. 8th, at 12.30 p.m.

MACKEY—BRIGGS.—The engagement is announced between Capt. C. W. Mackey, R.A.F., younger son of Mr. and Mrs. W. J. Mackey, Highlands, Maidstone, and Kathleen, younger daughter of Professor and Mrs. H. Briggs, 3, Rodney Street, Liverpool, and Hoylake, Cheshire.

TURNER—BANKART.—The engagement is announced, and the marriage will shortly take place, of (Temp.) Major George Bankart Turner, M.B.E., R.A.F., son of Colonel F. Mansel Turner (late R.A.), of Norton, Guildford, and Kathleen May Graham, youngest daughter of Mr. and Mrs. Bankart, of Manton Grange, Oakham.

TURNER—HOPKINS.—A marriage has been arranged, and will take place on October 2nd, between Capt. Charles E. Turner, R.A.F., and Miss Elsie Hopkins, only daughter of Mr. and Mrs. T. E. Hopkins, of Perrysfield, Oxted, Surrey.

MARRIAGES.

BREBNER—WALKER.—On Sept. 10th, at Christ Church, East Sheen, by the Rev. J. R. Macvicar, M.A., Noël James Brebner (late Lieut., R.A.F.), only son of Mr. and Mrs. Percy J. Brebner, of East Sheen, to Ethel Maud, younger daughter of Mr. and Mrs. John Walker, of East Sheen.

ELLERTON—HUSBAND.—On Sept. 13th, at the Chapel Royal, Savoy, Flt. Lt. A. S. Ellerton, O.B.E., R.A.F., was married to Maureen Gilliland, daughter of Mr. T. F. Husband, I.S.O., M.A., and Mrs. Husband, of 69, Belsize Park Gardens, Hampstead, by Sqdn. Leader the Rev. B. W. Keymer, O.B.E., C.F., R.A.F.

JUDGE—EADIE.—On Sept. 10th, at Bromsgrove Parish Church, by the Rev. A. D. Ager (Vicar of Catshill), Capt. Herbert E. Judge, late R.A.F., son of Mr. and Mrs. James Judge, of Cambridge, to Olivette, elder daughter of Mr. and Mrs. Albert Eadie, of Rigby Hall, Bromsgrove.

BIRTHS.

HARBER.—On Sept. 3rd, at Glenmore, Sutton Courtney, Berks, Nellie (née Halford), the wife of Capt. L. Geo. Harber, R.A.F., of a daughter.

EDWARDS.—On Sept. 6th, at the Vicarage, Cottage, Wressle, Yorks., the wife of the Rev. M. H. Edwards, Chaplain, R.A.F.—a daughter.

ORDISH.—On Sept. 10th, at 42, Northcote Avenue, Ealing, to Phyllis (née Megginson), the wife of Sec. Lt. R. W. A. Ordish, R.A.F.—a son.

WYNNE WILLSON.—On Sept. 13th, at 21, Endsleigh Street, to Elsie and Linton Wynne Willson, Major, R.A.F., Donibristle—a son.

KENLEY COMMON.

The inhabitants of Kenley are somewhat distressed over the prospect of Kenley Common being permanently occupied by the Royal Air Force (according to the "Times"). It was an open space, but part of the ground has been fenced off, and hangars of the latest type have been put up.

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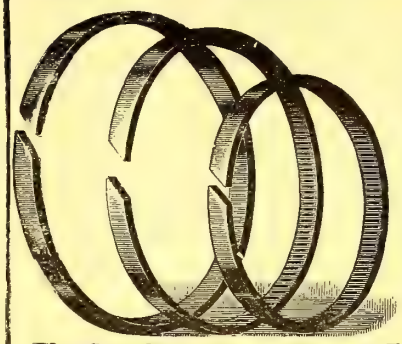

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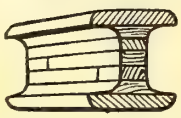
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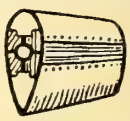
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Edited by C. G. Grey

WEDNESDAY, SEPT. 24, 1919.

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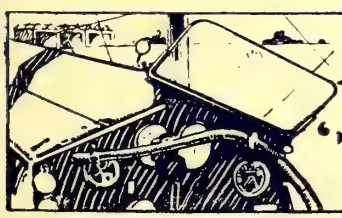

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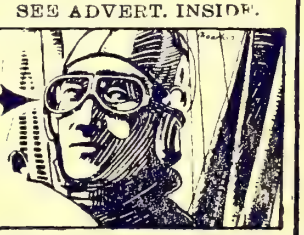

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Extract from Chap. II.

1. And when he was come unto Farn, Roy was compassed about by a great multitude.

2. And he beheld winged chariots of divers designs; thus there were the Scout, and the Dolphin, and the Martinsyde, and the Camel, even that which produceth the hump.

Extract from Chap. XXI (and last).

17. And in all thy ways consider this, that there be two things greater than any other in forming the character of him that flies; and the one is Energy and the other, it is Enthusiasm.

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SEPT. 24, 1919.

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ON CUTTING CONTRACTS.

There is a tale of an Irishman who, having sold a pig, was asked what sort of price he had got for it. His reply was simply:—"Well! I didn't get what I expected: but then I didn't think I would!"

That is pretty well the mental attitude of the Aircraft Industry over the contracts which have recently been cut off, as related with much apparent relish in the daily news-sheets of September 18th.

As a matter of fact, there was no sudden all-round cancellation of contracts, as one might have been led to believe by the aforesaid reports. Two or three firms had some rather recent "post-war" contracts cancelled during the week preceding September 18th, in accordance with a policy which was initiated some time ago, but the majority of the firms in the Aircraft Industry are to-day precisely where they were a month or three months ago, so far as Air Ministry contracts are concerned.

Even those who have inquired directly, indirectly, or obliquely, from various Departments of the Air Ministry cannot discover any fresh policy of cancellation. If a further raid on aircraft contracts is being contemplated by the False Economy Department of the Government's Propaganda Agency, it is being very skilfully hidden, for apparently nobody at the Air Ministry knows anything about it.

Therefore one is inclined to think that the daily Press has discovered another mare's nest, or at best a sea-serpent which is in reality a very small worm. But, to tell the truth, the Aircraft Industry as a whole is not vastly perturbed over the affair, for it gave up long ago any hope of being able to exist on Government orders or on the promises of the Under-Secretary of State for Air.

As soon as the Armistice broke out, everybody in the Aircraft Industry expected that their contracts would be cancelled forthwith. Some wise firms anticipated the cancellation of their contracts by starting at once to look for other business. Some fortunate firms thanked their Maker that they could now snap their fingers at the Air Ministry and all its works, and could return to their profitable pre-war business from which they had been dragged by D.O.R.A. Some firms, less wise and less fortunate, decided to run on with their aeroplane contracts as long as possible, and then either retire on their profits or wait for something else to turn up.

Everybody was more or less surprised that contracts were allowed to run so long after the Armistice as they were, for the Aircraft Industry, being composed almost entirely of civilians, hardly realised the difference between an Armistice and a Peace. Even those who did so were more or less under the impression that the German Army was broken as well as beaten.

A State of War.

Only a few saw that we were still in a state of war and that Germany still possessed a powerful Army, consolidated by the common sorrow of defeat, whereas the Armies of the Allies were enervated by relaxation after victory, and so would be less willing to start fighting again than the German troops would be. That being so, it was necessary to maintain all our establishments for the conduct of war until it was plain that fighting would not be renewed. And so the Aircraft Industry was allowed to continue to make aircraft matériel.

The fact that no further fighting took place on the West front after the Armistice seems to speak well for the good sense of those who took control of the Deutsches Reich in the absence of the Emperor, and also for the mutual respect in which the Western belligerents hold one another. The continuance of fighting on the East German front seems equally to show that the Slav cannot be trusted either to stick to agreements which he has made or to show ordinary common sense, and it would not be at all surprising if the war with the Slavs, which one ventured to prophesy some few months ago, were to develop straight out of these fights along the old East-European front, without any intervening period of peace. Perhaps such a prospect may brighten the outlook for those in the Aircraft Industry who cannot see any future for their business except in the supply of war material.

The Duty of a Leader.

Be that as it may, the continuance of war contracts for so long after the signing of the Armistice led a good many people to hope against hope that the Government was quietly using this peace-in-war period for the purpose of building up such a huge Air Force that when Peace actually arrived it would be impossible to scrap the personnel and matériel of the Force and its attendant Industry because of the waste involved in doing so. Such a hope was obviously giving the Government credit for more patriotism and courage than any agglomeration of politicians could possibly possess. And those who nursed such a hope were reckoning without their Mr. Lloyd George.

Of him one may say, as the "Morning Post" said of the late John Redmond many years ago, that he is one who believes that the duty of a leader is to lead—even in retreat. When the great god Demos began crying out for economy what could be more natural than that Mr. Lloyd George, the great leader of national extravagance as founder of the Ministry of Munitions, should head the mad stampede in the direction of false economy?

A French humorist, M. Arthur Rozier, writing in "La France Libre," has called Mr. George a man of rapid evolutions. M. Rozier describes him as an agile fellow always ready without scruple to rid himself of old friends for whom he has no further use and to take up others more popular with the electorate. Mr. George's cleverness in looping the loop in relation to his political views leads M. Rozier to label him "the ace of aces" among politicians.

The appositeness of M. Rozier's description applies neatly to Mr. George's actions in relation to aircraft.

When German air raids impressed the electorate with the importance of Air Power, Mr. George, at the earnest solicitation of Lord Weir, gave aircraft priority over all other war material. To-day, when aircraft cannot affect votes, aircraft may be scrapped with impunity—so far as the popularity of the Premier is concerned, if not with regard to the vital necessity of Air Power to the British Empire.

The Crimes of History.

It is the price we must pay for Democratic Government, in which those in power are elected by a scarcely educated proletariat—of which it is doubtful whether more than a small percentage are capable of being educated. A very able engineer, who during the war has become a distinguished officer of the General Staff, remarked recently that the two greatest crimes in history were the writing of "Uncle Tom's Cabin" and the passing of the Education Act of 1870. Though our generation is not likely to see the full fruition of the former crime, we are feeling the effect of the latter when the welfare of the Empire is in the hands of a man like Mr. George—the Mr. Smillie, or worse, of ten years ago—who depends for his existence on his ability to lead a fractionally intelligent public in the direction in which that public is most inclined to stampede.

It is not surprising that some of the most hardened Tories among us are praying for the advent of a Labour Government composed of honest men of the type of Mr. Roberts, Mr. Brace, and Mr. Clynes, who have at least a clear altruistic policy and are not mere political weathercocks.

It was because nobody really believed in the hope of a big Air Force after the war that nobody thought that they would get what they expected. Consequently nobody is surprised at the cancellation of their contracts, however much they may be annoyed.

"All Things Work Together for Good."

According to the Buddhist belief, best known probably to most of one's readers by way of the Lama who was the friend of the immortal Kim, "All things work together for good." So one is prepared to believe that just as the politician and the *pulex irritans* has each his place in the scheme of things so the cancellation of contracts may be all part of the scheme of an All-seeing Providence to give to the British People the Command of the Air. Just as our vile climate and small fields have constrained us to produce the finest aviators and the finest aeroplanes in the world, so the complete cutting off of Government support in the form of orders, and constant hindrance by Government departments in the form of restrictions and regulations, ought ultimately to produce a flourishing Aircraft Industry which has succeeded on its merits.

There are those who cry out for subsidies for air lines, for orders which will save the Trade alive, and for other forms of official aid. Personally one inclines to the belief that the cancellation of orders is the best thing that could possibly have happened to the Aircraft Industry, even though it may be the worst possible policy as concerns the Air Power of the Empire and the proper equipment of the King's Armed Forces.

The cancellation lands the Industry flat on its own bottom, and the future of the various firms composing that Industry depends entirely on the energy and initiative of each individual firm. A spoon-fed industry is no good to anybody, least of all to the members of that industry. Spoon-feeding in extreme youth is necessary. The Aircraft Industry has had all the spoon-feeding it ought to have had—thanks to the war, though before the war the Government's attempts at spoon-feeding were lamentably sloppy.

Subsidies are economically unsound, as is perfectly well known to every serious student of political economy. The only way in which a man or a business or an industry can be established on a sound financial footing is by payment for work done. In spite of the doctrines of certain Trade Unions, payment by results is the first law of nature. "By the sweat of thy brow shalt thou earn thy bread" is the simplest statement of that law.

The Aircraft Industry has now to make good on its merits. Possibly the particular kind of mental ability—some people might call it obliquity—which was successful in securing Government orders during the war may not be so successful in building up a sound business in civil aviation. But the business is there to be had if it is sought in the right way, and the absence of Government orders clears that way for commercial enterprise.

A Free Industry.

Already certain firms are laying the foundations for big aerial transport undertakings abroad. They will find their work simplified by the fact that they can build their machines for those services without interference by Government officials in this country.

When disputes arise as to the suitability or otherwise of certain machines or engines or other material for civil aviation in this country the makers can now put up a straight fight against the officials concerned, because henceforth they will be free from that ever-impending threat which, put into bald language, amounted to the statement that if the firm annoyed the officials concerned the said officials would take precious good care that the firm had trouble over its orders for the Government.

Even where firms and officials worked amicably together, as happened in some cases, the fact that Government and commercial machines were being built at the same time caused trouble and hindrance, merely because Government work had priority over everything else. The Government machines might be only produced in order to be smashed up by the Disposal Board, or to be stored indefinitely in a wet tent or leaky shanty, but while they were being built they prevented the production of useful machines or they prevented the works from being converted for the production of some other and still more useful commodity.

A Matter of Policy.

Apropos the conversion of aircraft factories to other purposes, there is a point which deserves the attention of the S.B.A.C., if the rumour on which it depends proves to be true. It is said that, in a praiseworthy effort to preserve the Trade alive, the Air Ministry's policy is to give what orders are permitted by the Treasury to firms which only make aeroplanes and have no other means of subsistence.

This would be the worst possible policy, for obviously the orders which are to be given in the future must be largely for experimental aircraft, and it seems fairly evident that the firm which has had the energy and independence and foresight to turn over part of its factory to an entirely new and paying business is precisely the firm which is likely to have the energy and independence and foresight to produce new and valuable types of experimental aircraft. On the other hand, any firm which, having made aircraft with more or less success, settled down into a groove to make aircraft and nothing else during this devastating Peace would be precisely of the kind which would find it most difficult to get out of its groove and produce anything of a progressive nature.

Moreover, a firm which was making money out of bassinettes for war babies or bath-chairs for wounded heroes would probably be inclined to spend money on

experiments in its aircraft department, and so would produce new types quickly. On the other hand, a firm which was dragging along on the little it could extract from Government orders would be likely to "ca' canny" and make those little orders last as long as possible.

So far as one can gather, every firm of note is laying itself out to make money out of some other business, so as to have money to spend on its aircraft work as soon as ever there is any sign of another aircraft boom, either in civil aerial transport or in the supply of aircraft to both or all the belligerents in some war in which we are merely benevolent neutrals. But there may be some firms which hope to exist solely on orders from the British Government. If so, they must either have vast political pull or an astonishingly optimistic management.

At any rate, there is the rumour as commonly circulated. If it is the Government's policy, it is just about as unsound as most of the other policies of politicians. There is no use in wet-nursing incapacity. If a firm can produce good things it should be supported. And it is well to remember that a firm which has a huge and well-organised factory, only part of which is concerned with the production of aircraft, can easily turn the whole factory onto aircraft in case of war, or of a boom in commercial aviation, whereas a small factory concerned entirely with aircraft has no immediate capacity for expansion of output.

EMANCIPATION.

Be that as it may, here we are to-day with the best-equipped Aircraft Industry in the World, free from Government hindrances in that it is not beholden to the Government for its support, free to tackle the markets of the World, free to fight Government interference with design or construction: as free, in fact, as a demobilised soldier who can give back-chat to his former regimental serjeant-major.

It is to be hoped that the Industry will make good use of its freedom. If it has the energy and initiative which belonged to its great ancestor the Shipping Industry, it will become one of the greatest industries in the World. If it sinks to the level of the motor trade and becomes small-minded, narrow, and self-satisfied, it will leave the World's markets open to German and American competitors. And then this paper, which for eight hard years has fought the battles of the British Aircraft Constructor, will have to grow fat on foreign advertisements and become dull and respectable. Which would be a horrible fate.—C. G. G.

ECONOMY AND CONSISTENCY.

The editor of the "Times" newspaper is evidently one of those who agree with the philosopher who said, "Consistency is the vice of fools." It was necessary to comment recently on an article in that paper which advocated that the Air Force Vote should be cut down from a matter of 25 millions of pounds to something in the nature of 12 millions. Also, that great financier Lord Rothermere stated definitely in his own paper that he could run an adequate Air Force on the latter sum.

Now we have the "Times," on Sept. 20th, holding forth against the Air Ministry for economising by stopping airship construction and by not spending money on Civil Aviation. The "Times" does not appear to attempt to reconcile its two articles, relying apparently on the ephemeral effects of its "thunder" in these days for absence of unkindly recollection of its previous tirade in favour of economy. Those who recall that tirade will be amused by the later effort, which reads as follows:—

AIRSHIPS.

A correspondent whose letter we printed yesterday attacked the Government's decision to stop airship construction—a bold line of attack at a moment when public opinion has hurried the Government into a typical con-

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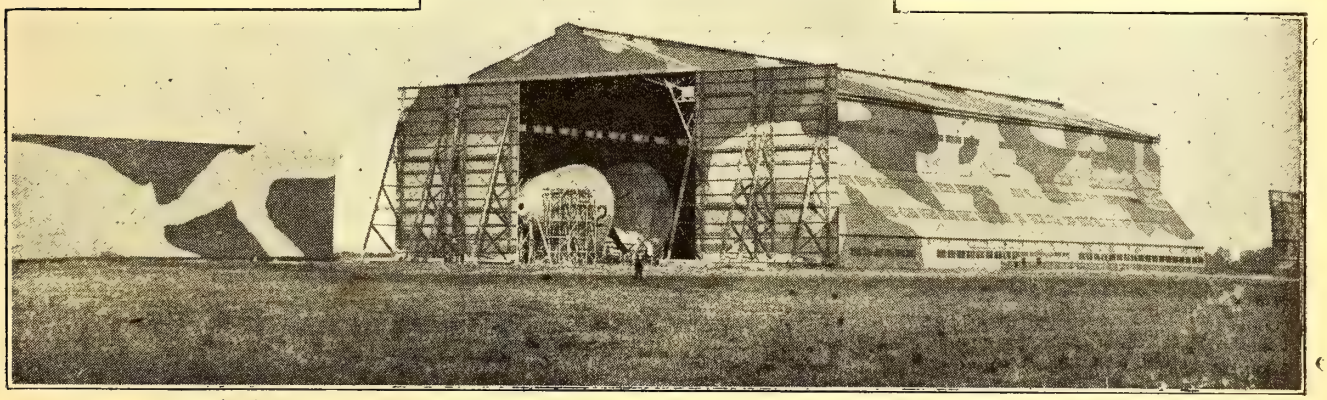

vert's zeal for economy, especially economy of a spectacular kind. To stop airship construction is certainly spectacular, but whether it is economical or not is not so certain. Our correspondent denies that it will save much money, and if it will not do that it is extremely hard to justify. As long ago as last March we said that there was a real risk that the Treasury—in its necessity to ensure economy—might "follow the line of least resistance" and might "try to starve new Departments." That was at a time when the Government were disposed to treat attacks on their scale of expenditure with superb disdain. They know better now, but we are by no means sure that in stopping airship construction they have not done exactly what we feared they might do.

Airships will be most useful for some time to come as passenger or goods carriers in the new air traffic. They are predestined for the long air voyages which will bring the most distant parts of the Empire, and of the world, within the compass of a few days' journey from these islands. Their military value is small, for, though they are indispensable as fleet adjuncts, the possibility of naval actions is much more remote than that of a flourishing system of air transport. Such a system is certain within a very few years, and the airship is the indispensable craft for its wider ranges. If Great Britain does not lead the way in providing them some other country will.

France has repented quickly of a hasty decision to stop the construction of airships. The United States, unless report lies, is convinced of their value. Germany, if British experiments cease, still leads the world in the science of building them. The airships which were building when the Government interdicted the work were far in advance of the German models which the fortune of war had delivered into our hands. If they could be completed, and the others be built which are projected already, Great Britain would be pre-eminent in the craft of airship construction. No Power depends as the British Empire depends on quick communication between its States and Dependencies. But all this has not weighed with the Government.

Aircraft experiments are a young vintage of State expenditure without the fine bouquet of the recognised brands. Though that may not be the reason why retrenchment has fallen upon them, its hand at least has been ruthless.

General Seely, Under-Secretary for the Air, has intimated to the firms interested in the construction of aircraft that, "in the case of any well-founded scheme" of commercial air transport, airships will be sold "at a very cheap rate"; but this is a poor substitute for Government building, for expert opinion has never wavered from the conviction that it will be impossible for private firms to develop aircraft on a large scale without Government help, and the air liner will not be cheap to build.

Ill-fortune still dogs the steps of Civil Aviation in all its forms. The Air Ministry do nothing to help it, and this raid on airship construction is only the latest of a series of misfortunes.

Needless to say, one agrees with almost everything in this article, which is unusually ably written and shows close acquaintance with the subject. One need only add that General Seely's apparently generous offer is worthy of his peculiar mentality. To him, seemingly, any airship is an airship, and therefore suitable for any work for which an airship is suitable. He appears to be blissfully ignorant of the fact that no existing airship is of the slightest use for commercial purposes, except that the smaller non-rigids would provide excellent sport for what one may call "Blimp Yacht Clubs."

R.34, for all her record-creating performances, is useless, for she could barely carry petrol enough to take her and her working crew to America. She and the rest of her class have no margin for goods and passengers. Consequently, any commercial concern which bought any of the Government's rigid ships would be merely wasting money.

The only use for the airships now existing is as training vessels for the crews of the real commercial airships of the future. Or they would have a certain value for the elementary education of an infants' class of Admirals in their second childhood as to the first principles of the use of lighter-than-air craft in co-operation with a fleet in being. But now the Government has chosen to stop the construction of the first ships which might be commercially useful, influenced largely by the panic for false economy which has been caused by the daily Press.—C. G. G.

A THREATENED RESURRECTION.

The "Sunday Times," a paper which is usually more than well informed, stated on Sept. 21st that it is very probable that the Lord Rothermere will return to office, and suggests that he may go to the War Office in place of Mr. Churchill. The "Sunday Times" also says that at the War Office "Mr. Churchill has succeeded only in adding to his unpopularity."

As concerns the latter statement, one assumes that the paper quoted refers to Mr. Churchill's unpopularity with the uneducated or uneducatable public, for it is too well informed to imagine that Mr. Churchill is unpopular with the Staff at the War Office, with the Army, or with the Royal Air Force. At the War Office he is regarded as being mentally the greatest and personally the most acceptable War Minister of the present generation. In the Army and in the Air Force he is respected as a brave man physically and morally, and as a statesman who believes in and knows the value of the King's Armed Forces and is prepared to fight the mere politicians for the welfare of the Services.

Mr. Churchill is unpopular with a section of the public because, instead of calling on our troops to come scuttling out of Russia in obedience to the cry for economy, he insists that the British Government shall act as if they were gentlemen and shall keep their word to our Allies, the remnants of the Army of His Late Imperial Majesty the Tsar of All the Russias. It may be in our own interests to scuttle and leave our deluded Allies to be massacred by Bolsheviks, just as our Fleet scuttled out of Quiberon and left the Vendéeans to be massacred, for ultimately it is for the good of Europe that the Slavs should massacre one another to the greatest possible extent. But it is not the act of a gentleman to promise support to one party and then to back out and leave it to its fate. It is such acts as this that have won us the name of "*perfide Albion*" on the Continent.

Apart from which, it would probably pay us better in the end—and also the International Jew Financiers who pull the strings in all these so-called "Labour agitations"—if we kept the fires of civil war alight in Russia by supplying arms and ammunition, and a small volunteer army and air force, to the anti-Bolshevik forces, for in that way still more Slavs might be induced to massacre one another. Thus we might be able to postpone the time when goods produced with cheap Russian labour will undersell our home products and put all our workpeople out of work, and the later time when a rich and powerful Russia with a great leader and a well-organised army will conquer Western Europe and show our canting humbugs how to commit real atrocities on a big scale instead of in amateurish sporadic outbreaks as did the German troops.

If Lord Rothermere goes to the War Office and reverses all Mr. Churchill's policies, he will merely increase his own unpopularity among Army officers, and thus will end by upsetting the *moral* of the Army. If he takes on the control of the Air Ministry as well—as Mr. Churchill has done—it means death and damnation to the Royal Air Force, for it is fairly obvious that it would be impossible for him and Sir Hugh Trenchard to work together, and if Sir Hugh left the Air Force at the present critical time in its development it would mean that the whole spirit of the personnel would fall to pieces and that it would take years to re-establish their faith in the R.A.F.

That might be quite satisfactory to Lord Rothermere, who might be well satisfied by the economy effected in the pay list through the resignations of those officers who resigned in disgust; but it would not satisfy those who know Lord Rothermere's methods of running a fighting service, and who believe that a strong, loyal, and efficient Air Force is necessary to the safety of the Empire.

The alternative is that Lord Rothermere may take the War Office and let General Seely loose at the Air Ministry. That is perhaps preferable, for at any rate General Seely means well, and is honestly enthusiastic about aerial affairs. Moreover, it is possible for officers and gentlemen to work with him without fear of being intrigued out of their positions by the junior ranks of the Force.

It has been suggested that perhaps Lord Rothermere may go to the Admiralty. That seems to be the most suitable place for him, for his particular methods of running a Service department may commend itself to senior Naval officers. The fact that the rumour has been denied "from an authoritative source" does not lessen the prospects of Lord Rothermere's official resurrection.—C. G. G.

A USE FOR OUR AERODROMES.

Hunts County Council talks of buying Wyton Aerodrome from the Disposal Board.

The aerodrome, which is four miles from Huntingdon, occupies over 200 acres, and is equipped with many permanent buildings besides hutments.

It is suggested that the buildings might be used as a sanatorium and the land developed as a farm colony.

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ECHOES FROM THE SCHNEIDER CUP.

The Aeronautical Correspondent of the "Times" delivered himself of the following conclusions concerning the Schneider Cup fiasco in the issue of that paper for September 12th :—

"The seaplane race held at Bournemouth on Wednesday was a great disappointment both to the general public and to industrial aviation.

"From the spectacular point there was no race at all, but two facts were very clearly brought home by the events of the day. The first was that the seaplane during the war has not progressed anything like as much as the aeroplane, and the second was that an aeroplane cannot efficiently be adapted for sea use by the substitution of floats in the place of wheels. It was demonstrated that a specially designed machine in the shape of a flying-boat was necessary.

"Both the British seaplanes broke their floats either in landing or taking off, both the French machines did the same thing, while the two competing flying boats experienced no trouble

"The exponents of the seaplanes agreed, after Wednesday's race, that the weather was all against them, and that owing to the absence of any wind it was necessary for the machines to attain such a great pace on the water before reaching their flying speed that their boats collapsed under the strain. This is certainly correct, but it shows that even in calm weather a machine designed for high speed and fitted with floats is a failure. On the other hand, in a wind they are also a failure, as a fresh breeze generally means a rough sea, and small choppy waves break the floats of a seaplane quicker than anything else. Floats which are made sufficiently strong to stand the strain are so heavy and cumbersome that their weight and resistance take off much speed, and it is evident that constructors, to get the increased speed for this race, tried a light float, which proved altogether too fragile. The fast seaplane, then, would appear to be altogether unseaworthy.

"There is little doubt that the only efficient machine for use on water is the flying boat, which is so designed that the fuselage of the machine while on the water forms a proper seaboat, and when the machine is in the air becomes a natural fuselage, offering very little more resistance than the fuselage of a land aeroplane."

A Seaplane Designer's Views.

The general inaccuracy of the statement of facts and the futility of the conclusions drawn therefrom have moved Mr. C. R. Fairey to produce, by way of protest, the following letter addressed to the Editor of the "Times"—

September 12th, 1919.

Sir,—

The conclusions drawn by your Aeronautical Correspondent in to-day's issue of the "Times" on the subject of seaplanes are so erroneous that I feel they should not remain unanswered.

In the first place his facts are entirely incorrect. None of the British Twin Float Seaplanes suffered damage to the floats with the exception of one competitor, and this, I believe, was done in avoiding a bather close in shore. Moreover, this was a machine built entirely for a speed contest.

On the other hand, one of the flying-boats entered damaged its hull in making the official landing, leaving the honours equal in respect of the two types. The failure of the race was entirely due to the weather conditions making it impossible to see the mark boat. The "Fairey" machine and the "Avro" (in reserve) both returned home in the evening, having made several landings without damage. Moreover, I would add that the "Fairey" machine entered for this contest has in fact made several hundred landings on the same floats and under various conditions. Having been delivered to the Government in July, 1917, it was re-purchased by us in March, 1919, having been in service during the intervening period, and the same floats are now on the machine as when originally delivered.

His remark that the seaplane has not advanced to the same extent as the land machine is also the exact reverse to the truth.

The land machine has not progressed at all; its improved performance is due to the great advance in engine design and construction. The 1913 "Avro" is still in production as a standard type and if fitted with a modern engine and strengthened accordingly would not differ in any respect from the most modern two-seater. The landing question with aeroplanes is further from solution to-day, in view of the advance in speed, than it was before the war.

On the other hand the seaplane has advanced to a very considerable extent. It has doubled its top speed, and although carrying a much greater load than its pre-war prototype it lands even slower and with much more safety.

While mankind has been rolling the turf for his aeroplanes nature has left the sea in the same condition as before. The seaplane can now deal with moderately rough conditions at sea. The modern land machine requires a more carefully prepared aerodrome than the cross-Channel Blériot of 1919.

The seaplane of to-day of equivalent performance to a similar land machine and in spite of the handicap of its sea-going gear, is carrying nearly 12 lb. to the sq. ft. of wing surface and 17 lb. per horse-power of its engine against the land machine's 7 lb. per sq. ft. and 14 lb. per horse-power.

Folding gear (Short), the variable camber wing, the flexible hull (Linton Hope), and the servo-motor for relaying controls (Cooper) are among the principal advances in seaplane design. America, with the retractable chassis, has made the only advance of consequence in aeroplane design.

The statistics in possession of the Air Ministry prove that the flying life of a seaplane is immeasurably greater than that of the land machine, the percentage of accidents and of lives lost per mile flown is beyond all comparison better than for the land machine.

The "Seaplane v. Flying-Boat" controversy was active in the R.N.A.S. some three years ago and has resulted in each type being relegated to its proper sphere, i.e., the flying-boat in large sizes for the trans-ocean routes and the twin-float type in smaller sizes for coastal work and use on rivers and lakes where its facility for manœuvring in restricted spaces and leaving the water quickly gives it the advantage.

In conclusion, I would state that at a time when the seaplane by its superior lifting capacity, its lower depreciation, its independence of prepared aerodromes and its immensely greater safety, appears in the eyes of many experts to be the only form of aircraft having an immediate commercial future it is unfortunate that the British Seaplane Industry should be the subject of such ignorant criticism, particularly in the pages of so responsible a journal as the "Times."

(Signed) C. R. Fairey,
Chairman, The Fairey Aviation Co., Ltd.

A Few Comments.

Both the "Times" article and Mr. Fairey's letter call for further comment, apart from the fact that so far as one has seen, the "Times" has not had the courtesy to publish Mr. Fairey's *démenti*.

Mr. Fairey has dealt fairly adequately with the absurd statement that "the seaplane has not progressed anything like as much as the aeroplane," but he might have asked the "Times" "expert" to explain wherein lies the difference between the float seaplane and the land-going aeroplane except in the substitution of floats for wheels. Any progress in aerodynamic design, constructional detail, or engine efficiency made by one has been at once available for the other.

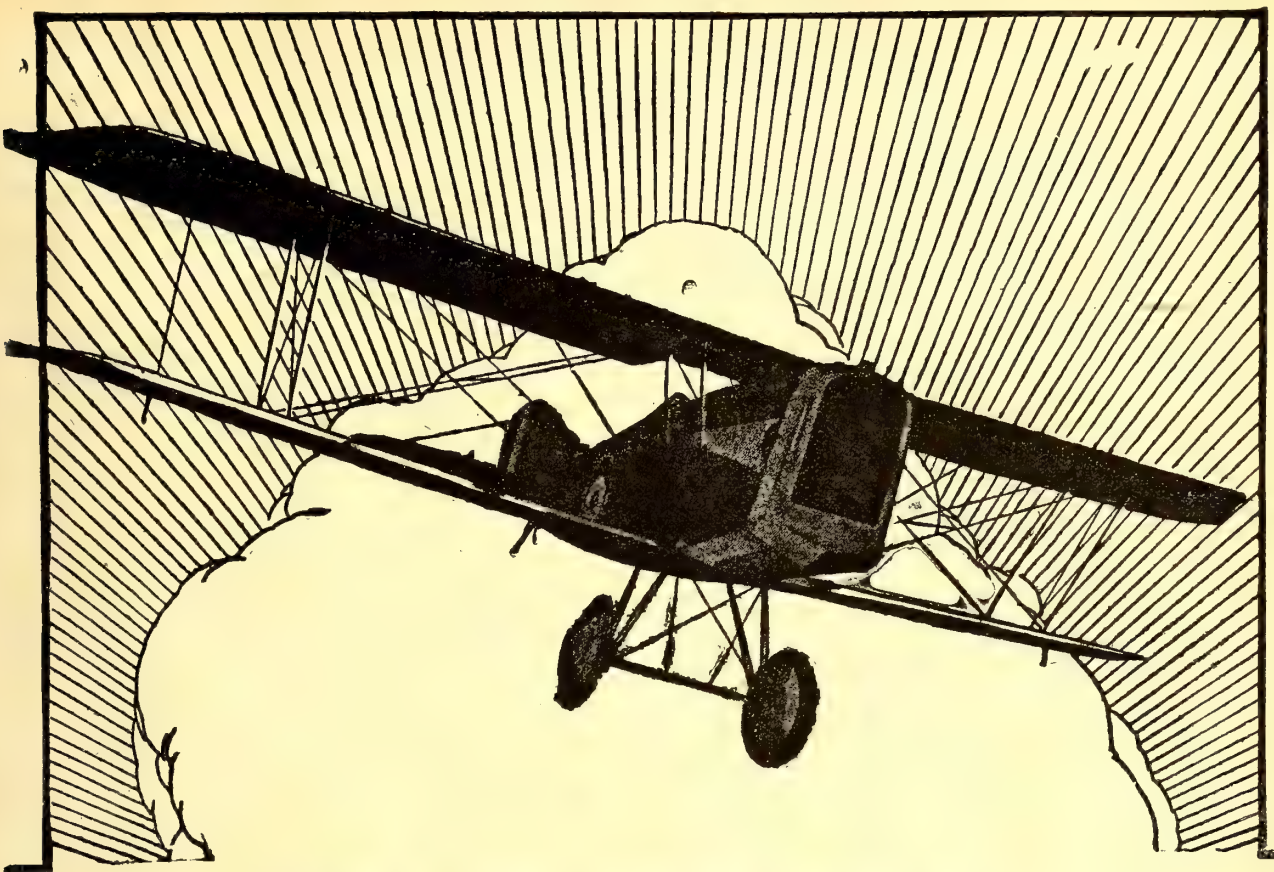
He might also have explained that so far from "a specially designed machine in the shape of a flying-boat" being necessary, a float seaplane is the only type of small seaplane which can be used in a rough sea. Flying-boats, though excellent for lake and river work and for smooth water, are only usuable in really rough water in their larger sizes, owing to the fact that in the smaller sizes the whole boat and the lower planes are submerged by any considerable wave.

As to the further inaccuracies of the "Times," no machine broke its floats in "taking off," and only one British and one French machine did so in alighting. The other French machine stove in a float on a stone in "landing," in the literal sense though not in the sense intended by the "Times" "expert." Incidentally, one does expect moderately accurate language in a paper of the standing of the "Times," and so one is somewhat surprised to find the paper's expert writing of "landing" on water.

The statement that "the exponents of the seaplanes agreed . . . . that owing to the absence of any wind it was necessary for the machines to attain such a great pace on the water before reaching their flying speeds that their boats collapsed under the strain" is entirely false. The seaplane people did not and never would agree to such a ridiculous statement. The floats (which the "expert" is here pleased to call boats) of two machines only collapsed on alighting, because they were built specially light for racing, and because, owing to the absence of any wind, the machines had to come down at flying speed on water as smooth and hard as glass.

Contrary to the belief of the "expert," as expressed by the word "even" in the next sentence, those same floats would have stood up to their work perfectly well if there had been a breeze and a slight sea to give them some braking effect in alighting. The benighted ignorance of the "Times" expert is shown by his last paragraph, for if he knew anything at all about sea-flying he would know that in the smaller sizes up to, say, 350-h.p., the float seaplane can actually lift bigger "useful loads"—that is to say, more bombs or more passengers or more fuel—off the water than can a flying-boat of the same power, and can fly faster with equal loads. The flying boat scores all round in the bigger sizes, and in the smaller it has the advantage in comfort for the crew when in the air, and in ease of handling when in tow or under power on smooth water.

So far as Mr. Fairey is concerned, he is guilty of one inaccuracy, namely, in stating that one of the flying-boats



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"damaged its hull in making the official landing." That was the general impression on the day of the race, while the Supermarine people were busy salving the boat. It was not till later that they had time to make known the fact that the bottom was torn out of the boat by some kind of flotsam in Swanage Bay, where the pilot had alighted in the hope of finding the mark-boat.

On the whole both the float machines and the flying-boats come out of the Schneider Cup fiasco with less damage to their reputations than either the Committee of the Royal Aero Club or the "Times" seaplane "expert."—C. G. G.

AN ENGINEER'S OPINION.

The following letter from one of the pioneers of British Aviation is of particular interest :—

Sir,—I have read with considerable interest your scathing attack on the organisation of the Schnieder Cup, and I must say that you are more than fully justified in your remarks. One thing I noticed in your report was the consistent failure of all the float machines used due to the bursting of the floats fitted.

Until manufacturers of high speed seaplanes appreciate that it is quite impossible to manufacture a rigid float which is both light and strong, no progress can possibly be made with this type of machine. It is quite possible, however, to construct floats which are resilient and at the same time keep their shape sufficiently to enable the machine to plane off the surface of the water.

Mr. Turnbull has invented and patented such a float which would satisfactorily overcome this trouble. In carrying out tests with an experimental float which we constructed it was possible to pick up the float by one end and use it as a flail against any hard object without damaging the float in any way. The planing surface of the float is perfectly rigid and also the attachment to the machine. It is practically impossible to burst the float or puncture it so that it would leak.

At the time of the Armistice floats of this type were being made for the Admiralty, but the order was cancelled with the cessation of hostilities.

If any high-speed seaplane maker is interested in the matter we should be happy to supply him with details of the invention and permit him to make a pair to suit his machine under the nominal license of half a guinea, and we are sure that if there is any manufacturer who will avail himself of this offer he will be in a position, anyhow as regards his floats, to compete with success in the next Schneider Cup race or any other seaplane speed competition.

A point which I have not mentioned so far is that the floats can be made in perfect streamline form and so reduce head resistance considerably.

(Signed) E. C. GORDON ENGLAND.
(Director) p.p. England & Turnbull, Ltd.,
193, Regent Street, W.1.

THE FRENCH VIEW.

The following letter gives the French view of the Aero Club's muddled management :—

Sir,—The French pilots and the Aero Club authorities here are very much in favour of the prize being given to the Italian aviator, and the chief argument they are using is that if he did not complete the course it was because the Avro which undertook to point out the course before the race went round the particular mark boat which was used by the Italian pilot for the 10 circuits he made.

It is openly said that this was purposely done by the Avro, and a considerable harm to British aviation in general has been done by the way in which this race was organised and conducted.

Indeed, I should not be surprised if the effect is to keep British machines and engines out of this market for the whole of next year, and as this is bigger than the British market the effect would be very much felt.

Your article in the current number has just the right tone to clear the air. "PARISIAN."

CONCERNING ENGINES.

The following letter has been received :—

Sir,—Owing to the number of conflicting reports which have been circulated regarding this race, held on Wednesday last, I have made careful examination to ascertain the cause of the British competitors', and particularly the two fitted with 450 h.p. Napier aero engines, not completing even one lap of the course.

I understand that the trouble was due to the bad visibility in the neighbourhood of the Swanage mark-boat, which the competitors had to circle, and which could not be found by any of them.

The Supermarine flying-boat, which was fitted with a 450 h.p. Napier aero engine, ran into a mist over Swanage Bay; the pilot lost his bearings and made a landing in Swanage Bay in order to ascertain his position. Upon taking off, the machine hit some wreckage, and the pilot did not know the extent of the damage until landing near Boscombe, where he tried to beach his machine.

It is regrettable in the interests of aviation generally, and particularly British aviation, that this race was allowed to commence without ascertaining the extent of the mist over the whole course, and thus turned the race, which should have been of great assistance to aviation, into a fiasco, which might do incalculable harm to the progress of the British Seaplane Industry.

I understand that both Napier engines were running perfectly in the British machines when on their trials.

(Sgd.) H. T. VANE,
Managing Director, D. Napier and Son, Ltd.

THE HANDLING OF SEAPLANES

A reader of THE AEROPLANE states that in his opinion the breakages to the floats of certain machines in the Schneider Cup competition were due to an error of judgment on the part of the pilots. The pilots somewhat naturally endeavoured to bring their machines onto the water as slowly as possible, but owing to the absence of wind this speed was very high in spite of their efforts. The result was that the tails of their floats hit the water fast at a large angle, with the result that the front of the floats slapped down onto the surface so hard that the bottoms were knocked in. In his judgment it would have been better if the pilots, instead of trying to make a slow partially stalled alighting, had deliberately come down fast in a flying position. In this case the floats would have skimmed over the water until the speed was reduced instead of hitting it flat. The theory is worth consideration by pilots of racing seaplanes.

PLEASING RECOLLECTIONS.

One who was present at the Schneider Cup fiasco remarks that it quite reminded him of the old days of flying competitions in 1909 and 1910 because there was no flying and no organisation.

In his opinion the noise of the aeroplanes and their engines and the rules and regulations restricting free circulation on aerodromes in these days completely spoils what would otherwise be very pleasant social gatherings.

AN UNFOUNDED IMPRESSION.

Many spectators at the Schneider Cup fiasco were anxious to know the meaning of the letters "G—EAKI" on the Sopwith machine. It seems well to explain that they do not represent an aboriginal Australian war-cry adopted by Mr. Hawker, but that they are merely the Air Ministry's idea of an identification mark.

A CONSOLATION RACE.

It is announced in the Royal Aero Club official notices on page 1196 that a race will be held for seaplanes in October for a handsome prize. It will be remembered that a suggestion to this effect was made in THE AEROPLANE last week. The prize of £500 should produce several new entries, and the sportsmanship of Lieut.-Col. McClean, the father of British Naval Aviation, in putting up a £100 cup adds materially to the interest in the race. The conditions of the race are worth studying.

THE AIRSHIP EXHIBITION AT PRINCES GALLERIES.

Since the opening day the number of exhibits has been increased by a very excellent collection of photographs and models kindly loaned by the Italian Government. Also there are now very many more additional models, pictures, etc., from various sources in this country. The exhibition, on the whole, is quite one of the best shows of its kind yet seen, and one is glad to hear that the attendance has improved immensely since the first few days.

Owing to the little idiosyncrasies of the Police regulations, a very novel form of advertising arranged for the opening day was barred, so that the only intimation that the exhibition was opening appeared in the usual out-of-the-way portions of various newspapers.

Unfortunately, the position and size of the Galleries prevent the showing of any full-sized aircraft or parts, barring a few interesting relics of the past, such as the fuselages of the first Santos-Dumont and the Spencer airships, so that by far the best feature of the exhibition is found in the exceedingly fine collection of photographs loaned by the British, French, and Italian Governments, and also a series of paintings by Capt. A. E. Cooper, illustrating some of the work of the Airship Section of the R.N.A.S. and R.A.F. during the war.

A large quantity of models illustrates practically every type of lighter-than-air craft built by the various Allied Governments during the war, as well as a number of post-war designs projected by various firms, who, fortunately, realise the vast amount of possibilities of airships in connection with long-distance travel and exploration.

One can only repeat that it is to be earnestly hoped that the expectations of its promoters will be handsomely exceeded not only in realising a suitable profit to hand over to the St. Dunstan's Home for the endowment of an "Airship Bed," but also, in bringing before the public the great possibilities of the airship.

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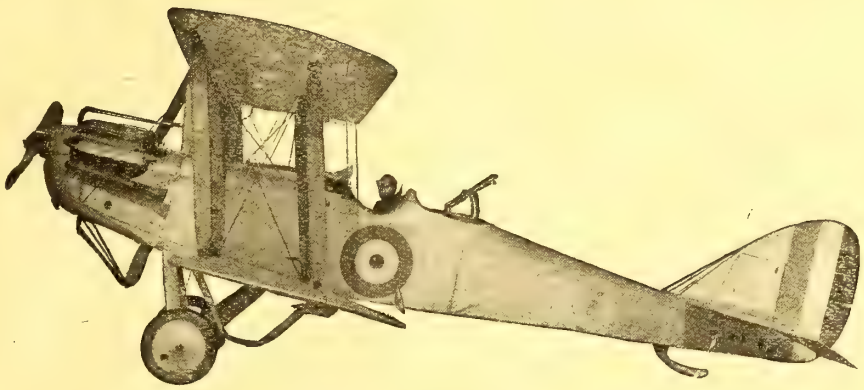

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The WORLD of AERONAUTICS

NEWS OF THE WEEK FROM ALL QUARTERS

The Meteorological Conference.

A conference of meteorologists of the British Dominions will be held in London next week. The official meteorologists of Australia, New Zealand, South Africa, Canada, India, Ceylon, and Egypt will be present. The programme, as at present drawn up, opens with a reception at the Meteorological Office on Monday evening. On Tuesday, in the rooms of the Royal Society, Col. Blandy, D.S.O., R.A.F., Controller of Communications, will speak upon the transmission of weather reports by wireless, and there will be a visit to the radio-telegraphic receiving and distributing stations of the Air Ministry. Kew Observatory will be seen on Wednesday. On Thursday, during the morning, the delegates will visit the Kite Balloon Station at Kingston Hill, and in the afternoon the R.A.F. Meteorological Station at Bedford.

Other visits during the week include the Admiralty Meteorological Station, the British Rainfall Organisation, and the Aerological Observatory at Benson.

The Leon Morane Altitude Prize.

The late M. Léon Morane, whose modesty and charm of manner endeared him to all, told his brother some years ago that he intended to found a prize which should bear his name. He died before his intention was put legally into effect, but M. Robert Morane has loyally carried out his dead brother's wish.

He has presented to the Aero Club de France 10,000 francs and a Cup to be entitled the Challenge Léon Morane. The Cup will be awarded to the French aviator for the French height record gained on a French-built single-seated aeroplane. It will become the definite property of the French aviator who holds the record for a year at least. The 10,000 francs prize will be awarded to the definite holder of the Cup.

The period during which the present regulations are effective is from Oct. 19th, 1919, to Oct. 19th, 1923. If, at the latter date, nobody has won the Morane prize, the Cup and a prize of 1,500 francs will be given to the last French holder of the French height record. The 10,000 francs unawarded will then be competed for under new regulations.

A Spanish Race.

The British Chamber of Commerce at Barcelona announces that the forthcoming Spanish aeroplane race will be open to Spanish aviators and to foreigners resident in Spain for more than one year. Other foreign pilots can enter, but without any right to the prizes in the contest. If more than three enter special prizes will be allotted. The trial will be entirely one of speed. The course will be as follows: Prat de Llobregat, Barcelona, Badalona, Sabadell, Tarrasa, Tibidabo, Barcelona, Prat de Llobregat—a total of 110 kilometres.

Entries are free, and must be made by Sept. 30th. The British Chamber of Commerce will be pleased to enter any pilot of British nationality who wishes to take part in the race.

Prizes for Portuguese and Brazilians.

A prize of £300 for the first Brazilian or Portuguese military aviator to fly between Lisbon and Rio de Janeiro is proposed in a resolution that has been introduced in the Brazilian Chamber of Deputies. The measure calls for the Government to finance preparations for the flights up to an amount not exceeding £30,000. It is provided that the flight shall not require more than 168 hours.

The Portuguese Government on June 6th offered a prize of approximately £6,700 for the first Portuguese or Brazilian aviator to fly from Portugal to Brazil.

34,610 Feet.

It is claimed that Mr. Roland Rohlfs, in a Curtiss K.12, on Sept. 18th broke the world's altitude record by rising to a height of 34,610 ft. in a 400 h.p. Curtiss triplane. He attained over 34,000 ft. last week, but the flight was unofficial.

The flight was observed by officials of the Aero Club, who sealed Mr. Rohlfs' instruments when he landed and sent them to Washington for verification. The pilot reported that he experienced trouble in breathing at 20,000 ft., being obliged to use his oxygen bottle. At the top of the climb the thermometer registered 43 deg. below zero. At 31,000 ft. the machine frightened the pilot by its antics, finally dropping 600 ft. vertically, as recorded by the barograph. Mr. Rohlfs reached his record height in 78 min.

Balloon v. Aeroplane.

As claims are being made for new altitude records almost every week one begins to wonder how long it will be before the heavier-than-air record equals the balloon record with passengers. As already announced, Mr. Roland Rohlfs, one of the Curtiss Co.'s testing pilots, claims to have ascended to a height of 34,610 ft.

In September, 1862, Coxwell and Glaisher ascended in a balloon to a height of 37,000 feet.

Aeronautics at the Polytechnic.

The Polytechnic, Regent Street, announces that a series of evening classes dealing with aeronautics will be instituted during the session 1919-20.

The Syllabus, which has just been issued shows that a complete course of instruction in aeronautical engineering has been laid down, which is to be completed in three years, and which very completely covers the whole field, including the history of aviation, mathematics, aero-mechanics, the principles of aeroplane, airship, aero-engine and airscrew design, draughtsmanship, and the principles of practical construction and of workshop practice.

The reputation of the Polytechnic, and the fact that Major T. Worswick, O.B.E., M.Sc., A.F.R.Ae.S., late R.A.F., is the Assistant Director of Education of this institute, should be a guarantee that this new branch of its activities will be well and efficiently operated.

Intending students should note that the head of the Engineering Department and the teachers will be in attendance at 307 to 311, Regent Street, from 6.30 p.m. to 9 p.m., every evening between Sept. 22nd and Sept. 26th to advise upon the choice of classes.

A Banquet.

Mr. Handley Page was the guest on Saturday, Sept. 20th, at a banquet given by his fellow-townsmen at Cheltenham. The proceedings were arranged by the local Chamber of Commerce and Traders' Association, and its president, Sir James Agg-Gardner, M.P., was in the chair.

The toast of "Our Guest" was proposed by Mr. Oliver J. Williams, who in the course of his speech likened Mr. Handley Page to Hermes, the messenger of the gods, to Mercury, the man who travelled from continent to continent, and even to Ganymede, the "page" of the gods.

Their guest, he said, had taken a great part in revolutionising not only the art of war, but transport all over the globe. If it had not been for the German army cracking up at the moment when we least expected it, they knew that the Handley Page machines would have given Berliners a lesson that they would never forget. Thanks to the efforts of such men as their guest, the air machines would in the future take the place of the ordinary passenger steamer and the railway train.

Mr. Handley Page, who received a very hearty reception on rising to respond, paid an eloquent tribute to the services of the Royal Air Force in the war. At times, he said, the officers would say that they had the rottenest machines, but, in spite of everything, they could depend upon the men always, and the same courage which won Trafalgar won the last battle in the air.

He had hoped that they might bomb Berlin, and the machines were ready. They had hoped the Armistice would not be signed for a day or two, but what was to them a disappointment became pleasure and joy to many thousands, as it meant the avoidance of further bloodshed.

They had been able, however, to take the machines to the capital of Afghanistan, and show there what they could have done to Berlin. But those engines of war could easily be transformed into engines of peace, and to-day they were sending machines daily to and from Paris. He felt that such easy means of communication would be the best means of preserving peace in the future, as it would prevent international misunderstanding. The best League of Nations would not be built up by paper, but by aeroplanes.

A Rumour.

The rumour that the Department of Civil Aviation will soon be incorporated in the Ministry of Transport is being much discussed. The general opinion is that the immediate result would be a fresh crop of hampering regulations.

Government Aircraft Competition

An important clause in the £64,000 prize conditions.

"16. Soundness and quality of construction will include—

(a) Fire protection, including use of self-sealing tanks (from the point of view of safety from fire in the event of a crash), fire fighting appliances and accessibility of same."

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The WORLD of AERONAUTICS (continued)

The Australian Government Competition.

The following communiqué was received from the Air Ministry on Sept. 19th :—

The flight for a prize of £10,000, which was offered by the Australian Government in March last was the subject of a Conference to-day between representatives of the Air Ministry, the Australian Commonwealth, the Royal Aero Club, and the competitors.

It has always been recognised in official quarters that a flight between England and Australia would be a performance of very great difficulty in the present state of ground organisation, and that considerable time must necessarily elapse before the project could mature. Since little information was available on the proposed line of route beyond Calcutta, it was decided jointly by the Commonwealth Government, the Air Ministry and the Royal Aero Club that no competitor should be allowed to start until the Air Ministry had been able to obtain reliable data concerning the section of the route between Calcutta and Port Darwin.

Brig.-General A. E. Borton, D.S.O., and Capt. Ross-Smith, of the Australian Flying Corps, were accordingly dispatched without delay to carry out a special survey of this section, and to report on the possibility of the flight being successfully attempted. These two officers have now returned to England, and to-day furnished detailed information regarding their investigations. They reported that beyond Calcutta the route lies over country far from favourable for aeroplane flying. Between Calcutta and the Dutch East Indies the only landing grounds suitable for immediate use are the Race Courses at Rangoon and at Singapore. Beyond Singapore, where the route lies over the Dutch Islands, the next place where good landing facilities exist is Bandoong, and thence no landing ground is at present available for the intervening 1,760 miles to Port Darwin.

As the weather after the end of November is most unfavourable, General Borton expressed the view that if the flight is to be made this year only aeroplanes possessing a range of at least 2,000 miles could make the attempt with any hope of success. He explained also, that the difficulties would be considerably lessened if competing machines were fitted with floats at Calcutta and continued the journey as seaplanes, as there are several suitable harbours and inlets on the route to Australia.

With regard to the portion of the route between London and Delhi the same difficulties do not present themselves, as the organisation created by the Air Ministry for Service flights is meantime available. Owing to the weather conditions after the beginning of November, however, it may be necessary for competitors to fly via Malta and the North Coast of Africa to Cairo. From Cairo to India the difficulties to be faced are greater, and vast stretches of uncivilised country have to be traversed. Although more than one flight has been made over this portion of the route, it cannot be said to be in regular operation.

The Air Ministry have placed all available information at the disposal of competitors, and are arranging for the granting of such facilities as have been created and exist, and to keep competitors posted with any progress or developments.

Flying and Tennis.

A correspondent writes :—

I used to like aeroplanes; before the war I invariably rode a push-bike from London to Brooklands to watch the flying every Saturday and Sunday. I still rather like aeroplanes (both flying them and watching them), and people think me a damned fool because I always rush to the window with a pair of field-glasses every time I hear a machine; in fact, I used to have a very busy time with my squadron in France owing to this habit of not being able to hear an aeroplane without wanting to see it.

Lately I have started playing in tennis tournaments. Doubtless, many readers who are cricket enthusiasts will recognise the identity of the batsman who would never play at Lord's because he was quite certain that as soon as he was called upon to face the bowler from the pavilion end someone in the pavilion would get up and take his hat off to an acquaintance which would catch his (the batsman's) eye, and, if the ball was a straight one, he would be bowled.

I have every sympathy for that man. This week I have been playing tennis at Eastbourne. Every time I threw a ball up for a serve I expected to see, and very often did see, either a land or seaplane belonging to the E.A.C. cross my line of vision; of course, this distraction usually caused a fault. Possibly someone will say that it is the same for all; perhaps it is. But, personally, I think it affects some people more than others; for myself it is sufficient to take my eye off the ball to hear an aeroplane near me.

Here let me say that I do not blame the pilots, since during the whole meeting no machine actually flew within three hundred yards of Devonshire Park, and certainly no one repeated the performance of the gentleman (alleged) to whom reference has already been made by me in a previous number of THE AEROPLANE who tried to get a free view of the tennis at Wimbledon from a machine.

From what I know of Major F. B. Fowler, if the Committee had 'phoned him and asked him to keep his machines to the east side of the pier when flying at a height of under 5,000 ft., I am quite sure he would have been only too pleased to comply.

I know that the seaplane which was the worst offender very much interfered with everyone's game, and, as a competitor remarked, "They should shoot the blighters down before each match."

Seriously speaking, though, there is no doubt that a machine in the sky interferes considerably with any game in which eye and concentration are needed, and pilots would do well to keep as far away as possible from all cricket matches, tennis tournaments, etc., since interference with games will do more harm to flying and make it unpopular far quicker than any other way.

There is nothing that upsets the average Englishman more than interference with his games. Certainly, it has provided me with an excellent excuse when asked by friends why I was beaten in the first round of all events!—G. D.

A Projected Airship Scheme.

A "Daily Express" correspondent at Selby, Yorks, understands that Armstrong, Whitworth, Ltd., will shortly submit to the Government a scheme which, if adopted, will mean pushing ahead at once with the construction of giant commercial airships.

The type of air-liner they have designed and are prepared to build is the last word in luxury and efficiency. These ships, built entirely of steel, and equipped with saloons, dining-rooms, smoke-rooms and sleeping cabins, would have a carrying capacity of between sixty and seventy tons, and a gas capacity of about 3,500,000 cubic feet. They would be able to do a 6,000 mile trip without trouble of any kind.

An improved airship engine, combining speed with reliability and endurance, is being designed, which should give the airships a speed of at least eighty miles an hour.

The Cambridge Flying Club.

A flying club is to be formed at Cambridge intended principally for undergraduates who have served in the R.A.F., and who wish to continue flying. The necessary arrangements are being made by the Cambridge School of Flying, and it is hoped that when the men return next term at least 100 will join.

It is understood that H.R.H. the Prince Albert has promised to make use of the aerodrome if he requires it while in residence.

The machines to be used are Avros and D.H.6's, but negotiations are in progress for insurance, and it is possible that D.H.6's only will be used. The Secretary of the Cambridge School of Flying and Aerodrome Co., Ltd., is Capt. J. L. Lee-Jones, B.A., Oxon, whose address is 2, Downing Street, Cambridge.

"Popularity Jack."

From the "Daily Mail" of Sept. 22nd :—

"At a reception to returned soldiers at Langley Mill, near Ilkeston, on Saturday night, General Seely, the Under-Secretary for Air, accepted a challenge by the vicar, the Rev. H. Gilgryst, to sing, the audience to adjudicate. The vicar sang the 'Anchor's Weighed,' and General Seely followed with 'John Peel,' accompanying himself at the piano.

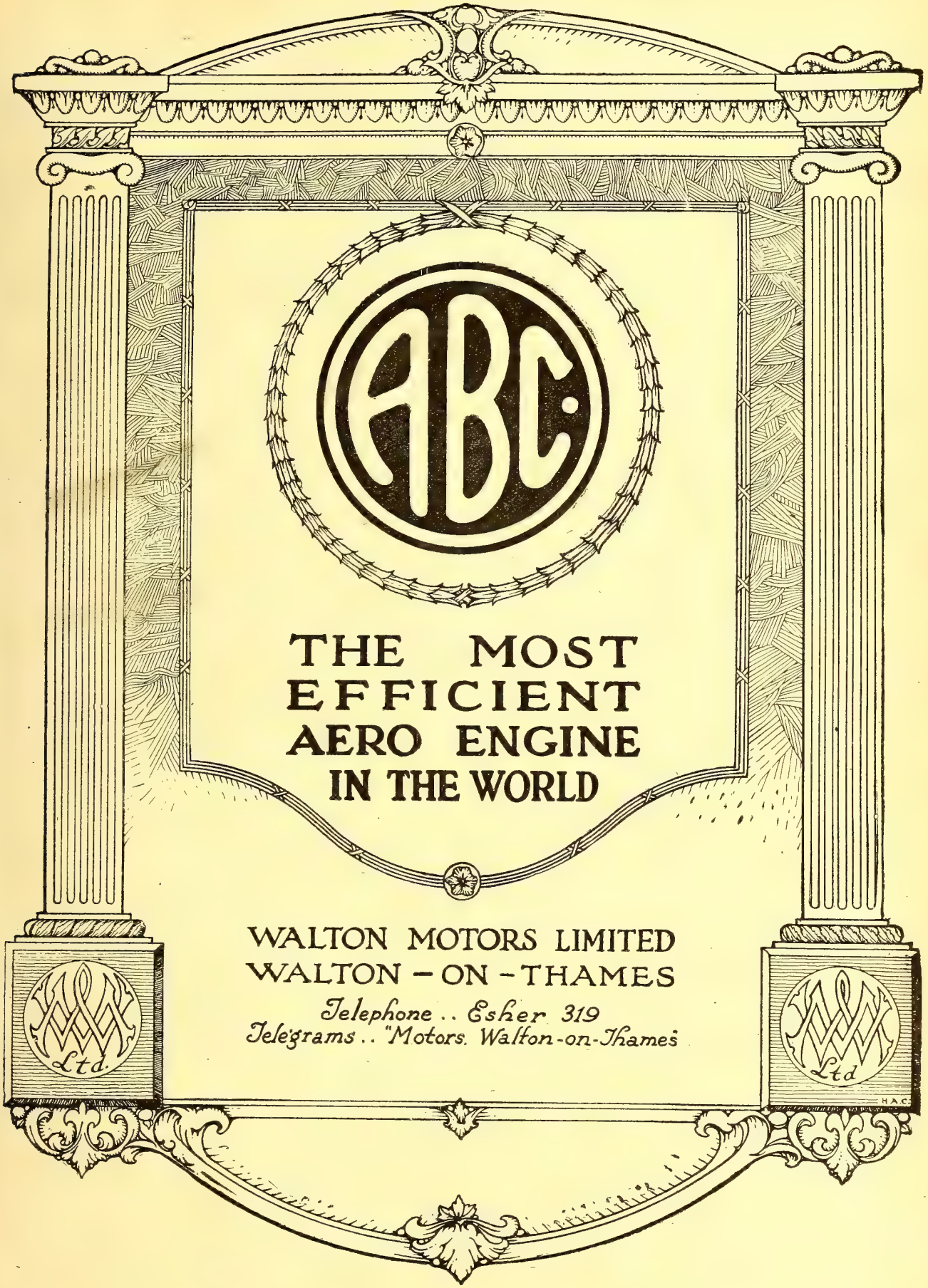
"The verdict of a draw was received with applause. Each was presented with a box of chocolates."

[One commends to the Under-Secretary of State for Air a study of the gentleman of whom Herodotus relates that by way of showing his appreciation of a banquet he stood on his head in the middle of the table and waved his legs in the air. —Ed.]

The Economy Campaign.

Some officials have enjoyed a laugh at the expense of Mr. A. R. Atkey, M.P. for Central Nottingham, who caused a stir in the House recently by asking whether a new anti-aircraft gun was being erected on Wilford Hill.

It has now transpired that the gun, which was seen being placed in position at Wilford, had been to Leicester to fire the Royal salute on the occasion of the King's visit to the city.


ABC
THE MOST
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Ltd

London-Paris Air Express

Summary of First Month's Flying.

August 25th, 1919, to September 20th, 1919.

Flights Scheduled	**56**
Flights accomplished	**54**
Prevented by weather	**1**
Interrupted by mechanical defect	**1**
Number of Miles flown	**13,750**
Average Speed (Miles per hour)	**106½**

The following is an official summary of the weather flown through during the month.

Days favourable for flying	**3**
„ unfavourable for flying	**13**
„ noted officially as "unfit" for flying	**8**

Only once, when the wind attained a velocity unknown for years, was it necessary to abandon a flight; and even then, though there were squalls of 100 miles an hour strength, only one of the two Daily Services was suspended. Though the machine from London did not start, the one from Paris not only started but arrived at Hounslow before its scheduled time.

LONDON:
AIRCRAFT TRANSPORT & TRAVEL, LTD.,
27, Buckingham Gate, S.W.1.

Full particulars regarding Rates and Freights can be obtained from Aircraft Transport & Travel, Ltd., 27, Buckingham Gate, S.W.1, or from the American Express Co., Queen Street and Haymarket; Thos. Cook & Son, Ludgate Circus, E.C.; General Transport, Ltd., 52, Crutched Friars; J. Jackson & Sons, 7-8, Charing Cross, and King William Street, E.C.; Henry Johnson & Sons, 18, Byward Street and Beak Street, W.; Lepaerial Travel, Piccadilly Circus (Criterion corner); Carter, Paterson & Co., 6, Maddox Street, W., and 3, Cannon Street, E.C.; and Hernu, Peron & Co., 98-100, Queen Victoria Street, E.C.

PARIS:
COMPAGNIE GENÉRALE TRANSAERIENNE,
118, Champs Elysees.

NAVAL & MILITARY AERONAUTICS

GREAT BRITAIN.

[The Official Gazettes, Honours Lists, and Personal Notices will be found on page 1203.]

THE PEACE TERMS TO BULGARIA.

The Draft Treaty of Peace was handed to the Bulgarian Peace Delegates in Paris on Sept. 19th. Part X—Aerial Navigation—is identical with Part X of the Austrian Peace Treaty.

PART IV.—MILITARY, NAVAL, AND AIR.

AIR.

The air clauses provide that the armed forces of Bulgaria must not include any military or naval air forces. The entire personnel of the air forces in Bulgaria is to be demobilised within two months.

The aircraft of the Allied and Associated Powers is to enjoy full liberty of passage and landing over and in Bulgarian territory until the complete evacuation of that territory by the Allied and Associated troops.

The manufacture of aircraft and parts of aircraft is forbidden for six months. All military and naval aircraft, including dirigible and aeronautical materials, are to be delivered on the ratification of the present Treaty.

NAVAL.

ADMIRALTY APPOINTMENTS.

The following appointments have been made :—

SEPT. 17th.—Gnr.—H. A Haynes, to "Argus," Sept. 16th.
Sept. 19th.—Lieut.—D. C. Sealy, D.S.C., to "Argus," Sept. 18th.
Sept. 20th.—Art. Engrs.—A. Lambert to "Ark Royal," Sept. 19th.

THE CASUALTY LIST.

Reported Sept. 9th.

WOUNDED.—Maj. A. C. Barnby, R.M.L.I.

MILITARY.

OFFICIAL COMMUNIQUE.

The War Office issued the following communiqué on Sept. 19th :—

The Bolshevist fleet of 15 vessels which sailed north-east from Petrozavodsk to intercept one of our columns which was being landed on the west shore of Lake Onega was attacked by our aircraft with machine-guns and bombs and forced to return to its harbour in confusion.

THE CASUALTY LIST.

Reported Sept. 22nd.

PREVIOUSLY REPORTED MISSING, NOW REPORTED KILLED.—Muir, Sec. Lt. J. W., R.F.C.

* * *

OPERATIONS IN RUSSIA.

Kronstadt was bombed on Sept. 13th and again on Sept. 14th by British aviators. In the first raid, although the aeroplanes were subjected to a severe bombardment, all returned. In the raid of the 14th one of the aviators was forced to descend in Finland owing to engine trouble. In both raids hits were observed.

Another account states that the pilot of this machine, which the account says fell into the sea near Bjorkoe, was drowned.

Kronstadt was again raided on the night of Sept. 15th by the British, thus making the third raid in succession.

* * *

News of another attack on the 17th-18th states that both fighting and bombing aeroplanes took part in this raid. The weather was bad; there were both rain and wind and the night was dark. One of the fighting aeroplanes met with an accident when starting and fell into the sea. The pilot was killed. Two other machines of unstated types came down later and their crews are missing. The remaining machines reached their objective.

* * *

Another air raid was carried out upon Kronstadt on Sept. 19th, sixty aeroplanes taking part. Many fires were observed, and the anti-aircraft defences were active.

* * *

THE RAID ON KABUL.

Reuter's correspondent at Simla communicated the following to the Press apparently upon Aug. 19th, although it has only just been published. One can find no previous record of the appearance of this account :—

It is interesting to learn that the aeroplane which a few months ago bombed Kabul was the Handley Page machine in which General N. D. K. MacEwen, C.M. G., D.S.O., came out to India from England in January. It will be remembered that in March last, after the machine finally arrived at Delhi, after many vicissitudes, Captain R. Halley, R.A.F., piloted it to Ambala and Lahore, and afterwards to Risalpur.

It was from Risalpur on May 24th that Captain Halley, with Lieut. Villiers, R.A.F., as observer, started to attack Kabul. The machine left Risalpur about 3 a.m. on its flight of nearly 400 miles. Owing to the great heat and atmospheric conditions considerable difficulty was at first experienced in getting it to rise to the required height. Having succeeded, it proceeded across the Khyber and followed the River Kabul to Jellalabad, in which city the effects of bombs previously dropped by other machines were plainly visible. Thence it flew straight to Kabul, having to ascend about 8,000 ft. to cross one high ridge.

A good deal of difficulty was experienced from air pockets Kabul was reached about 6.30 in the morning. The machine had good luck in one direction, in that it made its voyage to Kabul with a tail wind, and after it had accomplished its journey the wind immediately changed round and assisted it to make its return journey. This fact probably lessened the time of the flight by at least an hour and a half.

After arriving at Kabul the Handley Page descended to some 1,600 ft. above the city, which is situated at about 6,000 ft. elevation. The whole visit over the city only lasted some ten minutes. The aviators saw large numbers of people rushing about in alarm. Several big bombs were dropped, apparently with considerable success, on the arsenal buildings. The great Bala Hissar Fort stood out very prominently among all other structures.

The Handley Page finally returned to Risalpur, thus accomplishing one of the longest and most difficult air raids yet carried out by the Air Force. Moreover, this was really the first time that a four-engine Handley Page had taken part on active service. Having accomplished such an extremely hazardous flight as it made last January from England to India, the greatest credit is due to the pilot and crew for navigating the machine through such a difficult, unknown and treacherous country as Afghanistan. There is little doubt from reports which have since filtered down from Kabul that the aeroplane's visit to the capital had an extremely important effect both from the military and political point of view, and at the recent conference at Rawalpindi more than one of the delegates confessed that the Afghans had been deeply impressed by the air raid.

A RESOLUTION OF THANKS.

At a meeting of the City of London Corporation on Sept. 18th Alderman Sir William Treloar moved the following resolution :—

That this Court desires to record its appreciation of the effective measures taken for the defence of London on the occasion of the many raids by enemy aircraft during the war, and especially on the night of May 19th, 1918. This Court wishes to express the great indebtedness of the citizens and inhabitants of London for the untiring devotion and splendid services of the pilots, airmen, gunners, and others engaged under the command of Major-General Ashmore on the night of May 19th when not only were seven of the enemy machines brought down, but so much further damage was done to the enemy that the Germans finally decided to abandon attacks on London.

The resolution was carried.

THE WAR MEDAL.

The decision of the War Office to award the British War Medal to Y.M.C.A. workers who served in any of the war areas and to allow those who served overseas between August, 1914, and Dec. 31st, 1915, has been received with mixed feelings. Some people do not think it quite fair that a flying instructor who was not allowed to go overseas because he was too useful and who risked his life trying to train dud huns in England should have no medal, whereas the man who handed out tea in a Y.M.C.A. hut at a pleasant sea-coast town base a day's journey from the front should be given the honour of wearing the ribbon that is supposed to denote that the wearer has risked everything for his country.

However, there is so much unfairness in these matters that one cannot imagine how any really good man who knows that he has done his duty can worry about such things.

AIR FORCE.

The R.A.F. Recruiting Campaign.

It is officially stated by the Air Ministry that although it is only a few weeks since the R.A.F. opened its special recruiting campaign recruits have come forward in such numbers that the Force is now up to its present authorised strength.

Accordingly, all recruiting has now been suspended except for carpenters, cooks, and clerks, for which trades a certain number of vacancies still remain.

The attractive new conditions of service and rates of pay are, of course, largely responsible for this satisfactory result, and the authorities are extremely pleased with the class of men who have come forward.

As the number of applications still being made show no sign of diminishing, men of the trades for which vacancies still exist and who desire to enter the R.A.F. would be well advised to apply without delay.

The Relinquishment of Aerodromes.

The Air Ministry announces that it has been decided to relinquish and dispose of the following Royal Air Force Stations, and arrangements are being made accordingly :—

Wight, Cowes (aerodrome), London Colney (aerodrome), Beaulieu (aerodrome), Lydd (balloon school), Dover (seaplane station, temporarily transferred to the Admiralty).

The London-Bombay Service.

Lieut. Crichton, R.A.F., and Lieut. Coombs, R.A.F., who arrived at St. Raphael (Var) on Sept. 13th, left there for Taranto on Sept. 15th. They are visiting Taranto in connection with the proposed London to Bombay aerial service.

An Accident at Simla.

A telegram from Simla states that an aeroplane, while trying to land in the Residency at Quetta, fell to the ground and burst into flames. A passenger, Capt. Steele, and two Brahmins were killed. The pilot, an officer of the Royal Air Force, was severely shaken.

On Air Stations in Particular.

It was recently one's good fortune to see two of His Majesty's Royal Air Stations in being—or rather in that state of being that is permitted them by an economical daily Press. In these days of Peace, so quickly are the Services forgotten that it appears to be well to draw the attention of the general public to the fact that there are still air stations at Lee-on-the-Solent and Calshot, and that, weather permitting, there is flying done at these stations.

Lee-on-the-Solent is an air station which is extremely anxious to disclaim any connection with the Navy. Being a seaplane training station, naturally practically all the staff are late R.F.C., although the O.C. is a former R.N.A.S. officer.

Lee-on-the-Solent is an awkward place to get at, but when reached is well worth the trouble. From the strictly naval atmosphere of Portsmouth Harbour, through the equally strictly military one of Gosport, out—at length—to such a distinctly Air Force atmosphere as Lee-on-the-Solent, gives one a very good impression of His Majesty's Three Services.

Lee is a pretty place, but too quiet. The inhabitants, having nothing to do, talk R.A.F. scandal all day. Be that as it may, no inhabitants appeared on the afternoon in question, and having presented the pass one proceeded on a tour of inspection.

One was taken round the shops and the sheds. Short folder seaplanes, Norman Thompson flying-boats, and an experimental Sage two-seater—which is "quite fast"—were the apparent complement. Lee is a training station—forty officers having arrived in the last few days for training purposes, and all machines, except possibly the Shorts, seem to be fitted with dual control.

One regrets that after all arrangements had been made there was no time to visit the W.R.A.F.'s hostel, particularly as the W.R.A.F.s are leaving Lee shortly. But when trains are one an hour, and there is a dinner at the other end of a long journey, one is not running any risks.

The day on which the visit to Calshot was made was quite a good one on which to travel to the ends of the earth. The steamer from Portsmouth to Southampton conveys one to Calshot, where it is met by an R.A.F. launch, which takes one ashore. Even then there is a drive of some ten minutes before one reaches Top Camp.

Top Camp consists of living quarters for the personnel, a recreation ground, canteens, etc. Everywhere was deserted, of course, but very clean. Calshot is a busy station.

On the Spit, where everybody seemed to be, one saw workshops and power station, sheds full of F.-boats and Short folders, etc.—and everywhere men at work.

The station, being a permanent one, is being enlarged in order to accommodate a larger personnel. During the war this station, which had a personnel of something like a thousand, had accommodation for two hundred, and Peace, coming as it did when all were unprepared for it, discovered the station in the process of the alterations which are now approaching completion.

There is a vast deal more to be seen at Calshot than at Lee-on-the-Solent; therefore one's apologies for the incoherence of this article are necessary; but when one crowds into an afternoon sufficient impressions to last one several days the result is naturally some chaos of thought.

The visit came to an end with the signalling of the Cowes boat, and one re-embarked on the launch and at length arrived aboard the steamer.

The chief thing about Calshot is its absolute "ungetatableness." In the summer it might possibly be bearable, but in winter it must be ghastly. Certainly one realises the need of a cinema and a theatre, for the only connection with the outer world seems to be the launch and the Southampton-Portsmouth boat.

At any rate, one spent two pleasant afternoons among people who did not find it too much trouble to be nice.—

S. F. B.

A Gift for the R.A.F.

Vice Air-Marshal Sir Godfrey Paine, Inspector-General, Royal Air Force, opened at Netheravon an institute which has been presented to the Royal Air Force by the Church of England Board for the welfare of the Imperial Forces in the diocese of Salisbury.

Sir Godfrey emphasised the fact that it was the first institute presented by anybody to the Royal Air Force. There might be bigger institutes, but he knew of none that was so comfortable and well equipped, and the gratitude of the whole of the Royal Air Force was due to the Church of England Board for its munificent gift.

The institute, which has been erected at a cost of £4,000, has accommodation for 600 persons, comprises a lounge hall, billiard room, buffet, and a chapel or devotional room, the last-mentioned being formally dedicated by the Bishop of Salisbury, who presided at the opening function.

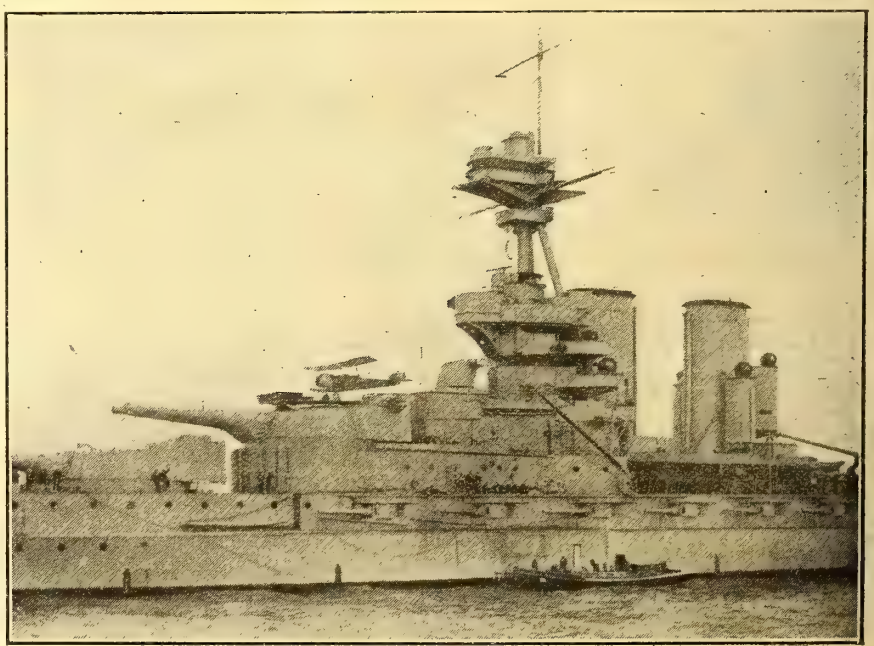
AUSTRIA.

The Italian correspondent of THE AEROPLANE writes :—

"Il Cielo" publishes the following, which is taken from an official Austrian report on Austro-Hungarian Military aviation :

When the armistice was signed the Austrian Air Force was testing the following machines as to their war efficiency :—

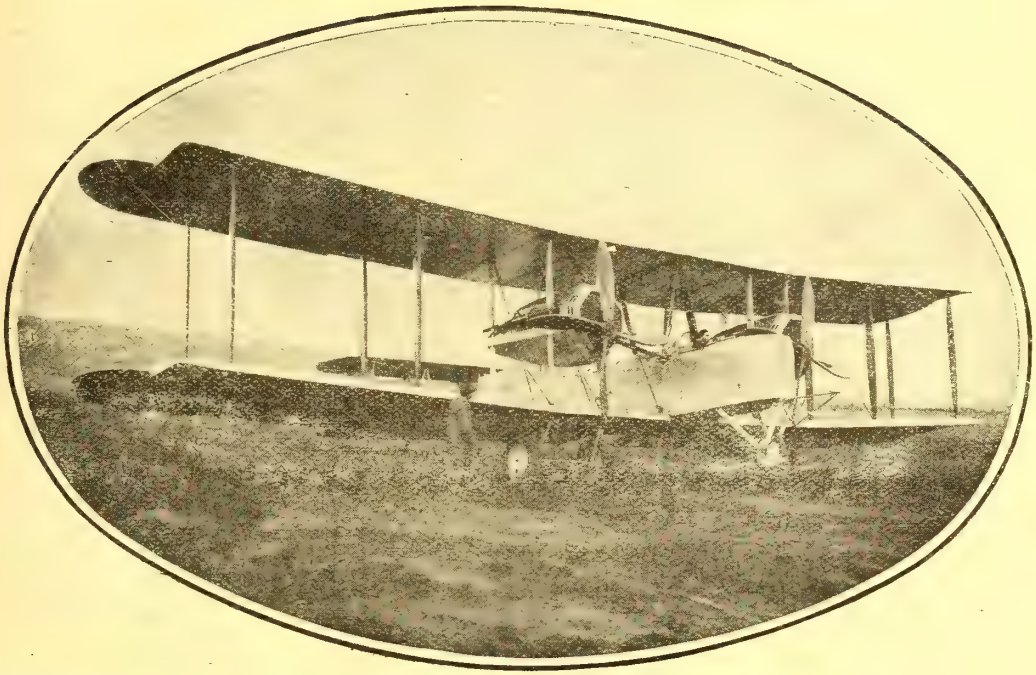
The "Bergmann K," or "Kampfdoppeldekker," built by the



A Sopwith 1½-strutter (130 h.p. Clerget engine) above the 15-in. guns of H.M.S. "Queen Elizabeth."

VICKERS LIMITED

THE TRANSATLANTIC FLIGHT
"VICKERS - VIMY - ROLLS"



The first direct Flight from Newfoundland to Ireland 1,900 miles) was accomplished by this Aeroplane in 15 hrs 57 mins. 4 tons of Petrol and Oil were used.

S.B.A.C. THE SOCIETY OF BRITISH AIRCRAFT CONSTRUCTORS

Aviation Department,
Imperial Court, Basil Street,
KNIGHTS RIDGE, S.W.3.

Telegraphic Address :
Vickerfyta, Knights, London.
Telephone
Kensington 6520 (4 lines).

Austrian Flugzeug-Fabrik, which machine had given the very best results.

The "Phönix" two-seater, doing 195 kil. per hr., with a ceiling of 7,000 metres.

A later type "Phönix" "hunter" with a 300-h.p. motor, smaller dimensions and greater speed.

The "Bergkampflugzeug" built by the Aviatic Co. and intended for "hunting" over mountain ranges. This craft had a Hiero motor, could leave the ground in 60 metres, and excelled in evoluting.

The "Ago" bombardment triplane—less speedy than the biplane of that name, much more stable, and obviously a better weight carrier.

Though the official results of its tests were not made public, it appears that the machine satisfied neither the hopes of its designers nor the demands of the pilots at the front.

The "Mises," a Caproni type with two Austro-Daimler 300 h.p. motors and a span of 18 metres. It was intended to carry a crew of six and did so on its trial flight till it crashed, killing them all.

Of the five numbers painted on all Austro-Hungarian war machines the first group of two stood for the factory number and the series, the second group for the machine's individual number in the series. Low factory and series numbers were existing evidently, neither running into double figures. The nine factories were numbered as given lower down. Machines contracted out apparently bore the designer-firm's number. So the big "Skoda" firm engaged on building "Albatros" and a "Spad" type seems to have had no distinguishing number allotted to its productions for this reason.

Of motors, the Hiero 240, the Hirla 160 and 240, the Vienna "Fiat" 200, the Benz and Austro-Daimler seem to have been most favoured.

Austrian Factory Numbers.

Löhner Werke, No. 1; Albatros Werke, No. 2, at Stadlau; Aviatik, No. 3, at Vienna; Lloyd Werke, No. 4, of Colmar; Ofbag, No. 5 (Osterreicher Flugzeugfabrik A-G); Uffag, No. 6 (Ungarisce Hugzeugfabrik A-G); Fischamend Werke, No. 7; Wienerkarosserie, No. 8; Thöme-Fiala, No. 9, of Vienna.—T.S.H.

FRANCE.

False Representation.

A M. Alain Barbier du Doré was arrested recently on a charge of wearing an army captain's uniform decorated with the Legion d'Honneur and the Croix de Guerre with seventeen palms. He had attempted to obtain credit financially and morally as Captain Heurteaux. He has instead been sentenced to eight days' imprisonment.

A Paris-Constantinople Flight.

Capt. Lenne, accompanied by a Greek military aviator and a mechanic, Perrin, reached Constantinople on Sept. 12th, after a flight from Paris, via Rome. No details as to the time taken up on the journey, or of the landings made, are available. They crossed the Albanian Mountains through a violent storm.

The French Uniform.

The form of the uniform of French troops has now been laid down definitely. The red breeches disappear and troops of all arms, save the Chasseurs and the African and Colonial formations, will in future wear the sky blue kit which was introduced early in the late war. The Chasseurs will continue to wear their old uniforms and the African and Colonial troops will be put into khaki.

The képi, alone of all pre-war kit, is retained. Officers and men are given two years in which to wear out their present uniforms.

GERMANY.

The Danish correspondent of The Aeroplane writes :—

A German seaplane tender to the mine-sweeper flotilla operating in the North Sea, off Esbjerg, supplied a proof of utility aviation the other day, when it turned up in the harbour to order some pastry for a feast of the lickerish commanders, bringing them safely to their destination upon completion.

ITALY.

The "Corriere della Sera" says that a squadron of aeroplanes, which deserted from Ajello has arrived at Fiume.

RUSSIA.

Official Communiques (Bolshevik).

Sept. 16th.—Enemy aeroplanes carried out a raid on Kronstadt, dropping bombs.

Sept. 19th.—Enemy aeroplanes appeared over Kronstadt at 4.30 a.m. on Sept. 18th and dropped four incendiary bombs. An empty wooden barn caught fire through one of them exploding. We brought down one of the enemy aeroplanes on its return journey. The aeroplane was of the type Ilia Muromets, and came down near one of our forts. The aviator was drowned.

[Presumably "Ilia Muromets" (which was the name of the Sikorski biplane) merely means a big aeroplane of some sort. Slav veracity is a negligible quantity, so the communiqué does not impress anybody.—Ed.]

Sept. 20th.—Near Kronstadt we have brought down an enemy aeroplane.

Bolshevik Equipment.

The first junction between the armies of the Polish General Pilsudski and the Russian General Denikin was made recently by a Polish aviator, one, Lieut. Weber, attached to the French aviation squadron which is serving in Poland. Lieut. Weber landed at Kieff on Sept. 13th, carrying as passenger the "Morning Post" special correspondent, who writes :—

General Kamenieff, of the former Russian Command, who directed the Bolshevist operations, and probably had fifty thousand men with perhaps 250 guns at his disposal for the defence of the city, also managed to get into action a greater number of technical appliances, such as armoured motor cars, aeroplanes, and the like, than Denikin's army ever encountered before.

SPAIN.

An aeroplane flying at a great height over the aerodrome at Madrid on Sept. 19th fell to the ground, the pilot, Capt. Rocha, and a passenger, Capt. Navarro, were killed.

SWEDEN.

The Swedish Army aviator, Rodehn, established a Scandinavian record on Sept. 21st by flying the whole length of Sweden from Ystad to Haparanda and thence to Boden, a distance of 1,420 kilometres, in seven and a half hours, without landing. Rodehn used a 260-h.p. Swedish aeroplane.

U.S.A.

The Demobilisation of Air Service Officers.

The following table shows the number of officers demobilised between Nov. 11th, 1918, and Aug. 20th, 1919, and the number still retained on the strength :—

Branch of Service.	On strength 11th November, 1918.	Demobilised by August 20th, 1919.	Percentage Demobilised.
Aircraft Production ...	1,870	1,505	80
Military Aeronautics	19,378	15,287	79

The Air Service Units on the Mexican Border.

The Mexican border is still a source of trouble to the United States Government and a large number of troops is stationed over that area. There is little actual fighting, but the threat is constant.

Nine squadrons in all are allocated for duties along the border and are distributed as follows : the 9th and 91st Observation Squadrons are based on Rockwell Field, and the 8th, 90th, and 104th Squadrons of the Surveillance Group with the 11th, 20th, 96th and 166th Squadrons of the Bombardment Group are to take station along the eastern stretches of the border. The First Pursuit Group from Selfridge Field is also under orders for the border, where it will be employed as tactical conditions dictate.

The disposition of flying units on the border during the early part of the present month is shown in the following table :—

Unit.	Station.	Strength in Aeroplanes.	Aeroplanes fit for S'rvice	Pilots	Observers
9th Squadron	San Diego	18	14	30	—
11th Squadron					
A Flight	Marfa	6	6	9	2
B Flight	El Paso	14	7	16	2
96th Squadron					
A Flight	Douglas	4	3	8	0
B Flight	El Paso	13	7	8	1
8th Squadron					
A Flight	MacAllen	8	4	9	8
B Flight	Laredo	6	6	5	5
		69	47	85	18

Aviators and mechanics who have served overseas are daily being drafted to border units that their experience may assist the general progress of military operations.

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An Aviation General Supply Depôt at San Antonio is at present engaged equipping aeroplanes with Lewis and Marlin machine guns. Three hundred and forty mountings for Lewis guns and five hundred locks for Marlin guns were expected during the present month.

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Major Geoffrey Toye, late R.A.F., is to conduct the Gilbert and Sullivan operas which are to be revived in London shortly. Major Toye was very successful at the Philharmonic concerts last season.

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THE WEEKLY COMMENTARY.

The proposal to form an Institute of Aeronautical Engineers and the suggestion that this Institute should also act as a professional Trades Union for its members have drawn from Capt. Sayers a lengthy essay on the subject.

He examines some of the numerous difficulties and dangers which will beset the path of such a body, and arrives at the general conclusion that the educated classes of workers must seek for some form of organisation which will adequately represent their interests if they wish to maintain their present position.

Some of the more recent designs due to the famous firm of Short Bros., Ltd., form the subject of this week's instalment of "Modern British Aeroplanes."

Two interesting types of German aeroplanes are described and illustrated in this issue.

One, the Linke-Hoffmann, multiple-engined type is a war-time product.

The other, the Hannover Triplane Limousine, is a commercial passenger-carrier of the most recent type.

A summary of that part of Sir Charles Parsons' presidential address to the British Association which refers to Aeronautics will be found on page 1183.

THE INSTITUTE OF AERONAUTICAL ENGINEERS AND PROFESSIONAL TRADES UNIONISM.

By Capt. W. H. SAYERS, Late R.A.F.

The proposal put forward some weeks ago by Mr. R. W. D. Shaw for the formation of an Institute of Aeronautical Engineers has raised for discussion a number of points of very great importance to the profession concerned.

It may be recalled that Mr. Shaw's original proposal was that an association be formed from among those engaged in the technical branches of the Aircraft Industry, membership whereof shall only be gained on passing an examination sufficient to exclude any but properly qualified technicians, and that the Institution should aim at giving to its members a professional status which would be recognised in the aeronautical world, just as the status of a member of the Institute of Civil Engineers is recognised in the engineering world generally.

To this original suggestion there can be no serious objection in principle.

Practical Difficulties.

In practice there are certain difficulties. General experience shows that examinations are usually second only to statistics in the misleading nature of the conclusions to which they give rise. Thus there are many who could pass successfully the qualifying examinations for the Institute of Civil Engineers whose practical value as engineers might be inferior to that of the average bricklayer.

Nevertheless, a certain minimum standard of technical education can quite properly be demanded from anyone who aspires to be known as a member of the engineering profession, and provided that examinations can be kept out of the control of that mystery-mongering class who acquire their living by professing rather than by practising, they are probably the most satisfactory method of securing that such a standard is maintained.

The alternative method of requiring a candidate to submit particulars of his own qualifications to the committee of the association, who thereon decide as to his fitness, or otherwise, has—in theory—certain advantages. It has the disadvantage that it is practically impossible to establish a definite qualification standard, and that the quality of those admitted to membership is apt to vary very considerably with changes in the personnel of the committee. This is very likely to occur in either case. Thus an old-established institution always tends to exclude from amongst its members those who show in their examinations signs of having absorbed new and more or less heterodox ideas, and so such societies have in more than one instance tended to discourage rather than to encourage the growth of knowledge.

A Forcible Objection.

In this particular case the proposal to form an association which will guarantee the possession of proper professional qualifications has drawn from Mr. A. E. Berriman a rather lengthy and forcible expression of disapproval.

Mr. Berriman suggests that the title of "The Institute of Aeronautical Engineers" in some sense implies that it is intended to usurp the functions of the Royal Aeronautical Society, and that this is further accentuated by the proposal to call upon candidates for membership to show some measure of technical qualification, since that requirement is also made by the R.Ae.S. before admission to the Society as an Associate Fellow or a Fellow.

This appears to be a somewhat far-fetched objection. There is a very considerable distinction between the functions of such an association as the Royal Aeronautical Society, which naturally has amongst its members many aeronautical engineers and those of an Insti-

tution of Aeronautical Engineers. The one is, or should be, an association of those in any way interested in the science of aeronautics for the spread of the knowledge of that science.

An Institute of Aeronautical Engineers should be—by analogy with other Institutions of Engineers of one kind or another—an association of professional men for the furtherance of their efficiency in that profession.

A mathematician—such as Professor Bryan, for instance—who has by his work made an appreciable contribution to the theory of any branch of aeronautical science may quite properly be a Fellow of the Royal Aeronautical Society, solely on the ground that that contribution is evidence of his qualifications as an aeronautical scientist.

That achievement by itself could not properly qualify Professor Bryan as an aeronautical engineer, though it might properly be recognised by an Institute of Aeronautical Engineers by making Professor Bryan an honorary member.

Inversely, the managing engineer of a factory engaged solely upon the production of standard aircraft of proved types would, on his engineering qualifications and the nature of the work upon which he was employed, be a fit and proper person to become a member of an Institution of Aeronautical Engineers.

He might quite conceivably possess no knowledge of aeronautical science which would justify his election as a Fellow or Associate Fellow of the Royal Aeronautical Society.

The two bodies will necessarily overlap to some extent in their activities; if they are both intelligently directed, they should often co-operate; and if in effect they do compete in certain spheres, this should stimulate both.

A Complication.

So far, there is little room for serious adverse criticism of the scheme, but the situation has been very considerably complicated by a proposal—due to Mr. L. Howard Flanders—that the Institution should also be a Defence Union for its members, and should be registered under the Trades Unions Act.

Proposals for the formation of Trades Unions for technical and professional workers are by no means new. In the engineering world they have been made at intervals for the past twenty years or so, with no appreciable result up to the present. There does exist a Society of Technical Engineers which has been registered under the Trades Unions Act, and which has, it is believed, a membership of over 20,000. This particular body is of such recent growth that it can scarcely yet be described as an effective force.

With this one exception, all such attempts have failed because technical men have fought shy of the idea of becoming Trades Unionists.

To some extent this has been due to a feeling that by so doing they would declass themselves.

Others have feared the enmity of their employers to such a movement, and still more have felt that Trades Unionism means inevitably some limitation to the liberty of the subject and might hamper their freedom to make for themselves the best terms when marketing their abilities.

A Fact To Be Faced.

However, to-day the technical and professional man is faced by the fact that the manual workers of all types and all nations have banded themselves together into associations so powerful that these bodies have attained throughout the civilised world a legally recognised status, and that through these bodies the working classes do possess enormous political and economic power.

Under the Trades Unions Act the workers' organisations are empowered to act in a manner which would bring any body not registered as a Union into the civil courts upon a charge of illegal conspiracy.

There are not wanting signs that the extra-legal powers of these bodies will, when a fitting occasion arises, be used remorselessly in the interests of the classes which they represent, and with very little consideration for the just claims of the unorganised brain-workers of the world.

It is useless to decry Trades Unionism on this account.

The Trades Union movement is—in theory, at least—unassailable. It is impossible in any highly organised modern community for a single individual with a grievance against the community in general to secure a perfectly just rectification of that grievance. It is impossible because the conditions of life are so complicated and the individual circumstances are so various that perfect justice to one may involve a positive injustice to another.

Therefore the governing body of any community can do no more than try to establish a code which shall do approximate justice under average conditions to the majority of the citizens.

The Practical Value of Trades Unions.

It is obviously easier to determine what is approximately just and what is not when that community is organised into a series of bodies, each speaking with one voice, and each representing the general opinion of its members as to their most acute grievances, than when it consists of an entirely unorganised crowd, each member of which is engaged in incoherently squealing over his personal grievance.

Let it be granted that the Trades Union movement as it exists to-day has many bad features, and that it threatens great evils to the State.

Any great organisation, representing a sectional interest alone, whether the interest be that of shopkeepers, newspaper proprietors, automobile manufacturers, or dog fanciers, would threaten equal evil had they the same clear field as the Trades Unions now possess.

Such a sectional organisation is a perfectly legitimate political weapon; it can properly be met by those whom it threatens with a similar sectional organisation of their own.

If the Trades Unions of the manual workers are left with a clear field and with no competition—beyond the general opposition of a disorganised mob provided with no settled programme and no generally agreed policy—they are fairly entitled to any victories that they may gain, and the so-called brain-workers can only blame their own stupidity if they suffer from their own lack of organisation.

The Futility of Mere Grumbling.

Therefore it seems fairly clear that any profession which contents itself with ineffective grumblings against the delinquencies of the Trades Unions, and which refuses to organise itself into an association armed with substantially the same powers as those possessed by those Unions, will have only itself to blame if it is overwhelmed by the interests of those who have shown themselves possessed of more common sense than they.

Mr. Flanders' proposal that the Institute of Aeronautical Engineers should become in effect a Trades Union, therefore, must not be defeated by any feelings of mere snobbery, or by the fear that such a body may interfere to some extent with individual liberty of action.

If the association is to be a success, it must so interfere.

Organisation of any sort is impossible without discipline, and discipline implies some sacrifice on the part of the individual for the sake of the whole body.

At the same time the actual details of the scheme will require very careful consideration.

No Trades Union or similar body can nowadays con-

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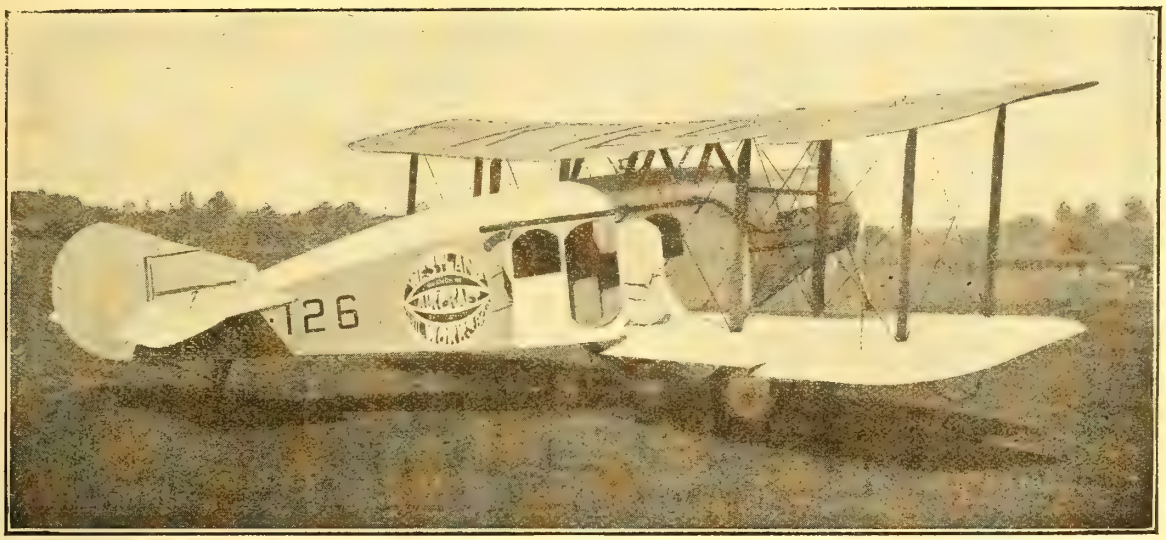

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cern itself solely with the internal politics of the trade which it represents.

It is bound to be to some extent concerned with general political affairs which directly or indirectly may have an effect on the trade or profession with which it is associated.

Thus any Trades Union offers itself as a possible field for the purely political agitator, and many Trades Unions to-day are found to be under the control of those who have little or no real interest in the industry they are supposed to represent, and who are solely concerned with it as a source of political power.

It is probably impossible to frame the constitution of the body in such a way as entirely to prevent this state of affairs, but every care should be taken to make it as improbable as possible.

A provision that a necessary qualification for a seat on the council or managing committee be the earning of one's bread-and-butter by the practice of the profession would assist and would also aid in keeping the control of the Institute out of the hands of retired and eminent fossils.

A Serious Objection.

The most serious objection to the proposed Trades Union, however, is the very limited class to which membership would appear to be open.

It is one of the most objectionable features of Trades Unionism as it now exists that it is divided up into a series of small sectional associations, and has tended to encourage the idea that once a man has become a carpenter, or a bricklayer, or anything else, that he must necessarily always remain so.

Thus the mining of coal, as it is now practised, is no fit occupation for a decent human being. Therefore there exists a natural tendency for the more intelligent and progressive of those engaged in that trade to forsake it for others offering better conditions. This would naturally lead to a falling off in coal production, and would force mine-owners to improve the methods employed in gaining coal till it permitted the miners to live on terms more or less equal to those of the more human trades, and at the same time would, by tending to raise the price of coal slowly but surely, encourage the development of alternative sources of power.

As it is, the Trades Unions actively oppose the practice of abandoning one trade in favour of a more congenial one.

This policy of "once a miner always a miner" necessarily involves them in opposition to any scheme for improved machinery or process which will seriously reduce the number of those who have to lead a bestial and brutalising life—since that will lead to unemployment—and they are forced to attempt to ameliorate the lot of their members by a process of cutting down production and increasing wages, which leads not to a steadily and slowly increasing cost of coal, or to a gradual decrease in its production, to which the community as a whole could adjust its methods of life, but to occasional violent upheavals which dislocate the whole life of the nation.

A Liberty Worth Safeguarding.

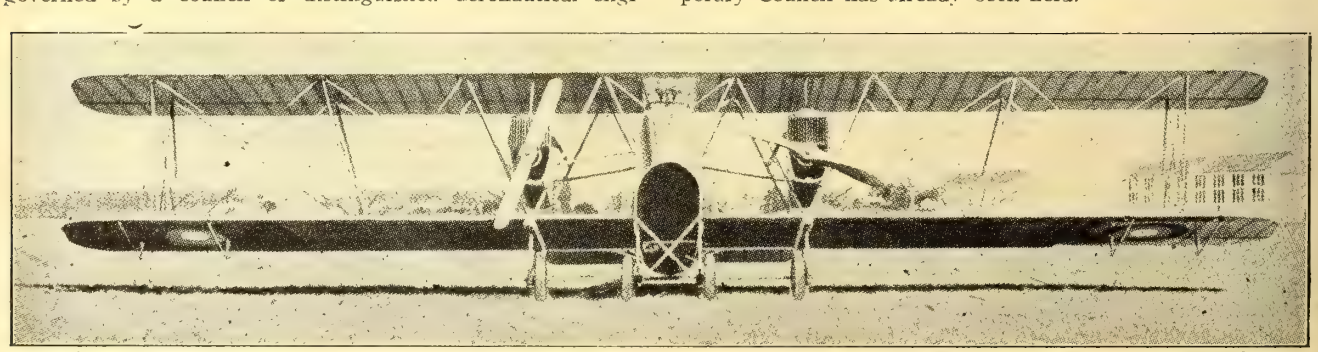
The educated professional classes, without any organisation comparable to those of the Trades Unions, have and still do manage to secure for themselves fairly decent working conditions, simply by virtue of their freedom to change their occupation.

Any occupation which is ill-paid or overworked is avoided by the intelligent and ambitious, and becomes a haven for the lazy and ineffective, whose employers, finding none but wasters will work for them, are—slowly perhaps, but inevitably—forced to alter the conditions of employment to attract reasonably capable men to their business.

It is of the very highest importance that this absolutely automatic effect of freedom to seek any employment should not be destroyed, as it has been in the workers' organisations, by the imposition of rigid rulings as to formal qualifications for membership of the proposed union, such as a defined period of apprenticeship or the like.

THE INSTITUTE OF AERONAUTICAL ENGINEERS.

At a meeting of the Institute of Aeronautical Engineers held on the 11th inst. Mr. R. L. Howard Flanders presided. Correspondence exchanged with Mr. A. E. Berriman relating to the scope, purpose, and title of the Institute was read and discussed. It was decided that the Institute could not rightly be accused of trespassing on the ground of any existing aeronautical institution. It was shown that the Institute would take the initiative in the holding of examinations, thereby making for a sound classification, or grading, of aeronautical engineers and for educational advancement generally. A temporary Council was elected. The members of this Council are Mr. R. L. Howard Flanders, President; Major S. J. V. Fill, R.A.F.; Mr. H. P. Folland, Mr T. C Letcher, A.M.I.N.A.; Mr. H. B. Molesworth, M.I.C.E.; Major F. G. Moore, M.A., B.Sc., M.I.M.E., M.S.E.; Mr. Frederick R. Simms, M.I.M.E., M.I.A.E.; Mr. Clarence Winchester, and Mr. W. R. D. Shaw, Organising Secretary. The newly formed Institute is to be an authoritative body on the technique of commercial aeronautics and a fountain-head for technical information. The Institute is to be governed by a council of distinguished aeronautical engineers and theoretical and practical courses of instruction are to be promoted. The Institute will also publish a periodical for educational and reference purposes. Those who have expressed a wish to be associated with the Institute as founders have been elected Honorary Founder Members. This grade was specially decided on to meet the exigencies common to any newly formed body, and it must not be regarded as a technical qualification. Forms of application for admission to the various technical grades of the Institute have been approved of by the Council, and Honorary Founder Members will receive copies of these in due course. It has been decided not to restrict membership to aircraft and aircraft engine designers and constructors only, but to embody also other men of science who have rendered signal services of benefit to aviation and aerostation. It is being ascertained to what extent the Institute can protect the interests of its members without registration under the Trades Union Acts, and legal advice on the question may be sought. Provisionally, an entrance fee of half-a-guinea is being levied for all grades, and an annual subscription of two guineas for Members, Associate Members, and Pilots. A meeting of the temporary Council has already been held.



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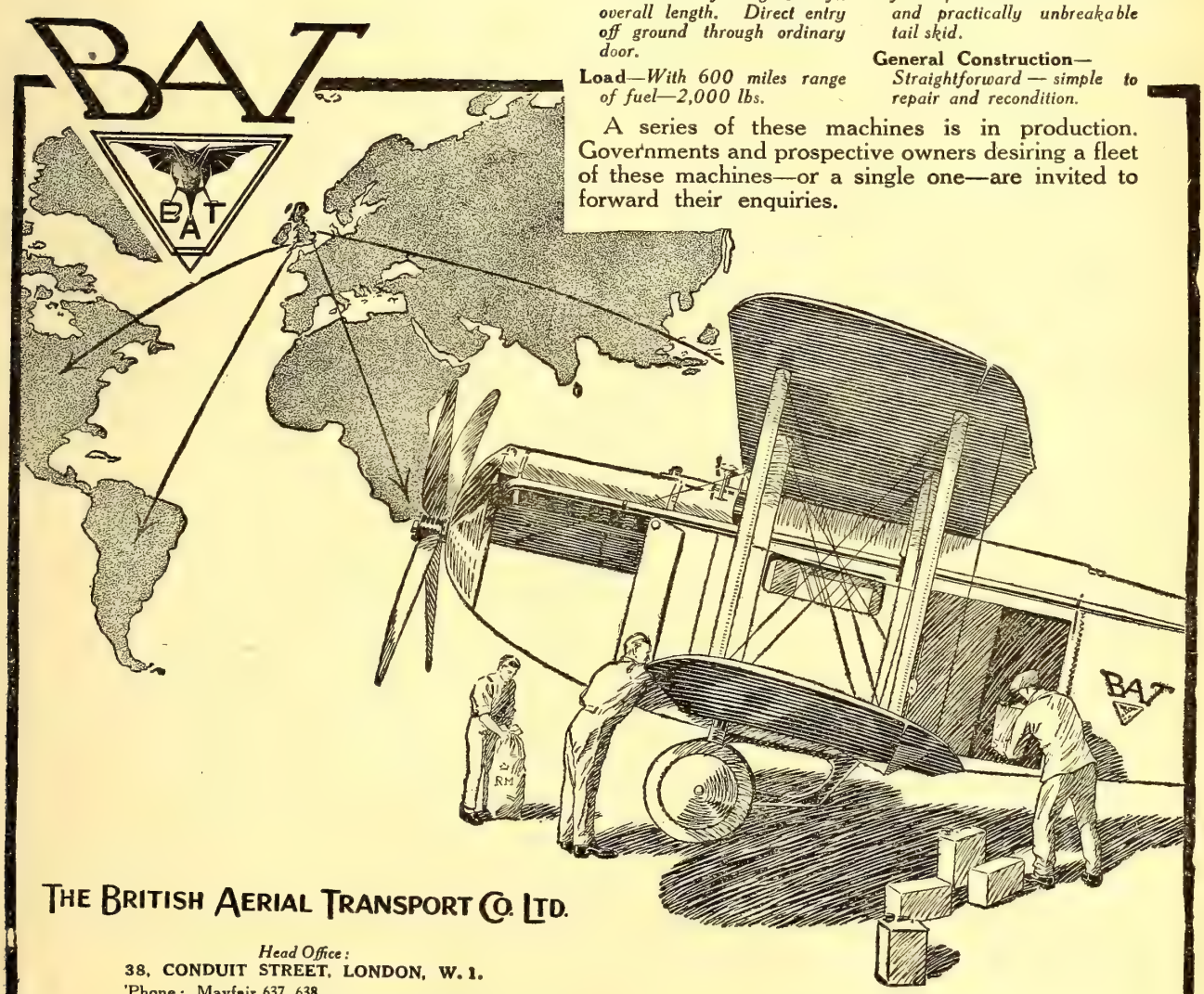
A series of these machines is in production. Governments and prospective owners desiring a fleet of these machines—or a single one—are invited to forward their enquiries.



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In 1909 Mr. J. T. C. Moore-Brabazon, on a Short biplane, fitted with a Green engine, won the "Daily Mail" £1,000 prize for the first closed circuit flight on a British-built aeroplane.

In 1910 Short Bros moved their aeroplane factory to Eastchurch, and there produced a number of multiple-engined machines, which were undoubtedly the first of their class to fly. During the same year they also built the machines upon which the first four naval members of the R.F.C.—the original Naval Wing which later developed into the R.N.A.S.

In 1911 the firm commenced to build seaplanes—a practice wherein they have persisted with continuous success until this day.

In 1913 Short Bros. introduced their folding wing gear—a device now universally employed on large machines—which did more to facilitate the use of aircraft at sea than has any other improvement yet made.

During the same year large new works were established at Rochester, which, when war broke out in 1914, proved to be of the greatest possible value to the R.N.A.S.

At the outbreak of war the Short 160 h.p. Gnôme-engined two-seater was the main stay of the R.N.A.S. for sea patrol work.

This machine was followed by Salmson-engined seaplanes of very similar type, and then by the famous 150 and 225 h.p. Sunbeam-engined machines.

The 225 h.p. machine, somewhat modified, and fitted with the 260 h.p. engine of the same make, known as the S.184, survived to the conclusion of hostilities, and was manufactured in larger quantities, and by more different sub-contractors than any other British seaplane.

Another machine of historical interest and importance was the Short 320 h.p. torpedo-carrying seaplane, a fair number of which were sent to the Mediterranean early in 1917—but which were never given a real opportunity of showing their usefulness.

Of the more modern productions of the firm the machines hereafter described will give a fair idea.

THE SHORT N.2B. SEAPLANE.

This machine was designed, and the first edition was produced early in 1917, in response to the Air Department, Admiralty, Specification N.2B, which called for single-engined two-seater bomb-carriers for sea patrol and anti-submarine work. By the time the first machine was ready for trials the production of seaplanes had fallen into the hands of the Air Board, and the Royal Aircraft Factory had embarked upon a design to the same specification—which eventually appeared some time in 1918 as a kind of enlarged F.E. grafted on a Linton-Hope type hull to form a kind of "Bat-Boat," and with a performance considerably inferior to the Short.

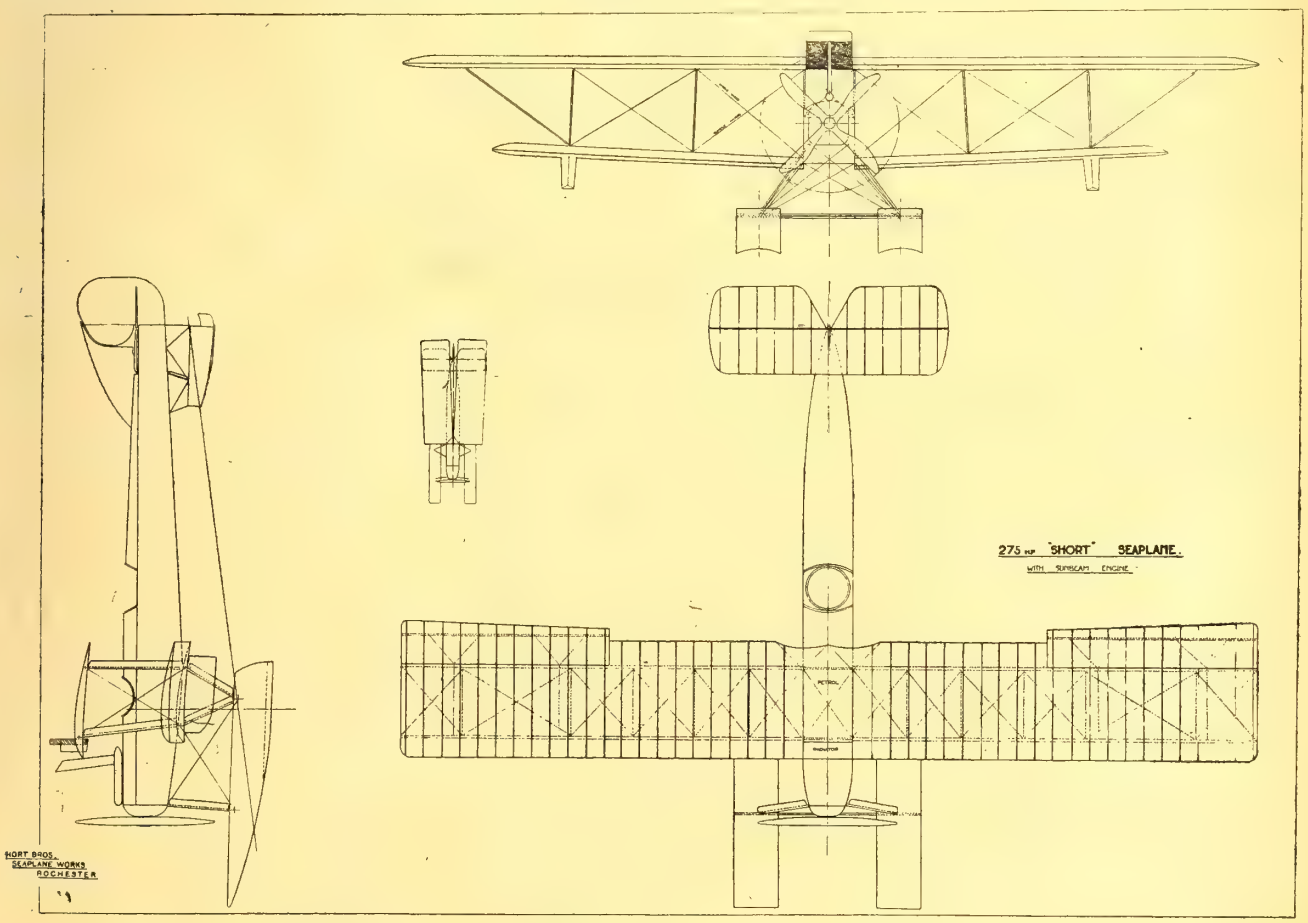
Quite naturally the Short design was hung up to await the appearance of the R.A.F. boat, and the machine was only produced in small numbers too late in the war to produce any serious effect.

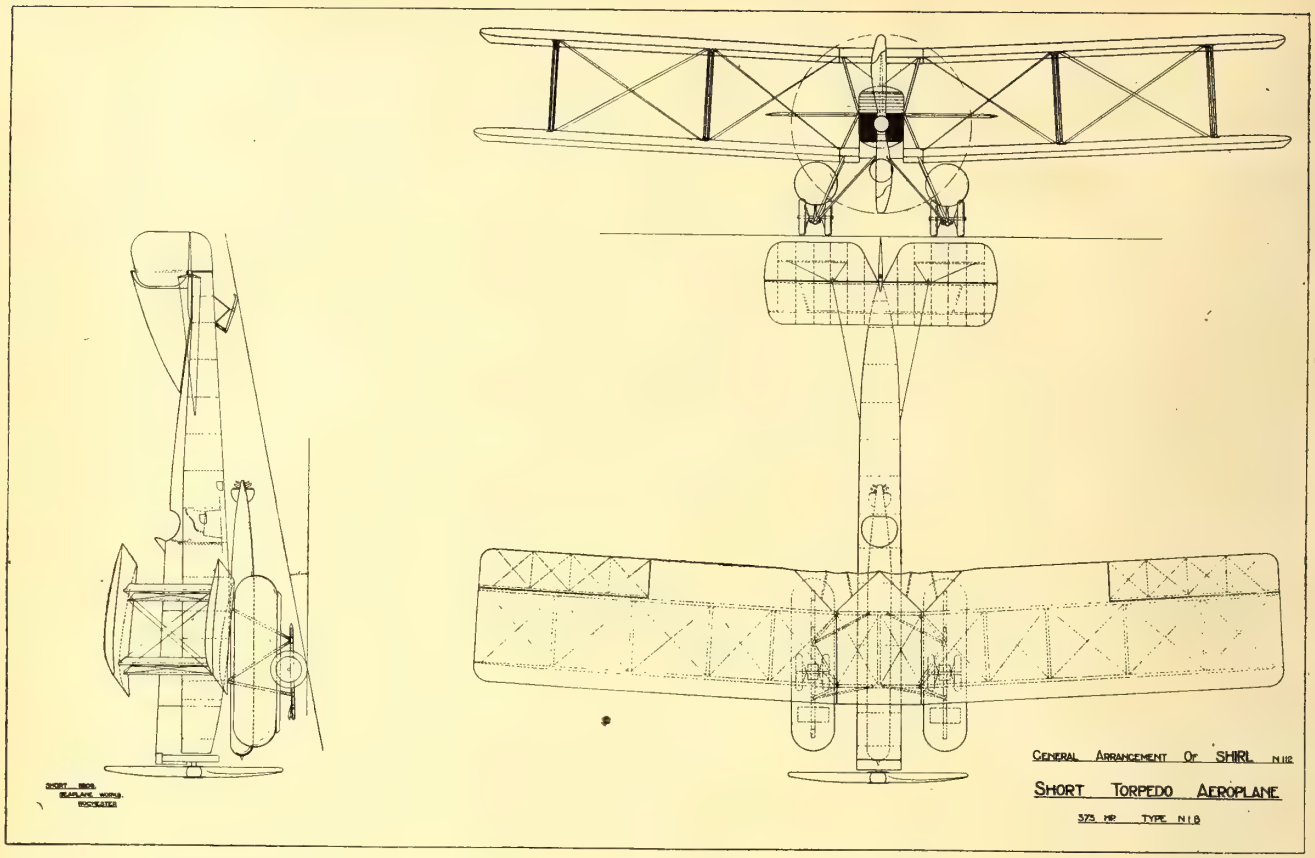
As may be seen from the line drawing, the machine is a very straightforward two-float tractor seaplane, fitted with wing-tip and tail auxiliary floats. The two seats were arranged, pilot ahead below the top centre section, and observer clear of the wings aft in a cockpit furnished with a Scarff gun-ring.

The following table gives the main particulars :—

SPECIFICATION.

Type of machine	Float Seaplane.
Name or type No. of machine	Short N. 2 B.
Purpose for which intended	Bombing.
Span	55 ft.
Gap, maximum and minimum	7 ft.
Overall length	40 ft.
Maximum height	13 ft. 9 in.
Chord	7 ft. 6 in.
Span of tail	15 ft. 6 in.
Maximum cross section of body	11.5 sq. ft.
Engine type and h.p.	Sunbeam-Coatalen "Maori," 260 h.p.





Airscrew, diam., pitch, and revs.	10 feet 6 inches, diameter.
Weight of machine empty	3,050 lbs.
Tank capacity in hours	4½ hrs.
Tank capacity in gallons	70 galls.
Performance—	
Speed low down	90 miles per hour.
Speed at 10,000 feet	88 miles per hour.
Climb—	
To 5,000 feet in minutes	12½ minutes.
To 10,000 feet in minutes	40 minutes.
Disposable load apart from fuel	1,170 lbs.
Total weight of machine loaded	4,800 lbs.

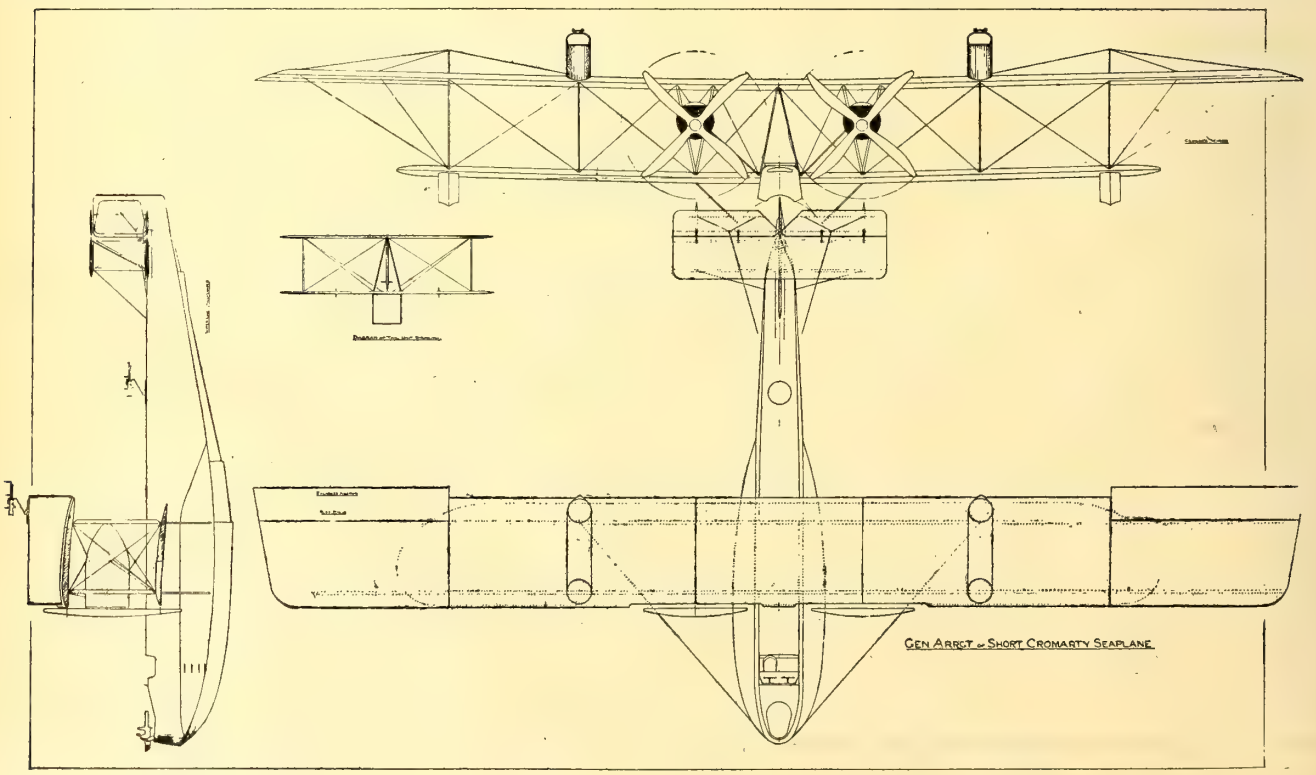
THE SHORT "SHIRL" TORPEDO CARRIER.

The experiences of 1916 and early 1917 with torpedo-carrying seaplanes led the powers that were to abandon seaplanes in favour of the "get-off-the-deck" type of aeroplane for torpedo attacks, and Short Bros., therefore, designed and produced the "Shirl" torpedo-carrier.

This machine differs little in essentials from the "Short" seaplane type—except for the absence of floats.

The undercarriage is a twin-skid affair—each skid carrying twin wheels—and with a clear drop way for the torpedo which is carried close up to the fuselage.

Above each skid a large air bag—inflatable from the cock-



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pit—is carried to give buoyancy in the event of a forced alighting in the sea, and the nose of each skid carries a small "hydrovane" upon which the first shock of alighting is taken.

The main planes are slightly Vee'd backward in plan, and are, of course, fitted with the Short folding gear.

SPECIFICATION.

Type of machine	Aeroplane.
Name or type No. of machine	"Short Shirl."
Purpose for which intended	Torpedo carrying.
Span	52 ft.
Gap, maximum and minimum	6 ft.
Overall length	35 ft. 6 in.
Maximum height	
Chord	8 ft. upper; 7 ft. lower plane.
Span of tail	15 ft.
Maximum cross section of body	11 sq. ft.
Engine type and h.p.	Rolls "Eagle" 8, 400 h.p.
Airscrew, diam., pitch, and revs.	10 ft. dia.
Weight of machine empty	2,850 lbs.
Tank capacity in hours	Max. 6½ hrs.
Tank capacity in gallons	137 galls.
PERFORMANCE—	
Speed low down	99 m.p.h.
Speed at 10,000 feet	97 m.p.h.
Climb—	
To 5,000 feet in minutes	13 minutes.
To 10,000 feet in minutes	30 minutes.
Disposable load apart from fuel	2,500 lbs. normal.
Total weight of machine loaded	5,950 lbs.

THE SHORT "CROMARTY" FLYING-BOAT.

Late in the war Short Bros. turned their attention to the design of large flying-boats, and produced the design shown herewith for overseas patrol work.

The machine was designed to be self-protecting and was to be fitted with two gunners' nacelles on top of the upper plane each with two gun positions.

Instead of the usual armament of rifle calibre guns, four one and a-half pounder automatic cannons were to be fitted as well.

The line drawing and the specification give clearly the essential features of this design.

SPECIFICATION.

Type of machine	Boat Seaplane.
Name or type No. of machine	"Short Cromarty."
Purpose for which intended	Fighting and Bombing.
Span	113 ft.
Gap, maximum and minimum	10 ft.
Overall length	59 ft.
Maximum height	22 ft.
Chord	11 ft. + 10 ft.
Span of tail	23 ft.
Maximum cross section of body	50 sq. ft.
Engine type and h.p.	Rolls "Condor," two 700 h.p.
Airscrew, diam., pitch, and revs.	16 ft., 970 r.p.m.
Weight of machine empty	11,000 lbs.
Tank capacity in hours	12 hours' cruising speed.
Tank capacity in gallons	650 galls.
PERFORMANCE—	
Speed low down	101 m.p.h.
Disposable load apart from fuel	2,500 lbs.
Total weight of machine loaded	18,000 lbs.

THE DESIGN OF RIGID AIRSHIPS.

The following letter has been received:—

Sir,—You are to be congratulated on your Airship Number, containing as it does a vast amount of information for the student of airship design. There is, however, a great deal of information and data still required to be made known, particularly with regard to the problem of rigid and semi-rigid airship design.

Unfortunately this knowledge is locked away in the minds of one or two men who may be called the pioneers of rigid airship design in this country. These gentlemen openly affirm that they alone in Great Britain have worked out and fully understand the problems and theories involved in the design of rigid airships.

This knowledge is naturally a carefully guarded secret, and no doubt a very great asset to the particular firm for which they are contracted to work. Whether this state of affairs is good for aviation in Great Britain is questionable.

It is extremely unfortunate that, when the Admiralty decided to proceed with rigid airship construction in 1915 they did not commandeer one of these men for the position of chief airship designer for the country; as it is, they were sent to a private firm, who naturally have shareholders to satisfy.

What actually happened was the appointment of a gentleman with very little knowledge of airship design. This gentleman, a member of the Royal Corps of Naval Constructors, was previously a submarine hull overseer. Reluctance to furnish privately and laboriously gained data to an outsider placed in a high position is natural, and one must blame the Admiralty for its choice of a chief airship "designer." Designer is a complimentary title, for the work carried out by his department appears to be the making of "Chinese" copies of the various German airships (of an oldish type) brought down in this country and elsewhere.

Unfortunately again, and most shortsightedly one thinks, the material for building a large shed was withheld by the Ministry of Munitions owing to shortage of steel. It almost looks as though there was some design against the firm who were admittedly the pioneers of rigid construction.

The whole history of rigid airships seems to have been marked by one unfortunate blunder after another. One could mention acts of "cussedness" as far back as the "Mayfly" age.

These remarks are plain facts, and the writer has nothing but the good of British aviation at heart in submitting them for publication. That the future of the nation itself is vitally dependent on the ultimate triumph of this rapid means of transit is apparent. One remembers being taught that the prosperity of this nation is due to the large deposits of coal, but now that the production of our staple commodity is dwindling, one looks to our overseas Dominions for salvation. The airship, if really strenuously developed, would seem to be the one method for reducing the distances which separate the great English-speaking peoples from their headquarters; and, cost what it may, a big programme of airship building should be begun with the help of our rich Dominions and Colonies.

Passing from what ought to be done, we read that the airship construction programme is to be abandoned! Who is responsible the nation will wish to know. It can only be compared with the losing of the greater part of Northern America, or the giving up of Helgoland. Criminal "hypermetropia," but what a shining example in economy in these days of wicked waste!

Regarding the Editor's remarks: his one drawback the danger of fire. To those unfamiliar with airships this danger is very real, and no doubt it is the cause of anxious consideration. Yet when one calmly considers that in a rigid airship the engines are carried well away from the envelope, and there is usually a large well-ventilated air space at the bottom (unless the gas containers are quite full as at high altitudes), the peace risks appear small. Smoking compartments will no doubt be required for passenger airships, but they can be supplied with electric cigar-lighters, and be well insulated by fire-screen bulkheads.

Possibly, also, "lifeboats" in the form of gliders may be fitted (one remembers the photograph of an aeroplane leaving a rigid in flight at the exhibition in the Grafton Galleries). Personally the fear of fire would be far more real in an aeroplane, from which escape would be more difficult. The fear of fire should, at any rate, not be set against the use of passenger airships, and the timid should not suggest the postponement of airship service in the hope that helium will be made cheaper.

There should be started a national "crusade" for hustling the Government in airship construction. We already have the precedent of the Australian Government ordering passenger liners to use in competition with the shipping trusts; can we not use a few days' revenue to help build up a nucleus airship fleet?

Referring to Mr. Godfrey's remarks on our airship designers, as one said before, we have original designers, but they were not placed in their correct position according to their national importance.

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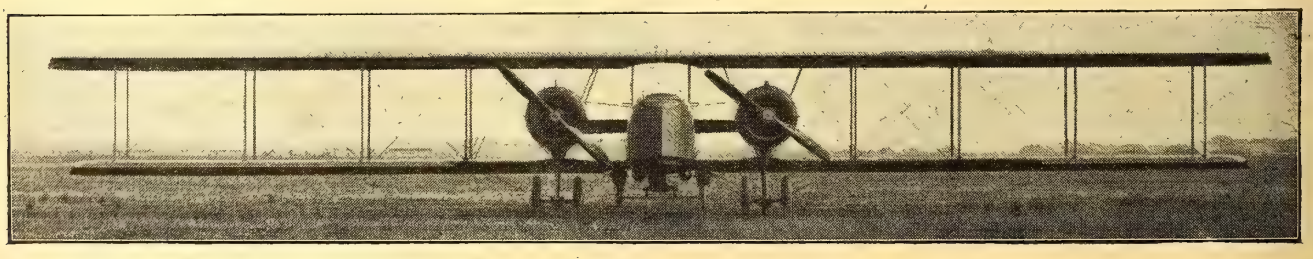

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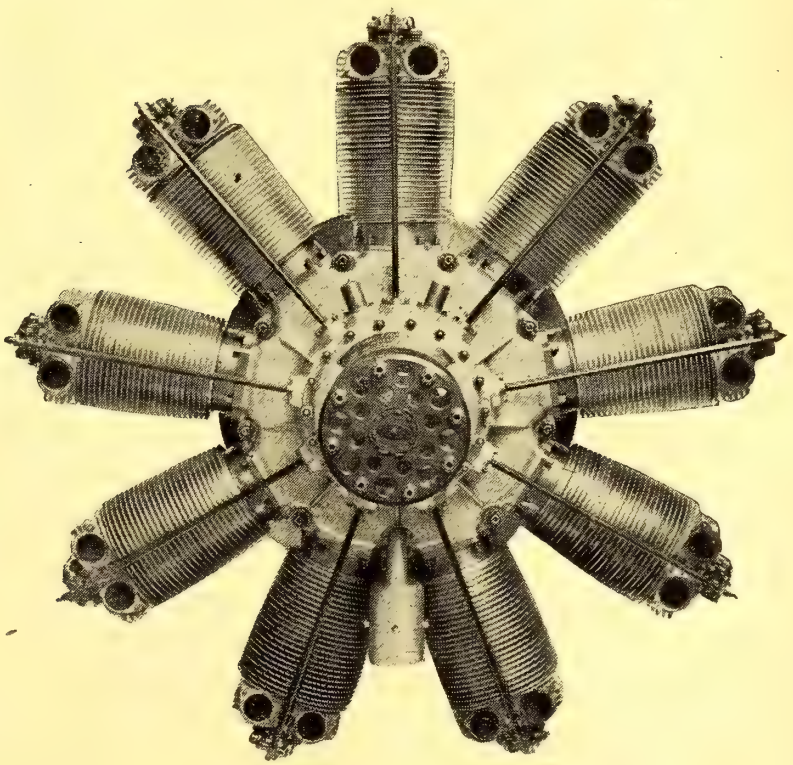

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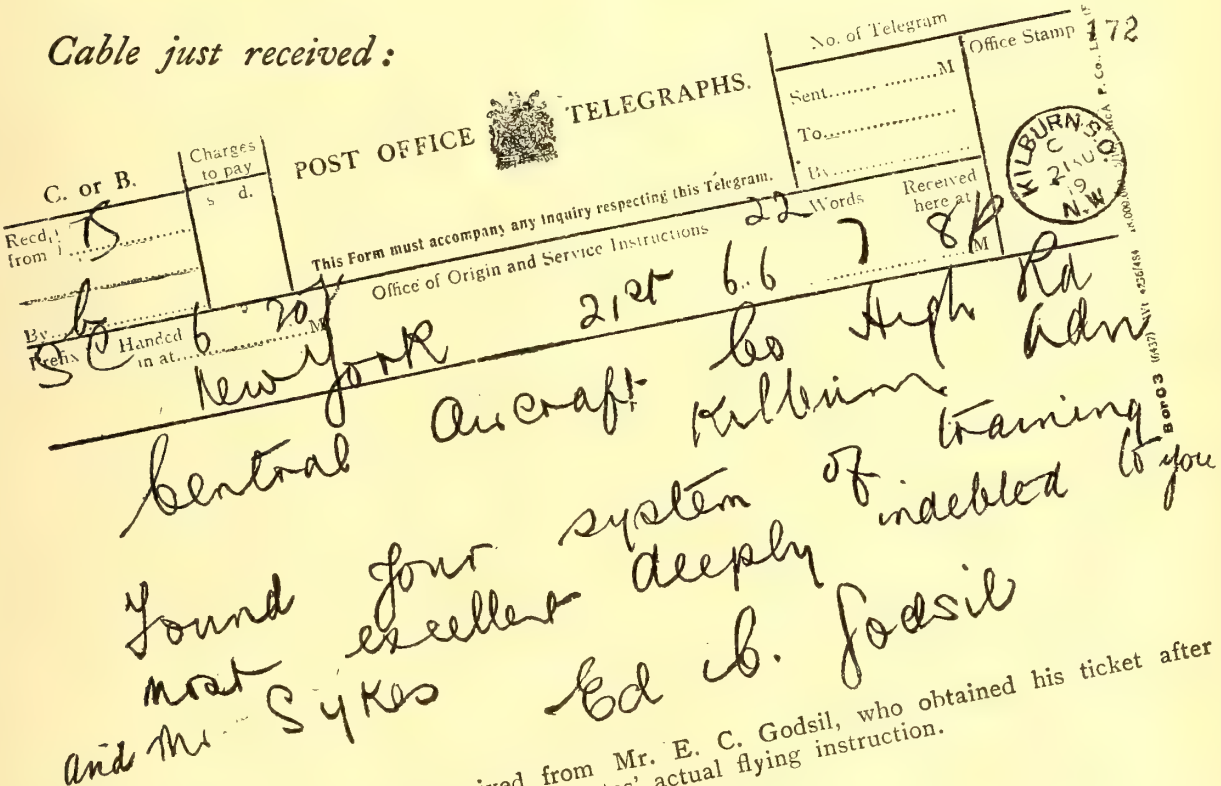

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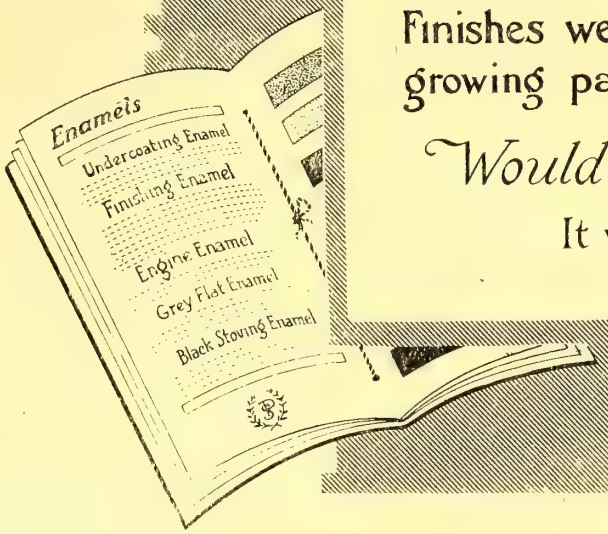

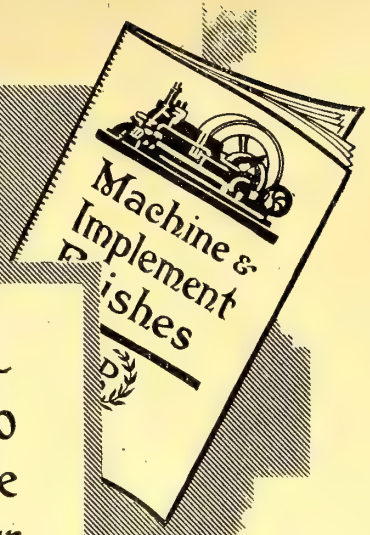

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Metal Parts and Fittings (continued).
Brown Bros., Ltd., Gt. Eastern St., E.C.1.
Mann, Egerton & Co., Ltd., 177, Cleveland Street, London, W.1. "Installing, Eusroad, London." Museum 70.
Rubery Owen & Co., Darlaston, South Staffs.
Sankey, Joseph, & Sons, Ltd., Wellington, Shropshire. "Sankey, Wellington, Salop." Wellington 66.
The Selsdon Aero & Engineering Co., Ltd., 1, Albemarle Street, Piccadilly, W.1. "Selaero, Phone, London." Regent 1181.
Thompson Bros., Ltd., Bradley, Bilston. "Thompson Bros., Bilston." Bilston 10.

Metric Bolts—
Cashmore Bros., Hildreth Street, Balham, S.W. Battersea 415.
Rubery Owen & Co., Darlaston, South Staffs.

Miscellaneous—
Anderson, D., & Son, Ltd. (Roofs), Belfast. "Anderson, Belfast." Belfast 4033-4034-4035.
Brown Bros., Ltd., Great Eastern Street, E.C.1. "Imbrowned, Bethroad, London." London Wall 6700.
Herbert Frood Co., Ltd., Chapel-en-le-Frith. "Frodobrake, Birmingham." Central 703.
MacLennan, J., & Co., 30, Newgate Street, E.C.1, and at Glasgow. Tapes, Cords, and Threads. City 5115.

Motor Cars—
Arrol Johnston, Ltd., Dumfries. "Mocar, Dumfries." Dumfries 281-282.
Mann, Egerton & Co., Ltd., 379-381, Euston Road, London, N.W.1. "Manegecar, Eusroad, London." Museum 70.
Standard Motor Car Co., Coventry. "Flywheel, Coventry." Coventry 530 (4 lines).

Nameplates and Labels—
The Clegg Metal Engraving Co., Ltd., Worthing. "Clegg, Worthing."

Observation Panels—
Triplex Safety Glass Co., Ltd., 1, Albemarle Street, Piccadilly, W.1. "Shatterlys, Piccy, London." Regent 1340.

Oils—
C. C. Wakefield & Co., Ltd., Wakefield House, Cheapside, E.C.2. "Cheery, Cent, London." Central 11305 & 13466.

Parachutes—
E. R. Calthrop's Aerial Patents, Ltd., Eldon Street House, Eldon Street, London, E.C. "Savemalivo, Ave, London." London Wall 3266-3267.
C. G. Spencer & Sons, Ltd. (See under "Balloons.")

Piston Rings—
The British Piston Ring Co., Ltd., Holbrook Lane, Coventry. "Rings, Coventry." Coventry 1214-5.
The Standard Piston Ring and Engineering Co., Ltd., Don Road, Sheffield. "Ocean, Sheffield." Sheffield 2109.

Presswork—
Rubery Owen & Co., Darlaston, South Staffs.
Terry, Herbert, & Sons, Ltd., Redditch. "Springs, Redditch." Redditch 61.

Propellers—
The Aircraft Improvements Co., Mornington Works, Arlington Road, Camden Town, N.W.1.
Blackburn Aeroplane & Motor Co., Ltd., Olympia, Leeds. "Propellors, Leeds." Roundhay 345 (3 lines).
Boulton & Paul, Ltd., Rose Lane, Norwich. "Aviation, Norwich." Norwich 861.
Ebora Propeller Co., 11 & 12, Surbiton Park Terrace, Kingston-on-Thames. "Ebora, Kingston." Kingston 672.
Integral Propeller Co., Ltd. "Aviprop, Hyde, London." Hendon 9: Kingsbury 104.
Lang Propeller, Ltd., Weybridge. "Aerosticks, Weybridge." Weybridge 520-521.
Oddy, W. D., & Co., Leeds. "Airscrews, Leeds." Leeds 20547-8.
Westland Aircraft, Yeovil. "Aircraft, Yeovil." Yeovil 129.

Pyrometers—
The Foster Instrument Co., Letchworth, Herts. "Foster Instruments, Letchworth." Letchworth 26.

Rawhide Hammers—
Ira Stephens, Whitelands Leather Works, Ashton-under-Lyne. "Stephens, 709, Ashton." Ashton 709.

Rigging for Aircraft—
Cradock, Geo., & Co., Ltd., Wakefield, England. "Cradock, Wakefield" Wakefield 466.

Rubber Tubing & Accessories—
Hancock, James Lyne, Ltd., 265, Goswell Road, London, E.C.1. "Masticator, Isling, London." City 3811 & 3812.

Safety Belts—
C. H. Holmes & Son, 38, Albert Street, Manchester. "Semloh, Manchester." City 4132.

Screw-driving Machines—
Russell Bros. (Redditch), Ltd., Littleworth, Redditch. "Inventors, Redditch." Redditch 74.

Seaplane Manufacturers—
Blackburn Aeroplane & Motor Co., Ltd., Olympia, Leeds. "Propellors, Leeds." Roundhay 345 (3 lines)
Phœnix Dynamo Manufacturing Co., Ltd., Thornbury, Bradford. "Dynamo, Bradford." Bradford 3700 (7 lines).
Short Bros., Rochester. "Seaplanes, Rochester." Chatham 627.
Supermarine Aviation Works, Ltd., Southampton. "Supermarin, Southampton." Woolston 37.

Searchlights & Landing Lights—
Brown Bros., Ltd., Great Eastern St., E.C.1.
Imperial Light, Ltd., 123, Victoria Street, London, S.W.1. "Edibrac, Phone, London." Victoria 3540 (3 lines).

Sheet Metal Pressings—
Accles & Pollock, Ltd., Oldbury, Birmingham. "Accles, Oldbury" Oldbury 111 (4 lines).
Blackburn Aeroplane & Motor Co., Ltd., Olympia, Leeds. "Propellors, Leeds." Roundhay 345 (3 lines).
Rubery Owen & Co., Darlaston, South Staffs.

Sheet Metal Work—
The Acetylene Corporation of Great Britain, Ltd., 49, Victoria Street, S.W.1 "Flamma, Vic, London." Vic 4830.
Rubery Owen & Co., Darlaston, South Staffs.
The Selsdon Aero & Engineering Co., Ltd., 1, Albemarle Street, Piccadilly, W.1. "Selaero, Phone, London." Regent 1181.
Imperial Light, Ltd., 123, Victoria Street, London, S.W.1. "Edibrac, Phone, London." Victoria 3540 (3 lines).

Solder Manufacturers—
Samuel Mercer & Co., 198, Upper Thames Street, E.C.4. "Reconciled, Cannon, London." City 6342.

Sparking Plugs—
Brown Bros., Ltd., Great Eastern St., E.C.1.
Leo Ripault & Co., 1, King's Road, St. Pancras, N.W.1.
Lodge Sparking Plug Co., Ltd., Rugby. "Igniter, Rugby" Rugby 235.
The Robinhood Engineering Works, Ltd., Newlands, Putney Vale, S.W.15. Makers of KLG Plugs. "Kaelgee, Phone, London." Putney 2132-3.

Springs—
Dart Spring Co., West Bromwich. "Dart, West Bromwich." West Bromwich 322.
Terry, Herbert, & Sons, Ltd., Redditch. "Springs, Redditch." Redditch 61 (3 lines).

Steel—
Allen, Edgar, & Co., Ltd., Sheffield. "Allen, Sheffield." Sheffield 4607.
Brown Bros., Ltd., Great Eastern St., E.C.1.
Firth, Thos., & Sons, Sheffield. "Firth, Sheffield" Sheffield 3230 to 3237.
Jonas & Colver, Ltd., Continental Steel Works, Sheffield. "Jonas, Sheffield." Sheffield 1660.
Nicklin, Bernard, & Co., Birmingham. "Bernico, Birmingham." Smethwick 224.
Spear & Jackson, Ltd., Ætna Works, Sheffield. "Spear, Sheffield." Central 4522-3-4.
W. Wesson & Co., Ltd., Victoria Iron and Steel Works, Moxley, Wednesbury. "Iron, Wednesbury." Wednesbury 62

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Accumulators—
The Chloride Electrical Storage Co., Ltd., Clifton Junction, near Manchester. "Chloridic, Pendlebury." Central Manchester, 1658. Pendleton, 11

Acetylene Welding Plant—
Acetylene Corporation of Great Britain, Ltd., The, 49, Victoria Street, Westminster, S.W.1. "Flamma, Vic, London" Vic 4830
Imperial Light, Ltd., 123, Victoria Street, London, S.W.1 "Edibrac, Phone London" Victoria 3540 (3 lines)

Aeroplane Manufacturers—
Aircraft Manufacturing Co., Ltd., Hendon "Airmanship, Hyde, London" Kingsbury 220
Armstrong, Sir W., Whitworth & Co., Ltd., Newcastle-on-Tyne "Armstrong Aviation, Newcastle-on-Tyne." Gosforth 500.
Blackburn Aeroplane & Motor Co., Ltd., Olympia, Leeds "Propellors, Leeds" Roundhay 345 (3 lines)
Boulton & Paul, Ltd., Rose Lane, Norwich "Aviation, Norwich" Norwich 851
British Aerial Transport Co., Ltd., Head Office: 58, Conduit Street, London, W.1. "Batgram Reg, London" Mayfair 637, 638
Works: Hythe Road, Willesden, London, N.W.10 "Aerbirrans, Phone, London" Willesden 2272, 2273.
British & Colonial Aeroplane Co., Ltd. (The Bristol Co.), Filton, Bristol "Aviation, Bristol." Bristol 3906
Central Aircraft Co., High Road, Kilburn, N.W.6 "Aviduction, Phone, London" Hampstead 4403 and 4424
Eastbourne Aviation Co., Ltd., Eastbourne "Aircraft, Eastbourne" Eastbourne 1776
Gosport Aircraft Co., Gosport. "Flight, Gosport." Gosport 217
Graham-White Company, Ltd., London Aerodrome, Hendon "Volplane, Hyde, London" Kingsbury 120
London Office, 12, Regent Street, S.W.1 Regent 2084
Handley Page, Ltd., 110, Cricklewood Lane, N.W.2 "Hydrophid, Crickle, London." Hampstead 7420.
Hooper & Co., Ltd., 54, St. James Street, Piccadilly, London, S.W. "Sociable, St James, London." Regent 912
Mann, Egerton & Co., Ltd., Norwich "Motors, Norwich" Norwich 482 (4 lines)
Martinsyde, Ltd., Brooklands, Byfleet, "Martinsyde, Weybridge" Woking 331; Byfleet 171.
"Nieuport" & General Aircraft Co., Cricklewood, London, N.W.2 "Nieuscot, Crickle, London" Willesden 2155
Phœnix Dynamo Manufacturing Co., Ltd., Thornbury, Bradford "Dynamo, Bradford." Bradford 3700 (4 lines)
Roe, A. V., & Co., Ltd., Manchester "Triplane Manchester" City 8530-8531, Manchester.
Saunders, S. E., Ltd., East Cowes, I.O.W. "Consuta, East Cowes" Cowes 103
Short Bros., Rochester, Eastchurch and Whitehall House, S.W. "Tested, Phone, London" Regent 378.
The Siddeley-Deasy Motor Car Co., Ltd., Coventry Coventry 954 "Deasy, Coventry"
Sopwith Aviation Co., Ltd., Kingston-on-Thames "Sopwith, Kingston" Kingston 1088 (8 lines)
The Supermarine Aviation Works, Ltd., Southampton "Supermarin" Woolston 37 (2 lines)
Vickers, Ltd., Imperial Court, Basil Street, Knightsbridge, S.W.3. "Vickerfyta, Knights, London" Kensington 6870
Waring & Gillow, Ltd., Hammersmith, "Warison, Ox, London" Museum 5000
Westland Aircraft, Yeovil "Aircraft, Yeovil" Yeovil 120
White, J. Samuel, & Co., Ltd., East Cowes. "White, East Cowes" Cowes 3

Airships—
Airships, Ltd., High Street, Merton. Wimbledon 1114
Short Bros., Rochester, Eastchurch, and Whitehall House, S.W. "Tested, Phone, London" Regent 378
C. G. Spencer & Sons, Ltd (See under "Balloons.")

Aluminium Castings (Sand and Die)—
Coan, R. W., 219, Goswell Road, London, E.C.1 "Krankases, Isling, London" City 3846.

Balloons—
C. G. Spencer & Sons, Ltd., 504, Highbury Grove, N.5 "Aeronaut, London" Dalston 1893

Bent Timber Parts—
Hopton & Sons, George Street, Euston Square, London, N.W.1. "Hoptons, Eusquare, London" Museum 706
Also at Market Harborough, Leicestershire. "Hoptons, Market Harborough." Market Harborough 13

Bearings (Etonia Cast Phosphor Bronze)—
Brown Bros., Ltd., Gt. Eastern St., E.C.1.
Yorkshire Engineering Supplies, Ltd., Wortley, Leeds. "Yes, Leeds" Central 3927

Blowpipes (Oxy-Acetylene)—
Acetylene Corporation of Great Britain, Ltd., The, 49, Victoria Street, Westminster, S.W.1 "Flamma, Vic, London" Vic 4830
Imperial Light, Ltd., 123, Victoria Street, London, S.W.1. "Edibrac, Phone, London" Vic 3540 (3 lines)

Bolts—
Mitchell Wedgewood & Co., Campbell Works, Stoke Newington, London, N.16 Dalston 2500 (2 lines)

Books (Aero Engines)—
Dykes' Auto Encyclopedia, Gillam, 149, Strand, W.2

Buildings—
Boulton & Paul, Ltd., Rose Lane, Norwich "Aviation, Norwich" Norwich 851
Rubery Owen & Co., Darlaston, South Staffs

Cable Coverings and Cable Controls—
The Bowden Brake Co., Ltd., Tyseley, Birmingham "Bowden, Acock's Green" Acock's Green 101 & 104
Bowden Wire, Ltd., Willesden Junction, "Bowirchin, Harles, London" Willesden 2400 (3 lines)
Herbert Terry & Sons, Ltd., Redditch "Springs, Redditch" Redditch 61

Carburetters—
Hobson, H. M., Ltd., 29, Vauxhall Bridge Road, S.W.2 Victoria 4670
René Tanner, Bloctube Carburetter Works, Danemere Street, Putney, S.W.15

Casein—
Nieuwhof, Suriè & Co., Ltd., 5, Lloyds Avenue, London, E.C.3 "Suricodon, Fen, London" Avenue 31 and 35

Clothing—
Burberry's, Ltd., Haymarket S.W.1 Regent 2165
Dunhill's, Ltd., Euston Road N.W.1 "Dunsend, London" North 3405-6

Component Parts—
Accles & Pollock, Ltd., Oldbury Birmingham "Accles, Oldbury" Oldbury 111 (4 lines)
Brown Bros., Ltd., Gt. Eastern St., E.C.1
Central Aircraft Co., High Road, Kilburn, N.W.6 "Aviduction, Phone, London" Hampstead 4403 & 4404
Thompson Bros (Bilston), Ltd., Bradley, Bilston, England. "Thompson Bros, Bilston" Bilston 10

Cords, Tapes, and Threads—
MacLennan, J., & Co., 30, Newgate Street, E.C.1. And at Glasgow City 3115

Dopes—
Titanine, Ltd., 175, Piccadilly, W.1. "Tetrafree, Piccy, London" Gerrard 2312.
British Cellulose Co., 8, Waterloo Place, S.W.1. "Cellutate, London." Regent 4046.
The British Emaillite Co., Ltd., 30, Regent Street, S.W.1 "Ridleypren, Piccy, London" Gerrard 280
Cellon, Ltd., 22, Cork Street, London, W.1. "Ajawb, Reg, London." Gerrard 440.
Robt Ingham Clark & Co., Ltd., West Ham Abbey, E.15. "Oleotine, Strat, London" East 955

Engines and Parts—
Allen, W. H., & Co., Ltd., Bedford. "Pump Bedford." Bedford No 1.
Arrol Johnston, Ltd., Dumfries "Mocar, Dumfries" Dumfries 281-282.
Beardmore Aero Eng., Ltd., 112, Great Portland Street, W.1 "Beardmore, London." Gerrard 238.
The Cosmos Engineering Co., Ltd., Fishponds, Bristol.
Dudbridge Iron Works, Ltd (Salmson), 87, Victoria Street, London, S.W.1 "Aeroflight, Vic, London" Vic 7026
Gordon Watney & Co., Ltd., Weybridge "Mercédès, Weybridge." Weybridge 550 (7 lines)
Green Engine Co., Ltd., Twickenham Richmond 1203.
Gwynnes, Ltd., Hammersmith, W. "Gwynne, Hammersmith" Hammersmith 1010
Napier & Son, D., Ltd., 14, New Burlington Street, London, W., and at Acton, W. "Nitrifier, London" Gerrard 8026
Rolls-Royce, Ltd., 14 and 15, Conduit Street, W.1. "Rolhead, London." Gerrard 1634-636
The Siddeley-Deasy Motor Car Co., Ltd., Coventry. "Deasy, Coventry" Coventry 954
Sunbeam Motor Car Co., Ltd., Wolverhampton "Moorfield, Wolverhampton" Wolverhampton 985
The Gnôme & Le Rhône Engine Co., Ltd., 27, Buckingham Gate, S.W.1 "Elevenfold, London" Walthamstow 811 (2 lines)
Walton Motors, Ltd., Walton-on-Thames. "Motors, Walton-on-Thames" Walton-on Thames 220

Electrical Accessories—
Belling & Co., Montague Road, Upper Edmonton, N.18. "Belling, Edmonton" Tottenham 1084
Brown Bros., Ltd., Great Eastern St., E.C.1
Gent & Co., Ltd., Faraday Works, Leicester "Lodestone, Leicester" National 151 (two lines)
Johnson & Phillips, Ltd., Charlton, London, S.E.7 "Juno, London" Central 2207. London Wall 1564

Electric Cables—
E. Kalker & Co., Coventry "Kalker, Coventry" Coventry 218
Johnson & Phillips, Ltd., Charlton, London, S.E.7 "Juno, London" Central 2207. London Wall 1564

Electric Lighting and Power—
Johnson & Phillips, Ltd., Charlton, London, S.E.7 "Juno, London" Central 2207. London Wall 1564
Mann, Egerton & Co., Ltd., 117, Cleveland Street, London, W. "Installing, Eusroad" Museum 70 (4 lines)

Electro Platers and Metal Polishers' Engineers—
W. Canning & Co., 133 137, Great Hampton Street, Birmingham "Matgrials, Birmingham" Birmingham 3622 Central (2 lines)

Fireproof Petrol Tanks—
The Aircraft Improvements Co., Morningon Works, Arlington Road, Camden Town, N.W.1

Flare Lights—
Imperial Light, Ltd., 123, Victoria Street, London, S.W.1. "Edibrac, Phone, London" Victoria 3540 (3 lines)

Flexible Shafts—
Herbert Terry & Sons, Ltd., Redditch "Springs, Redditch" Redditch 61

Fluxes—
Imperial Light, Ltd., 123, Victoria Street, London, S.W.1 "Edibrac, Phone, London." Victoria 3540 (3 lines)
The Auto Controller Co. (Fluxite), Vienna Road, Bermondsey, Eng.

Flying Boat Builders—
Gosport Aircraft Co., Gosport "Flight, Gosport" Gosport 217

Galvanising—
Boulton & Paul, Ltd., Rose Lane, Norwich "Aviation, Norwich" Norwich 851

Gauges—
J. A. Prestwich & Co., Northumberland Park, Tottenham, N.17

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Gears—
Moss Gear Co., Ltd., Thomas Street, Aston, Birmingham. "Mosgear, Birmingham" East 407.

Glue—
Cannon, B., & Co., Ltd., Lincoln. London Office: 110, Cannon Street, E.C.4. "Bececolin, Cannon, London" City 1206
Improved Liquid Glues Co., Ltd., Gt. Hermitage Street, E. (Croid.) "Excroiden, Phone, London." Avenue 4611-2
Mendine Co., 8, Arthur Street, E.C. Bank 5873

Goggles—
Triplex Safety Glass Co., Ltd., 1, Albemarle Street, Piccadilly, W.1. "Shatterlys, Piccy, London" Regent 1340

Heating and Ventilating—
Chas. P. Kinnell & Co., Ltd., 65 & 65A, Southwark Street, London, S.E.1 "Kinnell, London." Hop 372 (2 lines)
The Thames Bank (Blackfriars) Iron Co., Ltd., Upper Ground Street, London, S.E.1 "Hot Water, Friars, London" Hop 765

Instruments—
British Wright Co., Ltd., 33, Chancery Lane, W.C.2. Holborn 1308

Instruments (Scientific, Altimeters, etc.)—
Short & Mason, Ltd., Macdonald Road, Walthamstow, E.17. "Aneroid, Phone London" Walthamstow 180
Wheeler, T., 217, Goswell Road, E.C.1

Insurance—
Aviation Insurance Association, 1, Royal Exchange Avenue, E.C.3 London Wall 9014
Bray, Gibb & Co., Ltd., 106, Piccadilly, W.1
Harold Townend, Ltd., 13-14, Abchurch Lane, King William Street, E.C.4 "Carinsur, London" Central 156 (2 lines)
Percy Wingfield, 22, Newgate Street, E.C.1 City 4672

Leather Cloth—
New Pegamoid, Ltd., 134, Queen Victoria Street, London "Pegamoid, Cent, London" City 9764 (2 lines)

Lubricating Oil Refiners and Merchants—
W. B. Duck & Co., Ltd., 90, Fenchurch Street, E.C.3 "Dicotto Fen, London." Avenue 7841 (2 lines)

Magneto Driving Pieces—
Herbert Terry & Sons, Ltd., Redditch "Springs, Redditch" Redditch 61

Magnetos—
The British Lighting & Ignition Co., Ltd., 204, Tottenham Court Road, W.1 "Vicksmag, Phone, London" Museum 130
The British Thomson-Houston Co., Ltd., Lower Ford Street, Coventry "Asteroidal, Coventry" Coventry 278

Metal Casement Manufacturers—
Henry Hope & Sons, Ltd., 55, Lionel Street, Birmingham "Conservatory Birmingham" Central 606 (2 lines).

Metal Manufacturers—
Clifford, Chas., & Sons, Ltd., Birmingham "Clifford, Birmingham" Central 42-43: Avenue 1432.

Metals in General—
Samuel Mercer & Co., 198 Upper Thames Street, E.C.4 "Reconciled, Cannon, London" City 6342

Metal Parts and Fittings—
Accles & Pollock, Ltd., Oldbury, Birmingham "Accles, Oldbury" Oldbury 111 (4 lines).
Arnott & Harrison, Ltd., Hythe Road, Willesden Junction Willesden 2207.
Bayliss, Jones, & Bayliss, Ltd., Wolverhampton. (Bolts & Nuts) "Bayliss, Wolverhampton" Wolverhampton 1041
Blackburn Aeroplane & Motor Co., Ltd., Olympia, Leeds. "Propellors, Leeds." Roundhay 345 (3 lines)

Metal Parts and Fittings (continued)
Brown Bros., Ltd., Gt Eastern St., E.C.1
Mann, Egerton & Co., Ltd., 177, Cleveland Street, London, W.1 "Installing, Eusroad, London" Museum 70
Rubery Owen & Co., Darlaston, South Staffs
Sankey, Joseph, & Sons, Ltd., Wellington, Shropshire "Sankey, Wellington, Salop" Wellington 66
The Selsdon Aero & Engineering Co., Ltd., 1, Albemarle Street, Piccadilly, W.1 "Selaero, Phone, London" Regent 1181
Thompson Bros., Ltd., Bradley, Bilston "Thompson Bros, Bilston" Bilston 10

Metric Bolts—
Cashmore Bros., Hildreth Street, Balham, S.W. Battersea 415
Rubery Owen & Co., Darlaston, South Staffs

Miscellaneous—
Anderson, D., & Son, Ltd (Roofs), Belfast "Anderson, Belfast" Belfast 1031-1033-1035
Brown Bros., Ltd., Great Eastern Street, E.C.1 "Imbrowned, Bethroad, London" London Wall 6000
Herbert Frood Co., Ltd., Chapel-en-le-Frith "Frodobrake, Birmingham" Centre 195
MacLennan, J., & Co., 30, Newgate Street, E.C.1, and at Glasgow Tapes, Cords, and Threads City 1115

Motor Cars—
Arrol Johnston, Ltd., Dumfries. "Mocar, Dumfries" Dumfries 281-282
Mann, Egerton & Co., Ltd., 379-381, Euston Road, London, N.W.1 "Manegear, Eustoad, London" Museum 70
Standard Motor Car Co., Coventry "Flywheel, Coventry" Coventry 630 (4 lines)

Nameplates and Labels—
The Clegg Metal Engraving Co., Ltd., Worthing "Clegg, Worthing"

Observation Panels—
Triplex Safety Glass Co., Ltd., 1, Albemarle Street, Piccadilly, W.1 "Shatterlys, Piccy, London" Regent 1340

Oils—
C. C. Wakefield & Co., Ltd., Wakefield House, Cheapside, E.C.2 "Cheery, Cent, London" Central 11305 & 11166

Parachutes—
E. R. Calthrop's Aerial Patents, Ltd., Eldon Street House, Eldon Street, London, E.C. "Savemalivo, Ave, London" London Wall 3266-3267
C. G. Spencer & Sons, Ltd (See under "Balloons.")

Piston Rings—
The British Piston Ring Co., Ltd., Holbrook Lane, Coventry "Rings, Coventry" Coventry 12165
The Standard Piston Ring and Engineering Co., Ltd., Don Road, Sheffield "Ocean, Sheffield" Sheffield 2171

Presswork—
Rubery Owen & Co., Darlaston, South Staffs
Terry, Herbert, & Sons, Ltd., Redditch "Springs, Redditch" Redditch 61

Propellers—
The Aircraft Improvements Co., Morningston Works, Arlington Road, Camden Town, N.W.1
Blackburn Aeroplane & Motor Co., Ltd., Olympia, Leeds "Propellors, Leeds" Roundhay 345 (3 lines)
Boulton & Paul, Ltd., Rose Lane, Norwich "Aviation, Norwich" Norwich 851
Ebora Propeller Co., 11 & 12, Surbiton Park Terrace, Kingston-on-Thames "Ebora, Kingston" Kingston 672
Integral Propeller Co., Ltd "Aviprop, Hyde, London" Hendon 0: Kingsbury 101
Lang Propeller, Ltd., Weybridge "Aerosticks, Weybridge" Weybridge 520-521
Oddy, W. D., & Co., Leeds "Airscrews, Leeds" Leeds 20517-8
Westland Aircraft, Yeovil "Aircraft, Yeovil." Yeovil 129

Pyrometers—
The Foster Instrument Co., Letchworth, Herts. "Foster Instruments, Letchworth." Letchworth 26

Rawhide Hammers—
Ira Stephens, Whitelands Leather Works, Ashton-under-Lyne "Stephens, 709, Ashton" Ashton 709

Rigging for Aircraft—
Cradock, Geo., & Co., Ltd., Wakefield, England "Cradock, Wakefield" Wakefield 366

Rubber Tubing & Accessories—
Hancock, James Lyne, Ltd., 266, Goswell Road, London, E.C.1 "Masticator, Isling, London" City 3811 & 3812

Safety Belts—
C. H. Holmes & Son, 38, Albert Street, Manchester "Semloh, Manchester" City 4112

Screw-driving Machines—
Russell Bros (Redditch), Ltd., Littleworth, Redditch "Inventors, Redditch" Redditch 74

Seaplane Manufacturers—
Blackburn Aeroplane & Motor Co., Ltd., Olympia, Leeds "Propellors, Leeds" Roundhay 345 (3 lines)
Phœnix Dynamo Manufacturing Co., Ltd., Thornbury, Bradford "Dynamo, Bradford" Bradford 3700 (4 lines)
Short Bros., Rochester "Seplanes, Rochester" Chatham 627
Supermarine Aviation Works, Ltd., Southampton "Supermarin, Southampton" Woolston 37
Vickers, Ltd., Imperial Court, Basil Street, Knightsbridge, S.W.3. "Vickerfyta, Knights, London" Kensington 6870

Searchlights & Landing Lights—
Brown Bros., Ltd., Great Eastern St., E.C.1.
Imperial Light, Ltd., 123, Victoria Street, London, S.W.1 "Edibrac, Phone, London" Victoria 3540 (3 lines)

Sheet Metal Pressings—
Accles & Pollock, Ltd., Oldbury, Birmingham "Accles, Oldbury" Oldbury 111 (4 lines)
Blackburn Aeroplane & Motor Co., Ltd., Olympia, Leeds "Propellors, Leeds" Roundhay 345 (3 lines)
Rubery Owen & Co., Darlaston, South Staffs

Sheet Metal Work—
The Acetylene Corporation of Great Britain, Ltd., 49, Victoria Street, S.W.1 "Flamma, Vic, London" Vic 4830
Rubery Owen & Co., Darlaston, South Staffs
The Selsdon Aero & Engineering Co., Ltd., 1, Albemarle Street, Piccadilly, W.1 "Selaero, Phone, London" Regent 1181
Imperial Light, Ltd., 123, Victoria Street, London, S.W.1 "Edibrac, Phone, London" Victoria 3540 (3 lines)

Solder Manufacturers—
Samuel Mercer & Co., 198, Upper Thames Street, E.C.4. "Reconciled, Cannon, London" City 6342

Sparking Plugs—
Brown Bros., Ltd., Great Eastern St., E.C.1
Leo Renault & Co., 1, King's Road, St Pancras, N.W.1
Lodge Sparking Plug Co., Ltd., Rugby "Igniter, Rugby" Rugby 235
The Robinhood Engineering Works, Ltd., Newlands, Putney Vale, S.W.15. Makers of K.L.G. Plugs "Kaelgee, Phone, London" Putney 2132-3

Springs—
Dart Spring Co., West Bromwich "Dart, West Bromwich." West Bromwich 322
Terry, Herbert, & Sons, Ltd., Redditch "Springs, Redditch." Redditch 61 (2 lines)

Steel—
Allen, Edgar, & Co., Ltd., Sheffield. "Allen, Sheffield" Sheffield 4607
Brown Bros., Ltd., Great Eastern St., E.C.1
Firth, Thos., & Sons, Sheffield "Firth, Sheffield" Sheffield 3230 to 3237
Jonas & Colver, Ltd., Continental Steel Works, Sheffield "Jonas, Sheffield" Sheffield 1660
Nicklin, Bernard, & Co., Birmingham "Bernico, Birmingham." Spethwick 224.
Spear & Jackson, Ltd., Ætna Works, Sheffield "Spear, Sheffield" Central 4522-3-4.
W. Wesson & Co., Ltd., Victoria Iron and Steel Works, Moxley, Wednesbury "Iron, Wednesbury" Wednesbury 62

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Steel Tubes for Aeroplanes—
Accles & Pollock, Ltd., Oldbury, Birmingham. "Accles, Oldbury." Oldbury 111 (4 lines).

Tapes and Smallwares—
MacLennan, John, & Co., 30, Newgate Street, E.C.1. And at Glasgow.
City 3115.

Timber—
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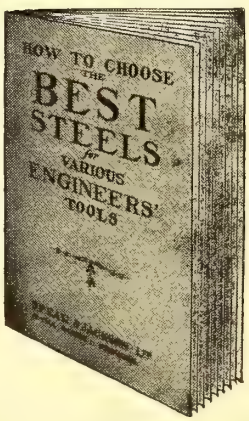

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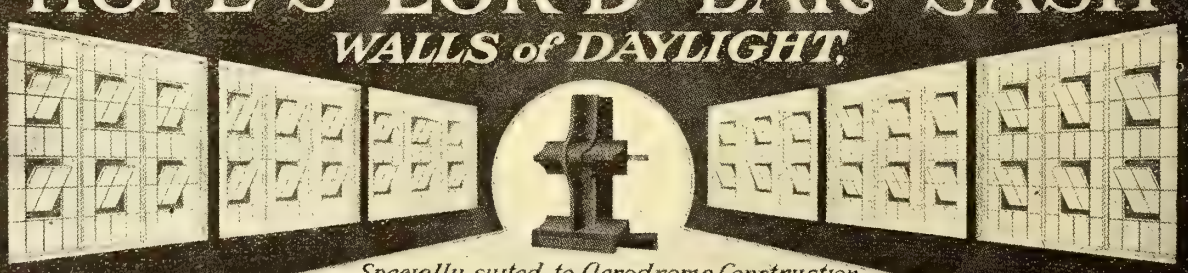

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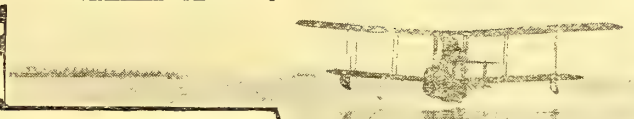

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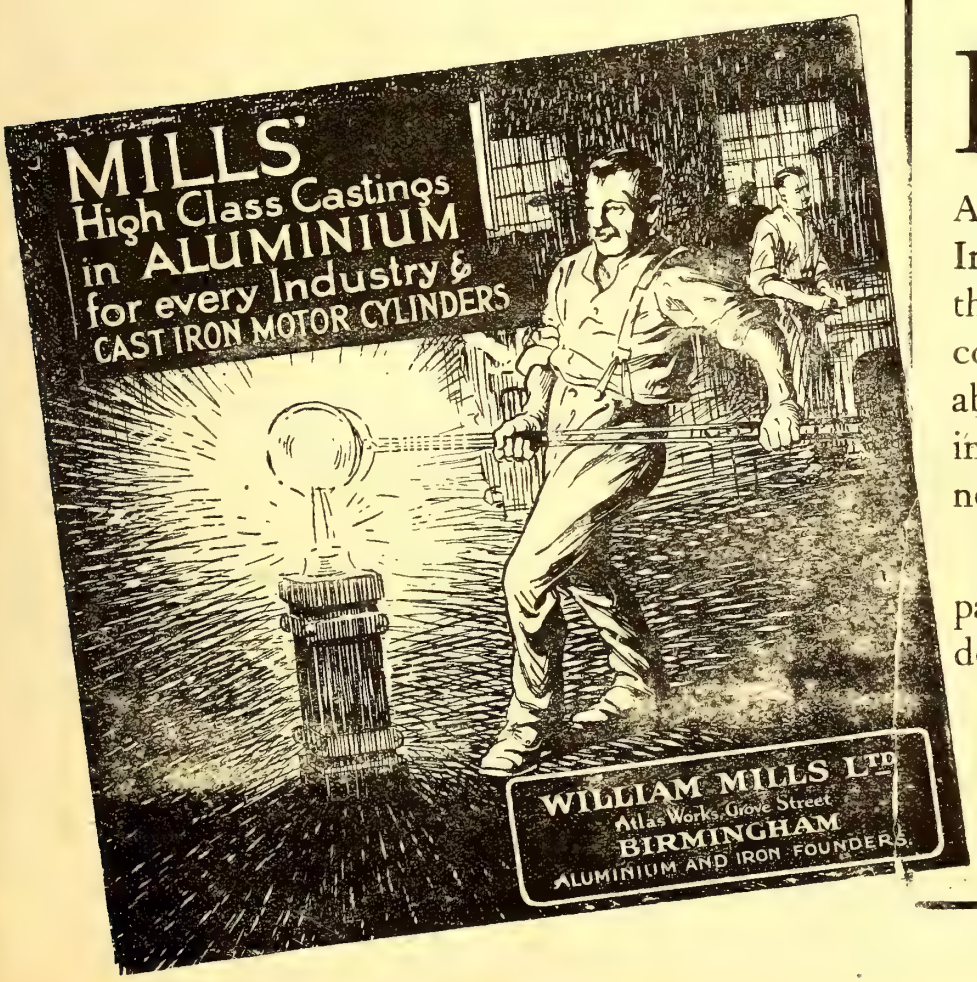

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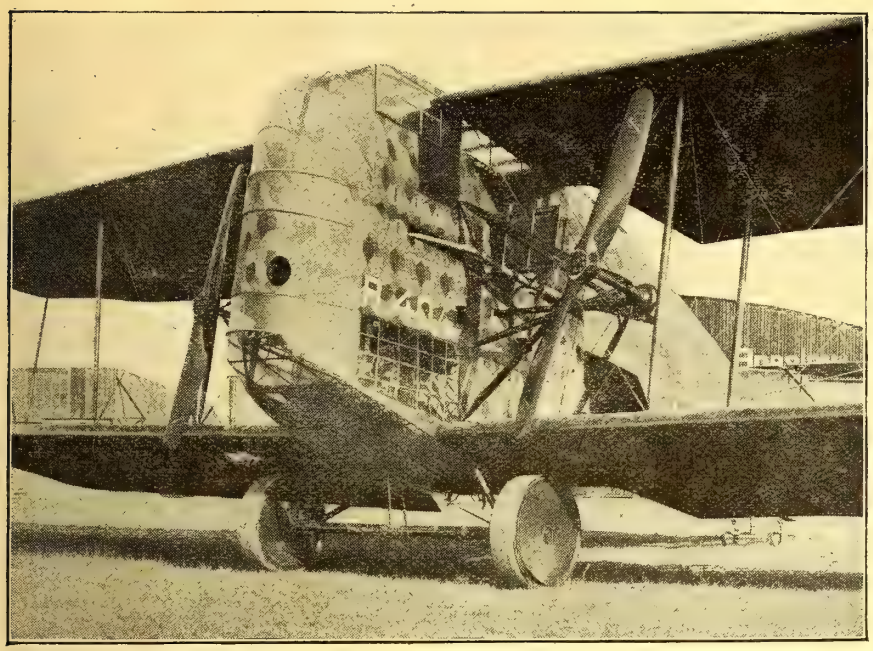


View of the Experimental Linke-Hoffmann Giant with central power plant, showing the huge body and the air-screw mountings.

THE LINKE-HOFFMANN GIANT AEROPLANES.

Illustrations of two types of four-engined Linke-Hoffmann machines with the central power plant arrangement have been given in earlier issues of this paper, and the following information as to the history of the type together with some details of construction will be found to be of interest.

The curious-looking R.1 machine with the enormous body must be considered purely as an experiment. The size of the body was largely the result of certain tests made in the wind tunnel of the Göttingen laboratory, which showed that a body entirely filling the interplane gap gave a better overall lift to drag ratio on the whole machine than did one which only partly filled that gap.

That the experience of the full-size machine by no means agreed with the results of the model test is interesting—particularly as it is believed that certain model tests made at the N.P.L. with a body reaching to the upper plane produced similar results, equally in discord with the full-size facts.

Notwithstanding the poor performance obtained with this original Linke-Hoffmann, it is said that the machine had excellent manœuvring qualities, although it was somewhat slow in answering to its ailerons and was difficult to land.

The following table gives the main dimensions and particulars of this machine :—

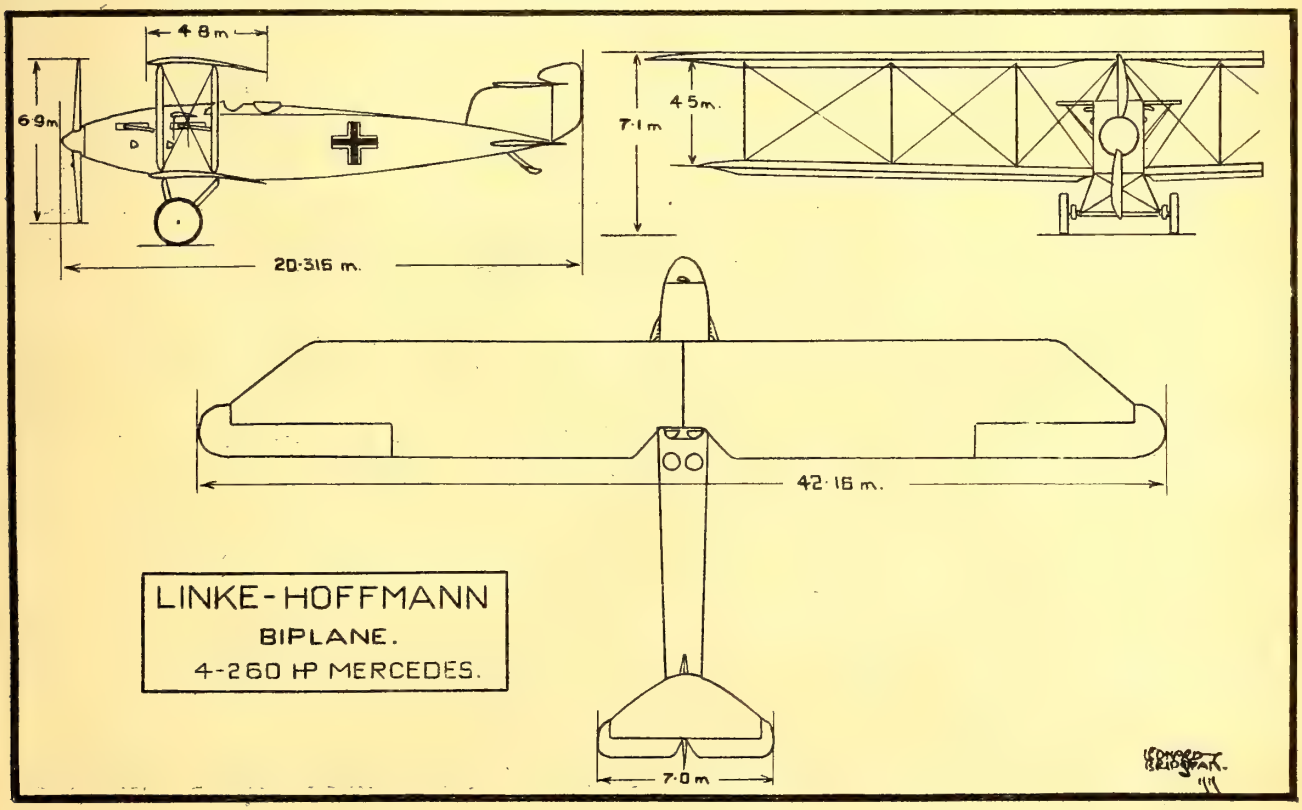
Span	33.2 metres
Length overall	15.6 metres
Height	6.7 metres
Total surface	265 sq. metres
Weight (empty)	8,000 kilos
Engines	Four 260-h.p. Mercédès
Useful load (including fuel)	3,200 kilos.
PERFORMANCE—	
Speed	130 km.p.h.
Climb—	
To 3,000 metres	2 hrs

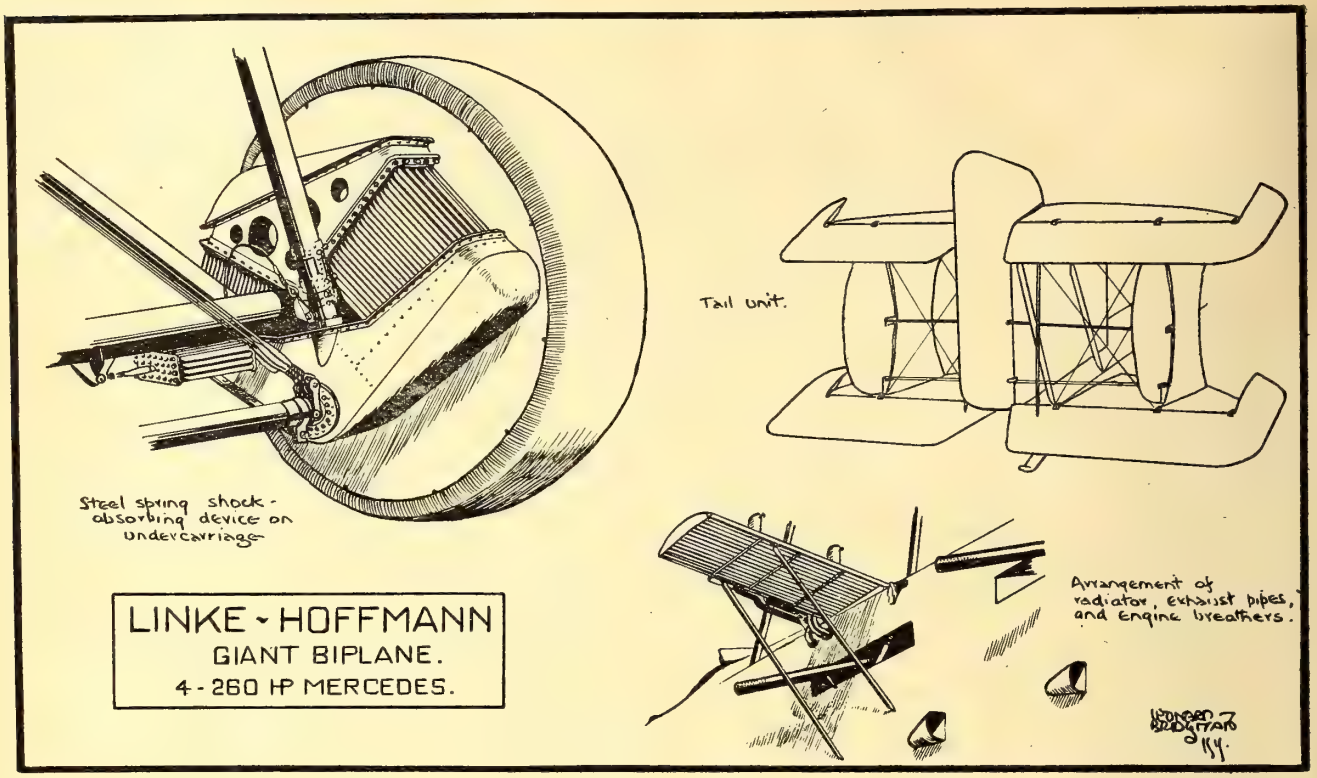
The later Linke-Hoffman — type L.H.W.R.2—was based upon the experience gained with the central multiple engine installation of the R.1.

One airscrew only was used, and the normal lines of the single screw tractor type of machine were adhered to. The power plant consisted of four 260-h.p. Mercédès engines geared together.

The general arrangement is shown in the attached drawings, and a photograph is reproduced showing the engine room interior.

The undercarriage of this machine is of interest. It is in general design of the conventional two-wheeled V type. The wheels themselves are of steel, apparently fitted with wooden tyres, and supported on a multi-spiral spring shock-absorbing device, which is shown in a sketch. It is claimed that this undercarriage has remarkable qualities and it is stated that during the winter, to avoid landing in heavy snow on the aerodrome, the machine landed in an adjacent marsh and rolled through two ditches before coming to rest. The wheels had then sunk 30 cms. (12 inches) into the marsh without the





machine overturning, and a steam tractor was needed to tow the machine out. The following are the general particulars of the L.H.W.R.2 :—

Span	42.1 metres
Length	20.3 metres
Height	7.1 metres
Total surface	320 sq. metres
Weight (empty)	8,000 kilos.
Tank capacity	7 hours
Useful load (including fuel)	4,000 kilos.
PERFORMANCE—	
Speed	130 km. p.h.
Climb—	
To 3,500 metres	2 hours

It is said that the machine can carry a maximum load of 7 tons, and that so loaded, with two pilots, two mechanics, two navigators, together with luggage and instruments, the machine can carry fuel for 30 hours at 120 km. per hour.

In its peace-time condition the machine is fitted to carry 12 passengers in an enclosed cabin behind the pilot's cockpit.

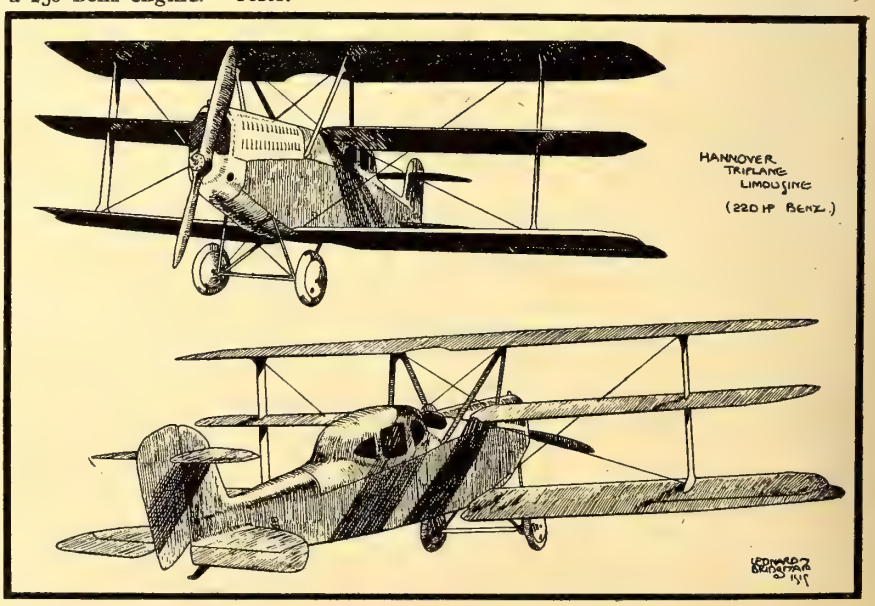
THE HANNOVER TRIPLANE.

One of the latest productions of the Hannover Waggon Works is a limousine triplane fitted with a 230 Benz engine. The machine resembles the well-known Hannover biplane in some respects, the fuselage and tail unit being almost identical with the exception that a comfortable passenger compartment is substituted for the rear observer's cockpit, and the radiator is placed in the nose instead of being carried in the centre-section. The tail plane is also adjustable so as to offset the varying weights carried in the passenger cabin.

The cabin, which is 1.9 metres long by 1.1 metres wide by 1.5 metres high, has two seats facing the direction of flight and two folding seats against the front bulkhead. This bulkhead is well padded as a protection, in the event of a crash, a further safeguard being the provision of a luggage apartment, capable of holding 200 kgs. between the pilot's cockpit and the cabin. Further stowage space for light luggage, etc., is provided for in rear of the main seats of the cabin.

Entrance is through a half-deck door in the upper part of the cabin, the opening and closing being effected by pressure from the inside. An adjustable heating apparatus is provided. The following are the principal dimensions, etc. :

Span	10 metres
Length	8.1 metres
Height	3.8 metres
Gap	2.8 metres
Area	45 sq. metres
Load per sq. metre	35 kilos.
Load per h.p.	6-7 kilos.
Engine	230 h.p. Beinz



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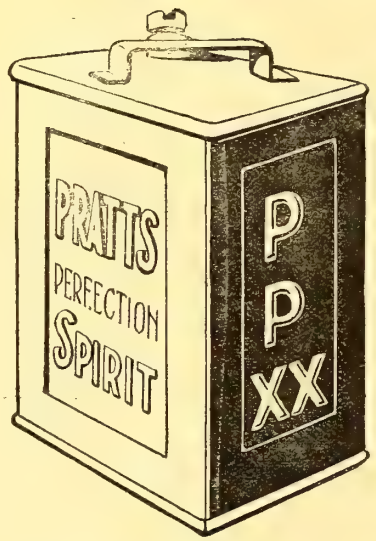

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SIR CHARLES PARSONS ON AIRCRAFT.

In his Presidential Address to the British Association for the Advancement of Science at Bournemouth, Sir C. Parsons said :—

In August, 1914, the British Air Services possessed a total of 272 machines, whereas in October, 1918, just prior to the armistice, the Royal Air Force possessed over 22,000 effective machines. During the first twelve months of the war the average monthly delivery of aeroplanes to our Flying Service was 50, while during the last twelve months of the war the average deliveries were 2,700 per month.

So far as aero engines are concerned, our position in 1914 was by no means satisfactory. We depended for a large proportion of our supplies on other countries. In the Aerial Derby of 1913, of the 11 machines that started, not one had a British engine. By the end of the war, however, British aero engines had gained the foremost place in design and manufacture, and were well up to the requirements as regards supply.

The total horse-power produced in the last 12 months of the war approximated to eight millions of brake horse-power, a figure quite comparable with the total horse-power of the marine engine output of the country.

THE COMMERCIAL AIRSHIP.

In view of the recent Transatlantic flights, I feel that it may be opportune to make the following observations on the comparative utility of aeroplanes and airships for commercial purposes. In the case of the aeroplane, the weight per horse-power increases with the size, other things being equal. This increase, however, is met to some extent by a multiplicity of engines, though in the fuselage the increase remains.

On the other hand, with the airship the advantage increases with the size, as in all ships. The tractive effort per ton of displacement diminishes in inverse proportion to the dimensions, other things, including the speed, being the same. Thus, an airship of 750 ft. length and 60 tons displacement may require a tractive force of 5 per cent., or three tons, at 60 miles per hour; and one of 1,500 ft. in length and $8 \times 60 = 480$ tons displacement would only require $2\frac{1}{2}$ per cent. $\times 480 = 12$ tons at the same speed, and would carry fuel for double the distance.

With the same proportion of weight of hull to displacement, the larger airship would stand double the wind pressure, and would weather storms of greater violence and hailstones of greater size. It would be more durable, the proportional upkeep would be less, and the proportional loss of gas considerably less. In other words, it would lose a less proportion of its buoyancy per day.

THE ONLY LIMITATION TO SIZE.

The airship appears to have a great future for special commerce where time is a dominant factor and the demand is sufficient to justify a large airship. It has also a great field in the opening up of new countries where other means of communication are difficult. The only limitation to size will be the cost of the airship and its sheds, just as in steam vessels it is the cost of the vessels and the cost of deepening the harbours that limit the size of Atlantic liners.

Such developments generally take place slowly, otherwise failures occur—as in the case of the Great Eastern—and it may be many years before the airship is increased from the present maximum of 750 ft. to 1,500 ft. with success, but it will assuredly come. If, however, the development is subsidised or assisted by Government, incidental failures may be faced with equanimity and very rapid development accomplished. In peace time the seaplane, aeroplane, and airship will most certainly have their uses. But, except for special services of high utility, it is questionable whether they will play more than a minor part as compared with the steamship, railway, and motor transport.

THE REDINI CARBURETTER.

This carburetter has been designed primarily for aero engines and is illustrated in horizontal and vertical sections in Figs. 1 and 2 respectively. The carburation chamber has three pipe necks A^1, A^1 and B. The air supply enters the pipe-necks A^1, A^1 whilst the explosive mixture is generated in the pipe neck B, which is provided with the throttle C and the two sprayers F. These two sprayers have a variable delivery which corresponds to the extent of the opening of the throttle.

Each variable delivery sprayer consists of a nozzle for the entry of the liquid fuel extending obliquely into the carburation chamber close to the throttle and has an obturator in the form of a needle G of varying diameter mounted so as to slide in the exit hole of the nozzle. The needle G is provided with a ball-shaped end H by means of which it is jointed to the throttle, this ball-shaped end serving to close the exit orifice of the nozzle when the throttle is in the shut position.

The carburetter further comprises one or more jets of constant delivery that are capable of adjustment when tuning up the motor. In the drawings only one of these jets is shown. This is of the needle type and is mounted in the interior of the hollow spindle I of the butterfly throttle-valve. The cavity in G communicates with the outside of the carburetter for the entrance of the liquid fuel through J, and also with the mixing chamber through K, which is adjustable from without through L. The passage K into the mixing chamber is closed by the hub D of the throttle C when this latter is in any position from half closed to fully closed. Thus the jet only comes into action when the orifice E is open, that is, at about half throttle. By the use of this instrument, adapted to any type of engine, the most efficient carburation can be guaranteed.—T. S. H.

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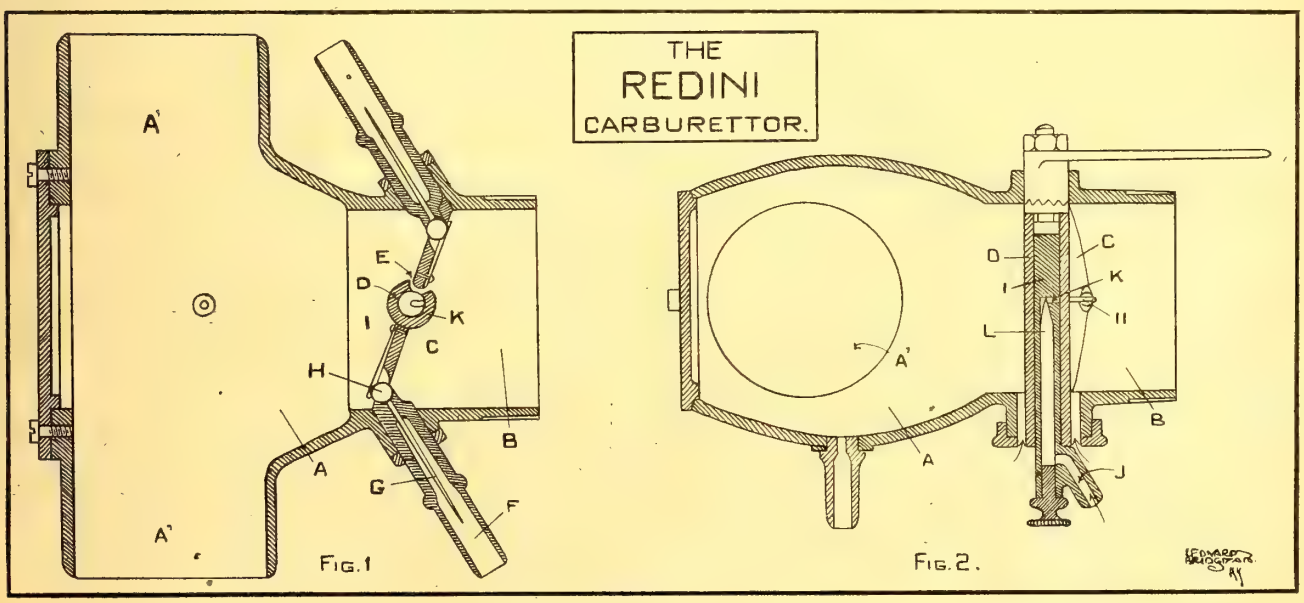
The uses to which aluminium and its alloys can be put are very extensive, and owing to its extreme lightness and the great ease with which certain complicated parts can be produced it is almost indispensable.

A very interesting publication—"Aluminium Sheet and Sections in Automobile and Aircraft Construction"—issued by the British Aluminium Co., Ltd., of 109, Queen Victoria Street, London, E.C.4, contains much useful information, together with sundry comparative tables, which should be of use to all connected with the aeronautical industry. This booklet, together with a similar one dealing with Aluminium Castings in Aircraft Construction, and numbered 159 and 157 respectively, should be in the hands of all those concerned with the design and construction of aircraft.



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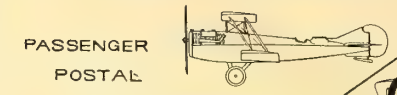

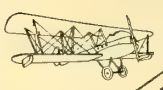

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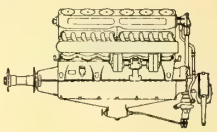

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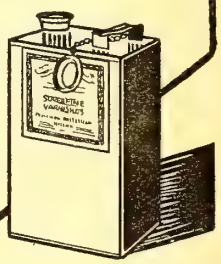

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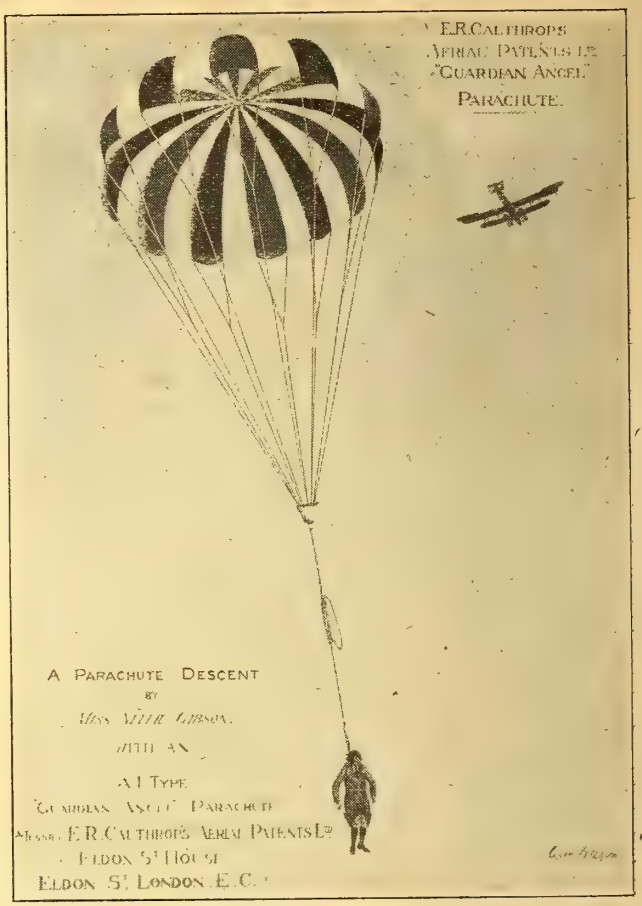

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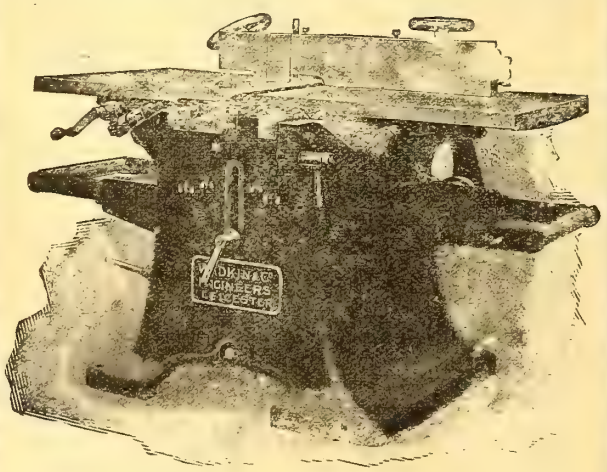

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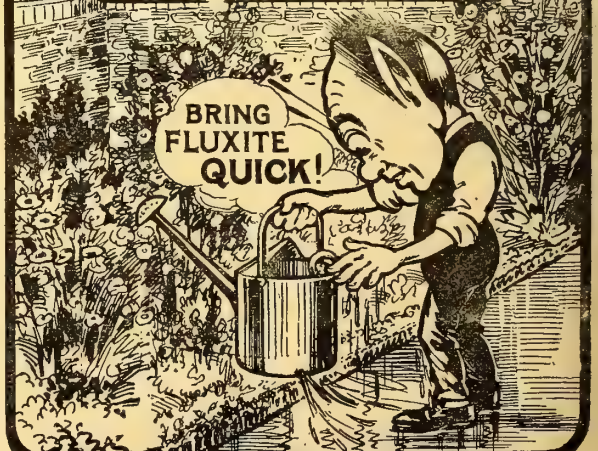

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COMMERCIAL AERONAUTICS & CIVIL AERIAL TRANSPORT

THE TREATMENT OF KEY INDUSTRIES.

By "MEDWAY."

I have already remarked that the Government is going through an epileptic fit of economy. At the present moment the patient is very destructive. He is, so to speak, waving his arms about and breaking everything within reach. When he comes round a little, he may be got to realise that there is such a thing as constructive economy, which consists of expenditure or investment made with a view to subsequent profit.

Following upon the bright idea of stopping all work upon airships, we have the wholesale cessation of Government contracts for the supply of aeroplanes. It would, of course, be absurd for the Government to go on buying war machines at a war-time rate for an indefinite period. We cannot maintain a great industry permanently by inventing useless work for it to do and then deliberately breaking up its products as soon as they are complete. We must remember, however, that in this case we are dealing with what, though it is not officially admitted, is undoubtedly a key industry.

The War Is the Test.

What *is* a key industry? As the Prime Minister tells us, "The war is the test." We have here an industry essential for war, and so neglected before the war that its output was wholly inadequate for the essential task of war. It is an industry which the Government was obliged during the war to promote and foster. It is an industry which, when the Government support is withdrawn from it, cannot conceivably maintain itself for many years to come at the level shown to be necessary in the event of war. "The war," let us repeat, "is the test."

If, when he defined a key industry, the Prime Minister had, instead, been endeavouring to state the essential facts with regard to the Aircraft Industry, he could hardly have done it more accurately. He left it to the Board of Trade to publish a list of key industries. I do not know whether he dictated the list or allowed the President of the Board of Trade to prepare it. Anyhow, it is obvious that the person who compiled the list had never heard of the Aircraft Industry. Had he done so, it could not possibly be omitted.

Admittedly, its inclusion would have been of very little use at the moment. The Government, having talked for four years about its firm resolve to maintain key industries by whatever means might prove necessary, has finished up by deciding that the only form of maintenance consists in prohibiting competitive imports for a brief period.

Prohibition of Import.

Now it chances that we have here an industry in respect of which imports for some time to come will be negligible, even were they unrestricted. I speak from the point of view of the British Isles. A prohibition of import of aeroplanes and airships into any part of the British Empire would be a step in the right direction. Alternatively, I suggest an import duty of 100 per cent., coupled with absolute Imperial Preference, providing complete free trade in aircraft between all parts of the Empire.

My main point is, however, that there are other ways of fostering key industries, even if we forget all about tariffs and prohibitions. If the Government is not justified in buying aircraft of fighting types, may it not be justified in buying and using aircraft for the carriage of mails and for commercial and public services? A partial alternative to actual purchase appears to be a scheme of subvention on really generous lines.

Before the war all the great military Powers paid quite substantial annual subsidies to the owners of motor lorries more or less suitable for military use. In this country the subsidy was about £110 per lorry spread over three years. The amount was small because the estimated requirements of our Army were also small. In France the payment in respect of each lorry was £300 spread over a period of four years. In Germany it was no less than £450 spread over a period of five years. This was for a larger type of lorry.

Unlimited Requirements.

Roughly speaking, then, the subsidy necessary was generally estimated at about half the first cost of the vehicle. Now, as regards aircraft, we are under no delusions as to the extent of our war-time demand. It is practically unlimited. We can never have too many machines. In fact, we can never have enough. Would it, then, be unreasonable if the Government were to subsidise the owners of aircraft maintained in satisfactory condition on a scale which would amount in the aggregate to about half of the first cost of the machine in every case? Such a subsidy would not necessarily be paid in respect of every machine manufactured, but only in respect of those more or less adaptable for some class of military work.

Another form of subsidy would consist in the assistance of aerial operating concerns, the subsidy in this case making it possible for such concerns to show a reasonable but not an excessive profit. This latter type of subsidy would not be paid by the War Department, but by the Government as a whole. Its purpose would be in no sense military. The object would be the development of Empire resources by the opening up of improved communications, and the amount of the subsidy would be more or less dependent on the value of the proposed services from this particular point of view.

All this might suffice to keep in existence the nucleus of an Aircraft Industry. From this nucleus a great industry would gradually grow up. In the meanwhile, we must maintain in existence and in operation the factories and plant necessary to make rapid aircraft production possible in emergency. How can this be done?

A Suggestion.

There are many classes of goods in common use for the supply of which we are largely dependent upon import. They could be made in this country at a price, but the price would not be naturally competitive. Would it not be possible to make up a little list of useful articles not built here, but capable of being made in existing aircraft works? The articles on such a list could then be allocated to various aircraft firms who had found it possible, with-

out some assistance, to keep their machines and staff employed. In every case a subsidy would be paid such that, when the amount of the subsidy had been deducted from the carefully ascertained cost of efficient manufacture, the figure reached would be such that the goods could be sold at a competitive price and at the same time at a reasonable but limited profit.

During the war the Ministry of Reconstruction possessed what was called a New Industries Committee. I imagine that the report of that Committee would suggest quite a number of possible new industries, some of which have not been taken up for the simple reason that manufacturing costs in this country are at present too high to make the products competitive.

This scheme would, of course, mean the expenditure of money. Its cost would, however, decrease year by year, and, by the time all conditions again become quite normal, it might be found possible to withdraw the subsidies altogether. Meanwhile, we should be keeping a quantity of labour in useful employment. We should be creating new home industries, and we should be preserving, around every nucleus of aircraft production, premises and plant which could be diverted rapidly to the quantity production of aircraft in the event of a national emergency arising.

It seems to me that some such plan as this would enable us, at the lowest possible cost, to get over the serious difficulty occasioned by the fact that the peace-time demand for aircraft must for some time continue negligible when compared with the demand which would arise in the event of war.

SERVICEABILITY.

In an aerodrome near the E.L.T.A. (Amsterdam) is a Bristol Fighter delivered by the constructors in September, 1917. It was immediately put into commission under active service conditions, and after doing considerable work in this direction unfortunately landed in Holland. The pilot was naturally interned, and the machine was soon after bought by the Dutch Government. Though it has been continuously flown by Dutch officers, it has never been repaired or renovated in any way, and every unit is exactly as when it left the Bristol works. Even the "Cellon" dope has never been renewed. The machine is still in service and in great favour with the Dutch pilots.

E.L.T.A. APPRECIATION.

A member of the E.L.T.A. Committee sent the following letter, dated Sept. 4th, regarding the F.5 Flying-boat to Mr. Volk, the manager of the Gosport Aircraft Co. :—

Dear Sir,—The E.L.T.A. Committee received with pleasure your cable about your safe arrival in England. We are very glad to have heard you enjoyed your stay in Holland; we must acknowledge that your machine did splendid work when it arrived late in the evening in Schellingwoude. We admired your flights on the opening, and we were astonished that your boat was 26 days with rough weather on the water, and was always ready to start. We think it is a big advertisement for your firm, and that you are on the right way in building flying-boats that do not want hangars. I have the pleasure of expressing you all thanks and congratulations of the E.L.T.A. Committee, and I herewith do the compliments of all you met and specially kindest regards.—(Signed) FLEMMIAN.

HOW THE WAR WAS WON.

Lord Montagu of Beaulieu, in a foreword to a book entitled, "The Shell that Hit Germany Hardest," issued by the "Shell" Marketing Co., Ltd., says : "The Germans were keener on sinking vessels conveying oil than on any other ships that sailed the ocean. They realised at the very beginning of the war that the liquid fuel supply was vital to our sea supremacy then and to our air supremacy later."

The book has been produced to show the work that was done by the Shell Co., and it contains much that will be of interest to those who were not behind the scenes. M. Bérenger, the Commissioner-General of Petroleum in France, paid a high tribute to the company in a speech on a certain occasion. He said : "May I be permitted to state here solemnly, gentlemen, in the name of the French Government, how much gratitude we owe in a special way to Mr. Deterding and to his associates, and to the Asiatic Petroleum Co., for the support which they gave since October, 1914, to the defence of our country by placing at our disposal their precious petrols from Borneo and Sumatra which contained the toluenes, the xylenes and the benzenes which were absolutely indispensable for the manufacture of our most powerful explosives, and of our most efficient extra-aviation petrols."

"Thanks to toluol, we were able to return blow for blow the 'cards' sent us by the Germans from their great cannon : *without this invaluable explosive*, given to us at a time when we most required it, *the war would have been lost*. It fired our great cannon, and, in a word SAVED VERDUN."

In 1917 it became apparent that stocks of petroleum products would fall to an alarming extent in Great Britain owing to the losses of tank steamers due to submarine warfare.

It was at this crisis that the Shell Co. put before the Admiralty the proposition of bringing liquid fuel from abroad in the "double-bottoms" or ballast tanks of ordinary merchant ships—a plan which years earlier the Company themselves had successfully employed—to supplement the alarmingly reduced tanker fleet in conveying fuel oil to this country.

This idea, the details of which were worked out on behalf of the Admiralty by Mr. C. Zulver, the company's marine superintendent, proved the one possible solution to perhaps the most baffling problem the Admiralty had to face throughout the war. During the most critical period, as much as 125,000 tons of oil was carried in this way in one month, and by the date of the signing of the armistice, 1,014,570 tons of liquid fuel had been safely brought over under this scheme. Stores of oil had reached a normal amount, and all danger of another shortage had long since passed.

There is much other information in the book, which is well produced and well illustrated. It does not err on the side of modesty and at times one is inclined to suggest that although "Shell" did win the war the fighting forces helped a little.

ON COMMERCIAL AVIATION.

A booklet entitled "Commercial Aviation and its Relation to the Community" has just been issued by the United Aircraft Engineering Corporation, of New York. It is the first of a series which will show the present status of commercial aviation and its future possibilities.

Considerable space is given to aerodrome construction, and illustrations of various types of landing fields are given. Other pages are devoted to types of aircraft, speed, endurance, landing, load, altitude, safety, cost, cost of operation, performance, etc.

While it was originally intended that the distribution of these booklets would be very limited, it is now possible for all those interested in commercial aviation to secure a copy until the present supply is exhausted. Requests should be made to the Engineering Department of the United Aircraft Engineering Corporation, 52, Vanderbilt Avenue, New York City.

A DENIAL.

The report that the works of Whitehead Aircraft have been taken over for the production of motor-cars is denied officially. The report was not published in THE AEROPLANE.

A SALE OF AIRSCREWS.

The Aircraft Disposal Department of the Ministry of Munitions are offering aircraft propellers for sale. They comprise new aircraft propellers made of the finest walnut and mahogany, and are offered for sale at the following rates : with four blades at 30s. and with two blades at 25s.

These propellers cost originally from £15 to £25, and were made for engines which are now obsolete. They can be adapted for many purposes, such as hat racks, and for appropriate hall uses, to which they add a note of distraction if fitted with a clock or barometer.

Sales can be made in a few minutes and the goods taken away or arrangements made for delivery.

Offers are invited for a limited number of propellers taken from captured enemy aeroplanes. Communications should be addressed to the Controller, Aircraft Disposal Department, York House, Kingsway, W.C.

TRIPLEX GLASS.

It is now announced that the Triplex Safety Glass Co., Ltd., of 1, Albemarle Street, Piccadilly, W.1, have two new models of goggles ready for the market, which have been specially designed for motorists. One is a model for women motorists, and both can be had at a reasonable price, namely, Model A, 10s. 6d., and Model C, 12s. 6d. (including case).

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THE AIRCO CONTINENTAL SERVICES.

Those who hold pessimistic views regarding commercial aviation would do well to pay a visit to the Airco headquarters at 27, Buckingham Gate, S.W.1, where an atmosphere of enthusiasm prevails.

The London-Paris Air Service is becoming more and more successful as the days pass and the reliability of the machines is proved to commercial men. Some of the leading banks of London and Paris are now using the service daily for the transmission of important documents.

Every day about 40 lb. weight of assorted British newspapers is sent over to Paris, where they are sold in the afternoon of the day of publication, whereas those that are sent by train do not arrive until the following day. Paris newspapers are also brought to London. News photographs and cinematograph films are also sent regularly by air between the two capitals, and some commercial firms have already adopted this means of rapid transit for sending samples of various manufactures abroad.

The fashion creators in Paris have been quick to realise the possibilities of the service, and a Manchester firm claims the credit of having Paris hats brought to England by air for the first time. A firm of furriers in Paris recently sent about 25 lb. weight of expensive furs from Paris to London, willingly paying the £9 freightage, and another firm sent a sample bottle of champagne which was wanted in London quickly so that an important order might be booked.

Passengers continue to travel by the route and are invariably enthusiastic. Major-Gen. the Right Hon. J. E. B. Seely, C.B., C.M.G., D.S.O., M.P., and Major-Gen. Sir F. H. Sykes, K.C.B., C.M.G., flew over recently to sign the Air Convention, and the return trip was made in the extremely good time of two hours.

A new machine, the Airco D.H.18, is shortly to be put on this air line especially for passenger service. This machine will be fitted with a 450 h.p. Napier "Lion" engine, and will carry eight passengers in addition to the pilot; each passenger will be allowed to carry a small suit-case, and it is claimed the seating accommodation is more comfortable than that in a first-class railway carriage.

An interesting test was made recently to prove that messages could be sent to Paris more quickly by air than by cable. A cablegram was sent from the London office at 12.15 p.m., and at the same time it was telephoned to the aerodrome and was given verbally to the pilot of one of the machines about to start. The verbal message reached the person for whom it was intended at 4 p.m., but the cablegram did not reach its destination until 10 a.m. the next morning.

With regard to the transmission of parcels, it is pointed out that the gain in time is far greater than it appears to be at first sight. One is apt to compare the 2¼ hour flight with the eight or nine hour train and boat journey on the passenger service, but this is not a fair comparison. If a parcel is sent by air at mid-day it reaches Paris in the short time of 2¼ hours and is then delivered very speedily to its destination, whereas if a parcel is sent by ordinary post, as things exist to-day, it is not likely to reach its destination till two or even three days have elapsed. It is for this reason that commercial houses are realising the enormous value of this service.

One of the most hopeful signs of the times is the fact that at the present moment three Continental Governments are negotiating with Airco, Ltd., for the inauguration of aerial mail services. These Governments wisely realise that the experience which the company have already gained makes them better judges than amateur officials of the manner in which such mail services should be run. Accordingly they are prepared to leave the entire arrangement of the services to Airco, Ltd., who are expected to send their representatives to choose aerodromes, plan the necessary buildings, repair shops, arrange the supply and storage of fuel and every other detail in the complicated organisation necessary for the efficient running of these services.

The view of Airco, Ltd., is that for a long time to come the most profitable commercial use of the aeroplane is that of carrying mails and parcels. Between London and Paris goods are carried at the rate of 7s. 6d. per pound normally, but firms that make regular contracts can have goods carried at a rate as low as 3s. 9d. per pound. Passengers are charged £21 for each journey. If passengers' fares were arranged according to weight, a 10-stone person would be called upon to pay 50 guineas at the rate of 7s. 6d. per pound, so that it is obvious for the present the carriage of goods is more profitable than that of passengers. Since the first week in which the service has been in operation, there has been a steady increase in the amount of goods sent to the aerodrome daily for transmission to Paris.

Most of the big London newspapers, including the "Times," the "Daily Telegraph," "Morning Post," "Daily Mail," "Daily Express," etc., have made regular contracts. The week of very bad weather through which the machines flew with only one interruption did much to inspire confidence in the service, and every week that goes by inspires greater faith.

The Airco, Ltd., are gathering statistics as to cost that will prove of inestimable value to commercial aviation. Although they are not yet in a position to make an actual statement regarding the financial side of the venture, they are finding out that the speculations of writers who have tried to estimate the cost of running a regular service without having actual experience on which to base their ideas, are very far from being accurate.

There is no doubt that Airco, Ltd., are at the present time doing pioneer work in all parts of the world that will eventually prove of enormous value to this country. In South America, Spain, India, Australia, South Africa, in fact in every part of the globe, they have representatives who are demonstrating the possibilities of commercial aviation; and while pessimistic people are still saying that the day of successful commercial use of aircraft is still far distant, the firm is quietly doing the work that is bringing that day nearer.

BARIMAR OVERSEAS DEVELOPMENTS.

"La Société Française Barimar" is the title of a company which has recently been formed in Paris, with a capital of £5,000, to exploit the Barimar scientific welding processes in France, Tunis, and Algeria. The factory, which is situate at 48, Rue d'Alsace, Clichy (Seine), is under the personal supervision of Mr. Cyril Rose. Mr. Rose, who has taken a leading part in the establishment of the new company, is constantly investigating the problems of metal fusion, with the object of obtaining the best results from modern scientific welding processes, and under his management the French branch should speedily thrive.

SHORT'S ATHLETIC SPORTS.

A sports meeting in connection with Short's Social and Athletic Club was held in the Paddock, Rochester, on Aug. 23rd, under the Amateur Athletic Association rules. There were 35 events (including heats) on the programme. The sports started promptly at 2.0 p.m.

Mr. V. O. Levick, the hon. sec. of the sports club, had many successes, and also had time to arrange the lengthy programme and attend to many secretarial duties.

The open events produced some excellent entries from the Army and Navy and athletes from the neighbouring places. A local band played during the afternoon, and tea was provided in a special marquee. The referees were: Mr. H. O. Short, Major Sippe, Major Gnosspelius, and Major Bell.

A WORKS OUTING.

The annual beanfeast at Brighton took place recently. It was arranged by the engineers of the welding firm, and a cordial invitation to the Directors to accompany the party was gladly accepted.

Mr. C. W. Brett, the Managing Director, said that since the incorporation of the company in 1906 there had never been a strike. The staff have worked hard all the time. During the war 70,000 breakdown jobs have been through the works, and there has never been a hitch even for an hour.

Barimar, Ltd., is establishing a chain of welding businesses around the world, and their engineers will soon be on the way to Australia, New Zealand, India, North, South, and East Africa, Italy, France, Denmark, Norway, Sweden, Canada, and South America. Some of these branches are already operating, and others are being formed as rapidly as possible.

Men of character and stability skilled at welding may register with Barimar's for duty at the new overseas branches. Applicants will be required to spend short periods with good pay in the London factory in order to thoroughly familiarise themselves with the methods of the firm.

THE SECOND ARRIVAL.

A. V. Roe and Co., Ltd., are constructing at their Hamble works another Avro "Baby" with 35 h.p. engine.

CIVIL AERIAL TRANSPORT NOTES.

GREAT BRITAIN.

The London-Paris Air Services.

During the past week two fresh companies announced that they were starting London-Paris services. Both are French, the Compagnie des Messageries Aeriennes and Farman Frères.

On Sept. 16th for the first time a Bréguet biplane owned by the first-named company travelled over the Paris-London air line. The machine was flown by a French pilot, M. Massot, and carried a mechanic only. On Friday, Sept. 19th, the Bréguet started from Hounslow soon after noon, and passenger accommodation was available.

The Bréguet service by the Compagnie des Messageries Aeriennes is run in connection with that of Handley Page, Ltd. On those days when the Handley Page machines do not fly—viz., Mondays, Wednesdays, and Fridays—the Bréguet machines will start from Hounslow at noon. Similarly, they will leave Le Bourget aerodrome at noon on Tuesdays, Thursdays, and Saturdays. They will carry light goods as well as passengers, and it is expected that the journey will be made in less than 2¾ hours.

The machine is fitted with a 300 h.p. Renault engine of a new type, and has a limousine cabin seating two passengers. The pilot is placed above and behind the cabin. The Bréguet firm have been famed for steel aeroplane construction since 1912. It is interesting to recall that a Bréguet machine made the first Channel crossing with three passengers over six years ago. The pilot was the late Capt. W. B. Rhodes-Moorhouse, V.C.

The Compagnie des Messageries Aeriennes has been running a postal, passenger, and goods service between Paris, Brussels, and Lille since April, and it will now be possible to fly to Brussels from London *via* Paris.

The other service, using a Farman Goliath, will only operate once a week. Every Friday the machine will leave Hounslow at 10-30 a.m., taking passengers to Le Bourget, where a motor-car will meet them at 1 p.m. and convey them to the Ritz Hotel in Paris. The return journey will be made on Thursdays under similar conditions. The Goliath will carry twelve passengers, and the single fare is £15 15s.

During the week ending Sept. 19th the Handley Page machines conveyed between London and Paris 30 passengers and 1,014 lb. of freight and luggage.

The following are the Airco Services to and from Paris for the past week.

Date.	Type and Pilot.	Hounslow to Paris	Paris to Hounslow	Pass.	Weather.
Sept. 15th	D.H. 9 (Lt. Square) ...	9 a.m	...	2	
	(special machine)	11.45 a.m.	...	...	
	D.H. 4a (Lt. Shaw) ...	12.39 p.m.	...	1	
		3.0 p.m.	...	...	
	D.H. 4a (Lt. Lawford)...	...	12. 0 p.m.	...	
			3.27 p.m.	...	
Sept. 16th	D.H. 16 (Lt. McMullin)	12.34 p.m.	...	2	
		2.50 p.m.	...	...	
	D.H. 9 (Capt. Riley) ...	...	12.50 p.m.	...	
			3.7 p m	...	
Sept. 17th	D.H. 4a (Lt. Powell) ..	12 30 p.m.	...	2	
		2 45 p.m.	...	...	
	D.H. 4a (Lt. Shaw) ...	...	12.30 p.m.	1	
			2.45 p.m.	...	
Sept. 18th	D.H. 16 (Capt. Baylis)..	12.39 p.m.	...	3	
		2.45 p.m.	...	...	
	D.H. 9 (Lt. Square) ...	...	12.30 p.m.	2	
			3.0 p.m.	...	
Sept. 19th	D.H. 4a (Lt. Campbell Orde)	12.33 p.m.	...	2	
		2.30 p.m.	...	...	
	D.H. 16 (Lt. M Mullin)	...	12 30 p.m. forced landing at Bahot	..	Very bad. Rain. Low Clouds. Strong wind.
Sept. 20th	D.H. 9 (Lt. Shaw) ...	12.33 p m.	...	...	
		2.45 p.m.	...	...	
	D.H. 4a (Capt. Baylis)...	...	12.30 p.m.	...	
			2.46 p m.	...	

The Airco D.H.16 machine, which left Paris on Sept. 19th and was forced to land at Bahot, near Marquise, owing to oil-pressure trouble, contrived to leave France on the morning of the 20th. Assistance having been obtained from Marquise Aerodrome, the machine left Bahot at 10.40 a.m. and arrived at Hounslow at 11.15 a.m. There were no passengers aboard.

The specially-chartered D.H.9, which flew to Paris on Sept. 15th, carried two Spanish noblemen, namely, the Marquis Pons and the Marquis del Rio.

A Month's Work.

The following letter from "Aircraft Transport and Travel, Ltd.," dated Sept. 20th, 1919, is of more than usual interest :—

Sir,—I am writing, on the completion of the first month of our aeroplane service between London and Paris, to thank you for the publicity you have given this the first daily commercial air service, and to express gratitude, specially, for the manner in which you have drawn attention to the fact that, in spite often of extremely bad weather, we have maintained our service, day in and day out, to scheduled time.

I started this service on Aug. 25th to demonstrate to the business world, by actual daily flying, that aeroplanes will not only transport passengers and goods at 100 miles an hour, but will do so commercially to a fixed time-table.

It should interest your readers, I think, to have before them a summary of our achievement during this first month, when we have demonstrated day by day the fact that, for the first time in the history of mankind, London and Paris are, by "air express," only 2¼ hours distant from each other.

Here, summarised, is the record of which, I think, we may be proud. Out of a possible 56 flights between London and Paris during this first four weeks, we have satisfactorily completed 54. On one occasion, when there was a 100-miles-an-hour hurricane, it was considered advisable to divert the load of a machine to an alternative route; and on another occasion, after starting a flight rather late owing to atrociously bad weather, a pilot had a forced landing through oil-pressure trouble, which so delayed him that he considered it unadvisable to proceed owing to the impending darkness.

As showing the dependability in operation which can be attained already with a suitable aeroplane, when handled with skill, I should like to emphasise the point that only twice, during 13,750 miles flying, has it been necessary for a pilot to make a compulsory descent; and in one of these two cases, after five minutes' delay, he was in the air again.

I have been asked why I chose London-Paris as a demonstration route, seeing that the weather encountered is probably the worst in the world. My reply is that we chose this route deliberately. We were confident of our pilots and machines. We knew the belief which is prevalent that commercial flying is only a fair-weather proposition. We said to ourselves, "If we can fly reliably on this route we can go with confidence anywhere else in the world."

In the month's weather we *have* just flown through, the official reports show that on only three days were conditions really favourable. On thirteen days they were distinctly unfavourable, while on eight days, though our machines actually got through, the official reports showed that the conditions were considered "unfit" for flying.

The credit for this month's really wonderful flying, which has done more than anything else has ever done to convince thinking people that the era of commercial flying has already dawned, is due entirely to the ex-Royal Air Force officers and pilots who, under my direction, have organised and flown this service.

In their capacity as indefatigable organisers, I pay sincere tribute to Brig.-General F. L. Festing, C.B., C.M.G., who resigned his post as Deputy Master-General of Personnel at the Air Ministry to join me as managing director of Aircraft Transport and Travel; also to Capt. D. M. Greig, O.B.E., late of the Department of Aircraft Production; and last, but far from least, I pay tribute to those pilots—the finest, I am convinced, in the world—who have flown through weather which even experts have considered impossible.

To these pioneers of commercial flying—to Capt. Baylis, Capt. Riley, Lieut. Shaw, Lieut. Lawford, and Lieut. McMullin—we owe a debt of gratitude it is hard to express in words. Their flying, their enthusiasm, their good judgment—these have been magnificent.

To the public, and particularly to the business community, I should like, if you will permit me, to say this. To use this 100-miles-an-hour service on urgent occasions when "time is money" is not only a sound business proposition—as those who are now using it daily would be the first to testify—but it is something far more than this. It is a definite encouragement to British aviation; which, first as it was in war, is now faced with the task of maintaining that proud position during the days of peace—a task which it can only hope to accomplish by the interest and support of the public.

(Signed) J. Holt Thomas, Chairman.

The London-Brussels Air Service.

Handley Page, Ltd., would have started their London-Brussels service on Monday, Sept. 22nd, but the weather

was unfavourable. The machine started at 8 a.m. on Sept. 23rd. The same type of twin-engined machine is used on the service as on the London-Paris route. There is accommodation for 10 passengers with 30 lb. each of personal luggage, and, in addition, for 500 lb. of freight.

The seats are all numbered, and can be booked at all the usual agents or at the Cricklewood aerodrome. Private motor-cars await the passengers at each aerodrome and convey them to the centres of the cities. The machines start from Hounslow at noon on Mondays, Wednesdays, and Fridays, and return on the alternate days.

LONDON.

AN M.P.'S AEROPLANE.—Sir Philip Sassoon, M.P. for Hythe, has bought an Avro biplane. He intends to use the machine for flying from London to his residence near Lympne. Three-quarters of an hour will be saved over the time taken by the fastest train on the journey.

HENDON.—A B.A.T. F.K.26 passenger-carrier, piloted by Major C. Draper, arrived at Hendon on Sept. 21st from the Amsterdam Exhibition. Later in the day another B.A.T. machine of the same type also arrived at Hendon from Belgium.

The former during its stay in Holland made many flights, one including a flight over the house at present occupied by the Crown Prince of Germany, who, it is stated, watched the machine from his garden.

HOUNSLOW.—The variable weather of the past week seems to have affected the number of Avro flights at Hounslow. In course of time Londoners will doubtless realise that autumn flying can be just as enjoyable as going aloft during an August heat-wave. In fact, a clear morning with a touch of frost may give a far finer view than one gets when a summer haze hangs over the earth, and few things can equal the delights of flying on a bright snowy morning. But the holiday spirit seems to wane with the passing of summer, and in consequence only 120 Londoners made flights during the week.

Two cross-country return journeys were made to Stow-on-Wold and to Cambridge, and three aeroplanes arrived by air from Manchester during the week.

One of these machines was taken by Capt. Bradley to Lausanne. He left Hounslow on Wednesday, Sept. 17th, at 2.15 p.m., and arrived safely on the shores of Lake Geneva on Saturday, Sept. 20th. No attempt was made to break records. The Alps were safely crossed, and the journey was uneventfully successful. The Avro will give demonstrations at Lausanne and take up passengers under an arrangement with M. Pethoud.

BLACKBURN.

The Blackburn flying week opened at Witton Park on the afternoon of Sept. 13th. The first flight was made by the Mayor, and since then a great number of people have been taken up. The flying is under the direction of Lieuts. C. B. Maddocks and Kingsford Smith, M.C., who are both Australian pilots. They have both entered for the £10,000 prize offered by the Australian Government.

Sixty-five passengers were taken up on Sept. 15th, and two flew to Blackpool, where they alighted on the sands.

BRIGHTON.

Flying was only possible on six days. One of the Avros at this place took some visitors to a garden party at Reigate on Saturday, Sept. 20th. The machine went over to Chichester on Thursday as usual and took up passengers there.

GLASGOW.

According to the "Daily Chronicle" of Sept. 17th a regular air service is in operation between Glasgow and Gleneagles, a new golf course recently opened by the Caledonian Railway Company. In a preliminary flight one of the pilots covered the distance of about fifty miles in 25 mins. It is questioned if flying to the course will improve the play of the golfer or put him right off his stroke.

LEICESTER.

The Leicestershire and Rutland Aero Club are making plans for developing aviation in the Midlands if they obtain the necessary financial support. They propose to purchase one machine at first, which will be placed at the service of business men who wish to make commercial journeys.

LLANELLY SANDS.

At an inquest on Sept. 20th it was stated that David Watts was driving a pony and trap giving pleasure rides to children on the beach when he got in the way of an aeroplane and was struck on the head by one of the wings and killed. Three children in the trap were also injured.

A verdict of "Accidental death" was returned, and the jury recommended that the course of the aeroplane in rising from the starting-point should be fenced off.

SHEFFIELD.

The tramway strike greatly interfered with the success of Sheffield's second flying week at the Coal Aston aerodrome, and necessitated a modification of the arrangements, but the facilities for flying were not removed. The exhibition flights did not take place, but the arrangements for public flights held good. There were four Avro machines on the ground. The difficulty in the way of making ascents was that of reaching the aerodrome.

On Sept. 15th there was no attendance of the general public, and no short flights were made. One passenger, however, showed interest in longer-distance flying by going to Scarborough.

WESTON-SUPER-MARE.

Drifting sand borne on a westerly gale which resembled a sand-storm, coupled with intense cold, kept visitors off the sands for three days and spoilt the flying. Two days were completely spoilt by the weather, and there were very few trippers on the sands after Tuesday. Thus a week which promised well at the outset was completely spoilt by the weather.

WINDERMERE.

This week has been a record for the number of passengers carried at Bowness. The Avro seaplanes have carried out 32 flights, totalling nine hours of flying.

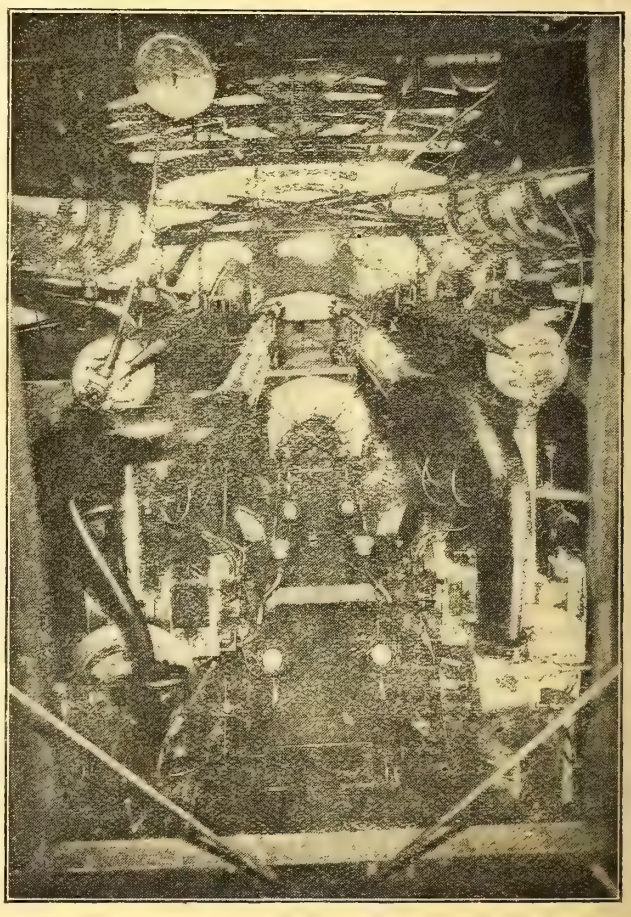
One sporting couple engaged a machine for a half-hour flight over Ulverston and Morecombe Bay, and from a height of between 3,000 and 4,000 ft. they enjoyed some especially splendid views of cloud effects.

AUSTRALIA.

THE PLANS FOR DAILY AIR SERVICES.

The first aerial transport company has been formed in Australia under the name of "Aerial Transport (Limited)." The company intends to start at once on the preliminary work necessary before an actual flying service can be put in operation.

Surveys will be made of routes over which the machines will fly, aerodrome sites will be established, meteorological information obtained and tabulated. The possibility of the local manufacture and repair of machines and engines will



The Engine-room of the Linke-Hofmann R 2 Machine described in "Aeronautical Engineering."

be investigated. The shares of the company are divided among all the States, and it is expected that actual flying services between the capital cities will be in operation by July, 1920.

It is expected that the service, which will not be confined to inter-capital routes, will open up the interior of the Continent now shunned on account of the lack of travelling facilities. It will provide quick transport for perishable goods, and the company eventually hopes to carry the inter-State mails.

It is proposed to establish aerodromes in Sydney, Melbourne, Brisbane, Perth, Adelaide, Launceston, and Hobart. The average passenger fare between capital cities will be less than £6 each way. The first daily services will all start from Melbourne and will be run to Sydney (6½ hours), Adelaide (5½ hours), and Hobart (7½ hours).

The other proposed daily services are between Sydney and Brisbane (6½ hours), Sydney and Adelaide (11 hours), Melbourne and Broken Hill (7 hours), and Adelaide to Kalgoorlie and Perth (18 hours). Other services will subsequently be developed in the various States between the capital cities and the larger country towns.

The machines which it is proposed to use will have a capacity of three tons and a quarter, and will be able to carry 30 passengers, with 25 lb. or 30 lb. of luggage each. In the alternative they will carry 12 passengers and two tons of freight or mail. Freight could be carried at the rate of 8d. per lb. It is suggested by the company that, with the co-operation of the Postal Department, it would be possible to carry the mails at an extra charge of ½d. per oz. for letters requiring urgent delivery.—W. J. A.

News from Australian Sources.

Mr. Sydney Pickles, of Sydney, has arrived in New South Wales with a model of an aeroplane with which he intends to display the possibilities of commercial flying in Australia. He has arranged for the shipment of some machines to Sydney. One of them has a speed of 158 miles an hour.

According to the Exchange Telegraph Company Flt.-Lieut. McGinnes Fysh has been commissioned to survey an aerial route in the northern territory of Queensland in connection with the forthcoming Handley Page trial flight to England.

BRAZIL.

Handley Page, Ltd., have received the sole contract for carrying mail over all routes in Brazil, according to a telegram from Rio de Janeiro.

EGYPT.

The Indian Mail Service.

It has been found necessary to postpone the inauguration of the Cairo-Karachi air-mail service. There are not sufficient commercial prospects to justify the expense of starting it.

Recently a survey party crossed the desert in cars from Damascus to Abu Kemal, on the Euphrates, and thence to Baghdad. Landing-grounds were marked out at intervals of 20 miles en route.

FRANCE.

The French Government has decided to give a series of annual premiums or subsidies in aid of civil aerial transport enterprises. Premiums of the following classes will be given: (A) Depreciation, (B) Equipment, (C) Transport, (D) Military.

The regulations can be summarised as follows:—

(A.) The Depreciation premium.

If P be the price of the aeroplane without motor, p the price of the motor, and assuming that the flying life of the aeroplane is 400 hours, the formula of hourly depreciation is as follows:—

$$\frac{P \times 1.5p}{400}$$

It is assumed in this formula that the life of the engine is about one and a half times more than that of the aeroplane.

The State will pay—

(1) To firms maintaining a regular transport service over a fixed itinerary between two points not less than 124 miles apart, half of the hourly depreciation, i.e., 0.00125 (P+1.5 p).

(2) To firms maintaining a regular transport service over a fixed itinerary between two points not less than 31 miles apart, or constituting a closed circuit of at least 62 miles without a landing, and to firms maintaining a regular service of less than 124 miles in length, a quarter of the depreciation costs, i.e., 0.000625 (P+1.5 p).

(B.) Equipment premium.

To firms of category 1 shown under Section A, the State will pay 0.10 a kilometre for the length of the mean stage flown without landing, and 0.05 a h.p., i.e.,

$$0.10 \times \text{length of mean stage} + 0.05 \text{ H.P.}$$

To firms of category 2 the State will pay 0.10 a kilometre and 0.025 a h.p.

(C.) Transport premium.

This premium is proportional to the customary speed V of the aeroplane shown at official trials, to a speed v.V.50, to its useful tonnage capacity expressed in tons (700 kilog. = 0.7) and a coefficient K, i.e.,

$$\frac{K}{100} \times V \times v \times T$$

The coefficient K varies according to the nature of the enterprise. For firms in No. 2 category, K equals zero, and for regular international services K equals 14. In such advanced efforts as services in Central Africa K can rise as high as 19.

[This is not very clear, but it is taken literally from "L'Auto."—Ed.]

(D.) Military premium.

A supplementary depreciation premium is given in the case of all machines which have military value. This premium is equal to a quarter of the depreciation, i.e., 0.000625 (P+1.5 p).

Note.—The number of hours of flight is calculated on the distance covered on the fixed route at a fixed speed of 130 kilometres an hour

The Paris-Melbourne Flight.

Some time during the present week M. Etienne Poulet hopes to begin his flight from Paris to Melbourne on a twin-engined Caudron biplane. The journey will be attempted via Rome, Salonica, Constantinople, Bagdad, Karachi, Bombay, Calcutta, Bangkok, Singapore, Batavia, Rotti (an island S.W. of Timor), Sydney, and Melbourne. Should he reach Melbourne safely he will attempt to return to France by way of the air. M. Poulet, who has been given but little encouragement by the French Government, states that the British Government have offered him any assistance which can be obtained from the British preparations for the England-Australia flight. He will be accompanied by his mechanic, Benoit.

Messrs. Farman and Motor-car Construction.

It is rumoured in Paris that the Farman Bros. intend to construct and sell six-cylinder motor-cars of the most modern and perfect type. The price will be between £1,500 and £1,700 for the chassis. Even in France man cannot live by aviation construction work alone.

The Return of the Goliath.

Lieut. Boussotrot, his companions, and the remains of the Farman biplane Le Goliath reached Marseilles on Sept. 14th from Saint Louis, Senegal.

The Civil Use of Military Aerodromes.

It is now possible for civil aircraft, both private and commercial, to make use of military aerodromes in the course of cross-country flights. The charges officially authorised are as follows:—

For a day, from sunrise to sunset, 0.02 centimes per unit of horse-power.

For a night, from sunset to sunrise, 20 francs.

Aeroplanes fitted with wireless installations pay one franc in the case of those having either a sending or receiving set, and two francs when a sending and receiving set is installed.

Biarritz-San Sebastian.

The Compagnie des Transports Aeriens du Sud-Ouest has organised a daily aerial passenger service between Biarritz and San Sebastian. The aeroplanes used are Farman biplanes (type F.40).

Aerodrome Restrictions Removed.

Issy-les-Moulineaux, the historic scene of many of the early tragedies and comedies of aviation, has now, under the orders of General Duval, the Director of Military Aeronautics, has been opened to the public, who may walk freely over its area. "L'Auto" is amused, and says that the innocent civilian may now permit himself to be killed by an alighting aeroplane without breaking any law. In truth the arrangements at Issy have always been unsatisfactory. When I was working there nine years ago, people walked freely over the ground while ambitious pupil-aviators gambolled lightly over the soil in their cumbrous machines. On one occasion public ardour was damped by the premature death of a woman, old in years, who was accidentally distributed by a descending aeroplane while she was dreamily crossing the landing-ground on her way home. But public recklessness soon returned.

Exploitation Abroad.

The celebrated French aviator Gaubert is leaving for the U.S. of America with a view to developing French interests in civilian aviation in that country. He is taking out with him a Farman four-seater limousine.

M. Tadhomme has left for South America with the same object. If the results are favourable a Farman "Goliath" will be sent out to attempt some long-distance flights in the States.

GERMANY.

Recent discussions between German and foreign firms are likely to lead to Germany's participation in the International Air Post Service in the near future. In a fortnight a regular air postal service between Berlin and Copenhagen is expected

to begin, and negotiations with the other Scandinavian countries are proceeding.

An important part of the service will be the conveyance of aerograms to relieve the telegraphic service. The air post service in Germany is at present restricted owing to the extreme shortage of petrol.

MORE ZEPPELIN AIRSHIPS.

According to a telegram from Romanshorn, Zeppelin airships are still being built, which is in contravention of the Versailles Treaty. The latest types will be able to travel from Berlin to Friedrichshafen (400 miles) in four hours, carrying thirty-eight passengers with light luggage.

HOLLAND.

A Farman "Goliath" left Utrecht for Paris on Sunday morning with passengers, piloted by Lieut. Krause Jensen. A landing was made in time for déjeuner in Paris.

ITALY.

THE ROME-TOKIO FLIGHT.

On Sept. 16th, in consequence of Maggiore d'Annunzio's abrupt entry into the political world by his capture of Fiume, the Italian Government cancelled the arrangements for the Rome-Tokio flight. The Government had proposed to give £160,000 as a grant in aid towards the expenses of the flight.

The Italian correspondent of THE AEROPLANE writes :—

Some two or three specially-constructed Caproni biplanes were to take part *on dit* in the Rome-Tokio flight. It seems probable that their part was the useful one of carrying spare motors and fuel supplies to inaccessible spots from the main bases. When one imagines what the cost of these large transports is—"Il Cielo" says half a million lire in war trim—it is easy to see how the flight is reported to have been subsidised to the extent of four millions by the far-seeing Italian Government.

THE CIRCUIT OF SICILY.

Lieut. Berardi, on Macchi 9, carried off the Targa Florio and most of the other awards in the Circuit of Sicily race by getting round that island in 5 hours 16 min., just beating Cattaneo—not he of Blériot aerobatic fame—on a Macchi 5 scout by 6 sec., and Lt. Berlingeri, also on a Macchi 5, by 9 min. The fourth man in flew an F.B.A. The only Macchi 8 did not finish the race, and only one of the G.I.s. (flown by the two French officer entrants) arrived at the goal, and that last but one of the 18 survivors of the 27 brave flying boats that started out in the fairest of weather. Only the Macchi 5's were single-seaters.

The affair seems to have been beautifully handicapped and organised most thoroughly, as one would have expected in anything done by the Sicilian Automobile Club cum Chev. Florio plus the Naval people. A number of the machines were piloted by A.B. seamen, and Manissero judged the finish. Quite a goodly number of money and other prizes were provided by firms, societies etc., as an act of gratitude to Sicily's coastal defence corps.

A NEW AIRSHIP.

A very large dirigible is about to begin its trials—in all senses probably—at Ciampino. Interviewed about it, Signor Usuelli stated that the new feature of the airship was its excess of h.p., which is something like four times that normally required for flight. A speed of 56 m.p.h. is expected, and it is hoped to make a voyage from Italy to the Argentine.

One presumes that Signor Usuelli's co-operation in the Government drawing offices portends some of his principles being adopted in the new vessel.

Another account states that the four-engined airship, the T.34 has a cubic capacity of 36,000 cms., a length of 100 metres, and a diameter of 30 metres, together with accommodation for 100 passengers, excluding the crew.

SCANDINAVIA.

THE PROPOSED AIR ROUTES.

The Danish correspondent of THE AEROPLANE writes :—

The accompanying map shows the principal Scandinavian air routes, to be run by the Norwegian, Danish, Swedish and Finnish aerial navigation companies. It will be seen that both Denmark and Norway will desire co-operation with Great Britain on their North Sea lines, and will enter probably into negotiations with such enterprises as Mr. Holt Thomas' Aerial Travel and Transport Co., and/or Mr. Stuart Hirst's The North Sea Aerial Navigation Co.

The routes indicated lend themselves to the following reflections. The line starting from London to Petrograd will have to await affairs being settled in Russia before its inauguration. Copenhagen is, from its position, likely to become the crossing centre of the various lines, including the one from Christiania over Gothenburg to Berlin. The local Norwegian aerial service along the coast is likely to be the first one to be established, as the flying times should compete favourably with the time-tables of the present steamer services. As a matter of fact, the aeroplane did step in last year, when the railway failed temporarily, owing to the washing-out of embankments by heavy rain, as the British-trained Norwegian, Lieut. Riiser-Lassen carried the mail to the city of Trondhjem on a Morane monoplane with a Thulin rotary motor.—HI.

UNITED STATES OF AMERICA.

A NEW YORK-SAN FRANCISCO AIR SERVICE.

The following is "communicated" from America :—

The Lawson Airline Transportation Co. of Milwaukee, Wisconsin, has just completed the first of its big passenger-carrying aeroplanes. This machine is fitted with two 12-cylinder 400 h.p. Liberty engines, which give it a speed of 90-100 m.p.h. If one engine stops the other has sufficient power to keep the biplane in the air. The gliding angle of the machine is so flat that it is claimed that it can glide 30-40 miles from a height of 15,000 ft., the ceiling.

Half the fuselage has been made into a large cabin to hold 26 passengers in comfortable armchairs. Recently the machine was taken to the Milwaukee aviation field, where it was tested. It was arranged that it should make a path-finding tour between Milwaukee, Chicago, New York, and San Francisco. Those cities en route which had the best landing-grounds and desired an air service would probably be selected as the first stations on the airline between the Atlantic and Pacific Oceans.

Mr. Alfred W. Lawson, the designer of the machine, is to be the captain in charge on the first flight. The two pilots who fly the machine will afterwards be put in charge of similar aeroplanes as captains. The crew to be carried in each machine consists of two mechanics. The Lawson Company intend to build one hundred aeroplanes of this type in the next few months which will be used on a regular daily service between New York and San Francisco.

AIRCRAFT FINANCE

THE MENACE OF ECONOMY.

When dealing a couple of weeks ago with the probable effect of the Government's "saving scheme" on the economic fabric of the Aircraft Industry, there was no attempt at exaggeration. The daily Press has now been howling, but, unlike Cæsar's wife, its intentions may not be altogether above suspicion.

He would indeed be an optimist who could discover the silver lining of the policy now adumbrated by the authorities. Perhaps it is no worse than was looked for. Financially, however, the consequences may prove very serious, unless, of course, something unexpected turns up.

Not being the plaything of amateurs, but a business proposition, the Aircraft Industry cannot exist or thrive on expectations. Hope is useful, but as an asset in a balance-sheet it would be refused by any competent auditor, and the auditor would be fully justified in his action. But in following on the lines of Oliver Twist and asking for more Government support the Industry is not gluttonous; on the contrary, it is demanding justice without any ulterior political motives.

AN ILLUSTRATION.

Not many months ago Aircraft Manufacturing Preference shares were commanding a price of 27s. in the case of the "B" Participating and practically 25s. in the case of the Cumulative "A" shares. Now they are worth about 13s. 6d. A sum in simple arithmetic illustrates very convincingly what this represents. The authorised capital is £402,500, of which £100,000 is in 7 per cent. Preference shares, £250,000 in "B" shares, £50,000 in Preferred Ordinary shares of £1 each, and £2,500 in 1s. Deferred shares. The depreciation in the case of the two shares specified approaches a quarter of a million, and, of course, the valuation of the other must have suffered just as much, if not more.

PLAIN ARGUMENTS.

Perhaps the illustration is somewhat crude and amateurish, but it serves the purpose. Perhaps the "B" shares were not intrinsically worth anything like the high price taken into the calculations. It is debatable, too, whether the present price is reasonable. But, of course, if one pursues this line of argument it is impossible to reach any but a negative conclusion. The fact is that the prices mentioned actually ruled at one time. Had it been suspected that the authorities would abandon their petted and useful foundling so soon as its utility ceased to be pressing, the chances are the higher prices would not have been established. All the propaganda of the Government at that time served to mislead the investor, who, not unnaturally, concluded that equitable treatment would be accorded to the Industry, not for an indefinite period, but until it had time to get on its feet. It is not a key industry, apparently. Unfortunately, the blame is not solely with the authorities in this connection; there were others who, either unreasonably optimistic of the immediate prospect of aviation, or unscrupulously exaggerating the position for their own profit, contributed towards the result.

REACTIONS PRODUCE REACTIONS.

It is plain that the immediate prospects of the Industry are vague, and this must be reflected seriously upon the financial position. The financing of newer plans—and the Industry still being in its infancy, newer plans must be reckoned with—is likely to prove difficult as well as costly. One thing, however, is certain, and that is, aviation having proved its capabilities to the advantage of the nation at war, the nation must be prepared to contribute something towards its sustenance, and the degree of help will be enlarged as soon as the panicky economy plan has spent its force and reason takes the reins.

No one denies that there is plenty of scope for genuine economies in the nation's bill; in the case of aircraft it has been not altogether misdirected, perhaps, but so ruthless as to produce a reaction in time.

Incidently Handley Page Participating Preference shares have been selling about 12s. 6d. It was only in April last that the public was offered these for subscription at 21s. What a change in such a short time! Yet it would be unwise to jettison shares in a fit of panic.

CURRENT TOPICS

THE BANKRUPTCY COURT.

In the case of Luc Marie Dartois, company director, Finchley, the statement of affairs shows liabilities £589 and assets £12. The debtor, a Belgian, was concerned with others in the promotion of the Aeroplane and Motor Bodies Co., Ltd. He was secretary and director at a salary of £3 a week, which was subsequently increased to £17 a week. At first the company was successful, but subsequently went into voluntary liquidation. The debtor guaranteed an overdraft to the extent of £1,400 and had also guaranteed a loan from a moneylender which was borrowed for the purpose of the business of the company, and it was in respect of that liability that bankruptcy proceedings had been taken. He ascribed his position to the failure of Aeroplane and Motor Bodies, Ltd., and states that he first became aware of his position when the company decided to go into liquidation, and since that time he has not contracted any debts. The creditors are Harris, B., £70; Denton, Hall and Burgin, £20; Tom, Mols, Oppenheimer and Kryn, Antwerp, £400.

WHITEHEAD TRUST.

The Whitehead Trust, Ltd., has been registered Sept. 15th with a capital of £2,000 in 1,000 "A" shares of £1 each and 10,000 "B" shares of 2s. each, to acquire from the Exchange Press, Ltd., of 222, Strand, W.C., for £500 in "B" shares, certain collated documents, being information regarding Whitehead Aircraft (1917), Ltd., and to carry on the business of financiers, promoters, etc. The vendors are also to receive £75 in "B" shares or cash in part payment of preliminary expenses. Minimum cash subscription, 7 shares. The first directors are: J. E. Brockelsby, 212, Northumberland Park, Tottenham, N., accountant; D. Hyman, 58 Vassall Road, Brixton, S.W., theatrical manager; J. N. Firth, Elm Cottage, Stoke Mandeville, Bucks. Registered office, 222, Strand.

NEW COMPANIES.

COMMERCIAL AEROPLANE WING SYNDICATE, LTD.—Private company. Registered Sept. 10th. Capital £30,000 in £1 shares. To take over from A. A. Holle, of 19, Half Moon Street, Piccadilly, W., an invention for improvements in aero-foils for aeroplanes and the like, and to enter into an agreement with A. A. Holle and the Varioplane Co., Ltd. (vendors). The subscribers (each with one share) are:—A. A. Holle, 19, Half Moon Street, Mayfair, W., gentleman; A. G. Morrish, 34-6, Gresham Street, E.C.2, C.A. The Varioplane Co., Ltd., may appoint three directors, and the Blackburn Aeroplane and Motor Co., Ltd., may appoint two. Secretary: A. S. Wigglesworth. Registered Office: 34-6, Gresham Street, E.C.

THE FIRST AIRCRAFT BROKERS.

The Lep Transport and Depository, Ltd., the proprietors of the Aerial Travel Office in Piccadilly Circus, have now opened a temporary office at the Hounslow aerodrome as the first aircraft brokers in the world. The functions of the office are similar to those of a shipbroker, i.e., the clearance of incoming and outgoing aircraft and their cargoes through Customs, for which a scale of inclusive charges has been compiled. Mr. R. A. Loader, who is in charge of the new department, will give every assistance to civil air transport firms and their pilots both in regard to customs formalities and the handling of freight as well as the booking of passengers.

ROYAL AERO CLUB NOTICES.

SPECIAL COMMITTEE MEETING.

A Special Meeting of the Committee was held on Friday, September 5th, 1919, when there were present:—Brig.-Gen. Sir Capel Holden, K.C.B., F.R.S. (in the Chair), Lieut.-Col. Spenser D. A. Grey, D.S.O., Mr. F. Handley Page and Mr. Harold E. Perrin (Secretary).

HONORARY MEMBERSHIP:—The following were elected Honorary Members of the Club:—Lieut.-Col. James E. Chaney (U.S Air Service), Capt. Harold M. McClelland (U.S. Air Service).

THE FLYING SERVICES FUND.

A meeting of the Flying Services Fund Committee was held on Friday, September 12th, 1919, when there were present:—Group Capt. C. R. Samson, C.M.G., D.S.O., R.A.F. (in the Chair), Mr. Chester Fox, Squadron Leader T. O'B. Hubbard, M.C., R.A.F., and Mr. Harold E. Perrin (Secretary).

GRANTS AND ALLOWANCES.—The following Grants and allowances were made:—

(32) A Grant of £5 to the widow of an Ex-1st Class Air Mechanic in the Royal Flying Corps who died as a result of exposure whilst on active service.

(40) An allowance of £2 a month for six months to the widow of a Sergeant in the Royal Flying Corps killed on active service.

(70) An allowance of £1 a month for six months to the mother of a 2nd Class Air Mechanic in the Royal Flying Corps who died on active service.

(91) An allowance of £4 a month for six months to the widow of a Sergeant in the Royal Flying Corps killed on active service.

(109) An allowance of £2 a month for six months to the widow of a Private in the Royal Flying Corps who died on active Service.

(118) An allowance of £4 a month for three months to the mother of a 3rd Class Air Mechanic in the Royal Air Force killed on active service.

(126) An allowance of £2 a month for six months to the widow of a 2nd Class Air Mechanic in the Royal Flying Corps who died on active service.

(128) An allowance of £2 a month for six months to the mother of a Sergeant in the Royal Flying Corps killed on active service.

(130) An allowance of £2 a month for six months to the mother of a Private in the Royal Flying Corps who died on active service.

(139) An allowance of £3 a month for six months to the widow of a 3rd Class Air Mechanic in the Royal Air Force who died on active service.

(146) An allowance of £2 a month for six months to the widow of a 1st Class Air Mechanic in the Royal Air Force who died on active service.

(150) A Grant of £5 to the widow of a Private in the Royal Flying Corps killed on active service.

(152) An allowance of £2 a month for three months to the widow of a 2nd Class Air Mechanic in the Royal Flying Corps killed on active service.

(155) An allowance of £2 a month for six months to the widow of a 1st Class Air Mechanic in the Royal Air Force killed on active service.

(160) An allowance of £2 a month for six months to the sister of a 3rd Class Air Mechanic in the Royal Naval Air Service killed on active service.

(176) An allowance of £2 a month for six months to the widow of a Driver in the Royal Air Force who died on active service.

(208) An allowance of £4 a month for six months to the mother of a Cadet in the Royal Air Force who died on active service.

(228) An allowance of £3 a month for six months to the widow of a 1st Class Air Mechanic in the Royal Naval Air Service who died on active service.

(244) A Grant of £10 and an allowance of £1 a month for six months to the widow of a Corporal in the Royal Air Force who died on active service.

(245) An allowance of £1 10s. a month for six months to the widow of a 1st Class Air Mechanic in the Royal Air Force who died on active service.

(246) An allowance of £2 a month for six months to the widow of a 1st Class Air Mechanic in the Royal Air Force who died on active service.

(247) An allowance of £2 a month for six months to the widow of a 2nd Class Air Mechanic in the Royal Air Force who died on active service.

(248) An allowance of £4 a month for six months to the widow of a 2nd Class Air Mechanic in the Royal Air Force who died on active service.

(249) An allowance of £2 a month for six months to the mother of a 2nd Class Air Mechanic in the Royal Air Force who died on active service.

(250) An allowance of £2 a month for six months to the widow of a Private in the Royal Air Force who died on active service.

(257) An allowance of £1 a month for six months to the widow of a 3rd Class Air Mechanic in the Royal Air Force who died on active service.

(260) An allowance of £2 a month for six months to the mother of a 1st Class Air Mechanic in the Royal Air Force who died on active service.

THE FLYING SERVICES FUND.

(*Registered under the War Charities Act*, 1916.)

ADMINISTERED BY THE ROYAL AERO CLUB.

For the benefit of Officers, Non-Commissioned Officers and Men of the Royal Air Force who are incapacitated while on duty, and for the widows and dependants of those who are killed or die from injuries or illness contracted while on duty.

HONORARY TREASURER.—The Right Hon. Lord Kinnaird.

COMMITTEE.—H.R.H. Prince Albert, K.G. (*Chairman*), Mr. Chester Fox, Squad. Leader T. O'B. Hubbard, M.C., R.A.F., Wing Commander C. E. Maude, R.A.F., Group Capt. C. R. Samson, C.M.G., D.S.O., R.A.F.

SECRETARY.—H. E. Perrin.

BANKERS.—Messrs. Barclays Bank, Ltd., 4, Pall Mall East, London, S.W.1.

SUBSCRIPTIONS:	£	s.	d.
Total Subscriptions received to Sept. 9th, 1919	15,119	19	1
Squadron Leader P. Litherland Teed, R.A.F.	1	10	0
Squadron Leader P. Litherland Teed (2nd contribution)	3	3	0
Total, Sept. 16th, 1919 ...—	£15,124	12	1

SPECIAL COMMITTEE MEETING.

A Special Meeting of the Committee was held on Wednesday, Sept. 17th, 1919, when there were present:—Brig.-Gen. Sir Capel Holden, K.C.B., F.R.S. (in the Chair), Mr. G. B. Cockburn, Lieut.-Col. Spenser D. A. Grey, D.S.O., Lieut.-Col. F. K. McClean, Lieut.-Col. Alec Ogilvie and the Secretary and Assistant Secretary.

JACQUES SCHNEIDER INTERNATIONAL SEAPLANE RACE.

The report of the Commissaires Sportifs was received and a telegram from Mr. Lorenzo Santoni, President, Societa Idrovolanti Alta Italia, lodging protest on behalf of the "Savoia."

The Secretary reported that Mr. Santoni had also requested the Aero Club of Italy to lodge formal protest with the Fédération Aéronautique Internationale, Paris.

ORGANISATION OF THE RACE.—A letter from Lieut.-Col. Spenser D. A. Grey, D.S.O., dated Sept. 15th, 1919, on the Club's organisation of the race was read. The organisation of the race was discussed at great length and the Committee considered that the arrangements were faulty. The Committee further considered the method of carrying out future competitions.

SPECIAL COMMITTEE MEETING.

A Special Meeting of the Committee was held on Monday, Sept. 22nd, 1919, when there were present:—Mr G. B. Cockburn (in the Chair), Lieut.-Col. Spenser D. A. Grey, D.S.O., Squadron Leader T. O'B. Hubbard, M.C., R.A.F., Lieut.-Col. F. K. McClean, Lieut.-Col. Alec Ogilvie and the Secretary and Assistant Secretary.

JACQUES SCHNEIDER TROPHY.

It was reported that the Aero Club of Italy had lodged a protest with the Fédération Aéronautique Internationale against the disqualification of Sr. Janello, the Italian representative, on the "Savoia," in the recent race at Bournemouth for the Jacques Schneider Trophy.

The Committee unanimously decided that although Sr. Janello did not actually complete the course as marked out for the race, the Royal Aero Club, as the holders of the Trophy, should recommend to the Fédération Aéronautique Internationale when the protest is heard, that the Trophy and Prize should be awarded to Sr. Janello, the Italian representative.

ROYAL AERO CLUB SEAPLANE COMPETITION.

It was further decided that the Royal Aero Club should offer a prize of £500 and Trophy, valued at £100 (kindly presented to the Club by Lieut.-Col. F. K. McClean) for an International Seaplane Competition to be held in the Solent and Southampton Water in the last week in October next. The conditions will be similar to those of the Schneider race, with the exception that the alightings on the water will be made after the course of 200 nautical miles has been completed.

The final regulations are now being drawn up and will be issued on October 1st, 1919.

Intending competitors are requested to communicate with the Royal Aero Club.

TECHNICAL AND COMPETITIONS COMMITTEE.

A meeting of the Technical and Competitions Committee was held on Monday, Sept. 22nd, 1919, when there were present:—Lieut.-Col. F. K. McClean (in the Chair), Squadron Leader T. O'B. Hubbard, M.C., R.A.F., Major R. H. Mayo, Lieut.-Col. Alec Ogilvie, Lieut.-Col. H. T. Tizard, Mr. Howard T. Wright and the Secretary and Assistant Secretary.

ROYAL AERO CLUB SEAPLANE COMPETITION.

The conditions for this competition were considered, and the Committee adjourned till Tuesday, the 30th inst.

PRESENTATION TO CLUB.

Mr. Hugh Lewis has presented to the Club a large framed coloured picture of Squadron 32 (D.H.2 Scouts), Royal Flying Corps, at Vert Galland Farm, France, Somme Battle, 1916.

AN AMBITIOUS PROJECT.

On Thursday Sept. 18th the Committee of the London Flying Club held a Press view of the club premises. At the concomitant lunch, Lord Louth, one of the vice-presidents, presided in the absence of Lord Lonsdale, and in a brief speech proposed success to the London Flying Club coupled with the names of Mr. and Mrs. Claude Grahame-White.

Mr. Grahame-White, who is the moving spirit of the club, set forth the general intentions of the committee. He related how in 1909, looking over the area which is now the London Aerodrome, he was struck by the idea of forming there a kind of super-Ranelagh-Hurlingham. The London Flying Club as it exists is, he explained, the beginning of the scheme.

In a general way the club is arranged on the lines of those American country clubs of which one has read so much in American fiction of late years. It is intended to be a social club at which the members can indulge in all forms of sport, including aviation. At present the aerodrome already exists and there are excellent hard tennis courts. It is the intention of the committee to add grass courts, a golf course, a polo ground, a swimming bath, squash-racket courts, and so forth and so on. Mr. Grahame-White added that his ambition is to have also a real ice skating rink, now that Princes' has become a motor garage. One trusts that the club will not become such a frost as to achieve this ambition automatically.

The Club House at present includes a large dining room, a lounge hall and over fifty bedrooms, and, as an annexe, a ballroom and concert hall in which well over 1,000 people could dance comfortably. This concert hall has a bandstand at one end and a stage at the other.

Interesting facts about the Club House are that it was built by Mr. J. S. Matthews, well known as a director of the Grahame-White Aviation Company, Limited; that all the woodwork in it (chairs, tables, balustrading, stairs, and so forth) was produced in the Grahame-White Aviation Company's works: and that the scheme of decoration was devised by Mrs. Grahame-White—possibly better known as Miss Ethel Levy. Undoubtedly Mrs. Grahame-White deserves to be highly complimented on her excellent taste in designing the scheme of decoration, which is striking without ever being disturbing. It gives an impression of cheerfulness and luxury, but never approaches a "jazz" effect. Similarly the Grahame-White works deserve to be congratulated on the excellence of their workmanship in the furniture and other woodwork. One is strongly under the impression that if the works turned out furniture of similarly high quality

as a standard product it would pay considerably better for the next year or two than making aeroplanes.

The building itself is very well designed and solidly built and has a pleasing rural outlook in every direction. The kitchen is in charge of a well-known *maître d'hotel*, formerly of Claridge's, and if the lunch given to the Press may be taken as a criterion of the catering for members in the future there will certainly be no cause for complaint in that direction.

It is the intention of the committee to hold occasional club dinners to which distinguished guests are to be entertained and club dances will be held frequently. In this connection for the first season a Hawaiian band has been engaged at considerable cost and one must confess that though it hardly accords with one's old-fashioned ideas of music, it is an immense improvement on the jazz-bands which have afflicted London of late.

Members who own aircraft can garage their machines in the club aerodrome and have them kept in running order. The club itself intends to keep certain passenger machines which members can hire at special terms either for pleasure flights or for real journeys. Sporting machines will also be available.

In the course of his speech Mr. Grahame-White said that he would be glad of constructive criticism. In this direction one would like to suggest that the colouring of the club motor-cars provided for the use of members be considerably modified. One can scarcely imagine a member of the best social set embarking at the Ritz in a vehicle which at once suggests an advertisement for somebody's famous blue.

It strikes one also that it is a mistake to offer membership of the club at half price to R.A.F. officers. One can scarcely imagine a London club of the better class offering a similar inducement to officers of H.M. Navy or Army, and still less can one imagine an officer of the better class accepting such an offer.

A still greater mistake is the idea of inviting officers who have had the honour to be awarded the Victoria Cross to free membership of the club. In the first place the winning of the Victoria Cross is not necessarily a guarantee of social standing, and in the second place an officer of the proper social status would scarcely relish the idea of becoming an honorary member because he had been decorated for valour.

Furthermore, public kinematograph pictures of the chief promoters of the Club performing antics in front of the Hawaiian band are scarcely likely to attract members of the most desirable class.

If the club is to be a social club of good class it will need no such adventitious aids to increase its membership. On the other hand, if it does not maintain a high social standing no amount of such temptation will attract people of the right class. As already said, the club has immense advantages as regards locality and surroundings and it may become precisely the kind of club which is extremely desirable in London to-day. The fact that Major G. B. Ollivant (late 12th Lancers) is the secretary gives one to hope that it will fulfil the functions for which it is intended. One wishes it precisely the success which it deserves.—C. G. G.

HULLO, BOLO!

To the Editor of THE AEROPLANE.

Sir,—So many people appear to be writing revues, which, according to the Press, can be done in five minutes, that I have attempted one myself, and send you herewith a typical scene. If your readers care for it (as I am sure they will), I can easily let you have the other 40 scenes, and a copy of the fees for acting, etc.

ACT I. SCENE I.

SCENE: Any room at the late Hotel Bolo.

TIME: Any time between 11 a.m. and 3 p.m., except the luncheon interval from 12 until 2.45 p.m. On second thoughts the time had better be 11.30 a.m.

(Enter Chorus of O.B.Es.)

CHORUS (singing in unison):

In us the representatives you see
Of beauty, splendour, power, and energy;
We none of us can fly,
And that's the reason why
We're Majors, R.A.F., plus O.B.E.

In beauteous Bolo blue we're not a shy lot;
In fact, we *have* been called a very "fly lot":
Our duty is quite clear,
We have to put the fear
Of God into the heart of every Pilot!

If left alone, we cannot fail to shine,
But sometimes some unmitigated swine
Says we've got to go o'ersea:
Then we take our remedy,
A new C.O.—and dose of chlorodyne!

Though *you* may think that over us are none
Who can be more exalted—"in the sun"—
E'en we must bow to rules
Laid down, 'tis true, by fools.
Hush, hush! Keep quiet! Here comes an S.O.1.!

(Enter a Lieut.-Colonel, C.B.E., S.O.1.)

All the O.B.Es. salute and stand to attention.

S.O.1: Methought I spied a fellow here with wings?

CHORUS (shocked): Oh, no, sir! No! How could you think such things?

1ST O.B.E. (picking up ruler and looking fierce):

If a Pilot I should spy,
He'd very quickly die
Of fright, before my eye!

(Loud applause from Chorus.)

S.O.1:

You're a bold man, I can see,
And when my time is free,
'Struth! I'll recommend you for the C.B.E.!

(Terrific and prolonged applause. Telephone bell rings.)

Ha, ha! There goes the bell!
Perchance 'tis Driver Nell,
With whom I hope to dwell
When *(picks up receiver and listens)*—
Flight Commander Blank? Oh, go to hell!

(Throws telephone on floor.)

2ND O.B.E.:

Perhaps, sir, you, being such a splendid specimen of Air Force beauty,
Could tell us how, much better than all other men, you do your duty?

(Applause from all but the 1st O.B.E., who looks annoyed because he didn't think of this.)

S.O.1 takes cigarette, lights it, and sits back on chair, with feet on mantelpiece. The O.B.Es. group themselves round in attitude of reverence.

S.O.1 *(after the "Vicar of Bray")*:

When I was a boy and wore long curls,
And velvet suits all braided,
I went to school with little girls,
And played with dolls as they did;
But when in 'fourteen came the war,
Though feeling such a draught, sir,
I joined the Royal Flying Corps,
Attached unto the Staff, sir!

CHORUS:

And this is a fact that I'll maintain
Whichever side has won, sir,
If we should have a war again,
I'll still be an S.O.1, sir!

At ten o'clock on every morn
I start my daily wrestle,
And exercise that brain and brawn
That brought me to the Cecil!
To every General I bow
In abject veneration,
With every Subaltern I row
And write for "explanation."

(Chorus.)

Soon doth the hour of noon arrive
To end the morning's duty;
Round to the Club for lunch I drive.
(My driver is a beauty!)
In this fine way the day's work's done
By brains there's no denying:
I earn my pay as S.O.1—
Let others do the dying!

(Chorus, during which a bevy of W.R.A.Fs. enter and dance.)

Enter a Messenger.

MESSENGER: Twelve o'clock, gentlemen!

Exeunt hurriedly.

And so on, ad infinitum.

K.

THE RETURN.

For the following story one has to thank the Johannesburg "Star":—

The aviator's wife was in tears. "What's the matter, my dear?" asked her friend.

"I'm worrying about George," she said. "He has been trying for a week to kill our cat, and as a last resource he took pussy up in his 'plane. He said he would take him up 2,000 feet and drop him over."

"Well, there's nothing to worry about," said her friend.

"Oh, yes there is," said the frantic woman. "George isn't home yet, and pussy is!"

CONGRATULATIONS.

ROE.—On Sept. 9th, at High Firs, Bursledon, Hants, the wife of A. V. Roe—a daughter.

AVIATION IN EGYPT IN 1915.

By an Observer in the French Seaplane Squadron,
Port Said.

In these days of cross-Atlantic flights and 160 m.p.h. machines it is very interesting to look back at our machines and equipment in the pre-historic days of 1915.

I have taken an interest in aviation since the early efforts of H. Farman and the Wright brothers; but, being in the East at the outbreak of war, I enlisted, and was not able to join the R.F.C. until January, 1915. At that time I was serving with an Indian regiment on the Suez Canal, and managed to get transferred as an observer to the only squadron then in Egypt, afterwards No. 30.

This squadron consisted of the machines which were to have joined the nucleus of the Indian C.F.S. at, I think, Sitapur, and was composed of 70 h.p. Renault Longhorns and Shorthorns, 80 h.p. Gnôme H. Farmans, and one B.E.2a, which was the pride of the squadron. This B.E. was no joke to fly in the bumpy Egyptian air, as being a warping wing machine, knuckledusters were imperative to prevent the stick from cutting one's hands to ribbons against the longerons.

I only remained a short time with No. 30, and was then lent to a French seaplane squadron, based at Port Said, which was short of observers.

Joy somewhat Dashed.

I went down to Port Said full of joy, but when I heard that most of the work done by these machines—80 h.p. Gnôme Nieuport monoplane seaplanes—was 30-40 miles inland, my joy was somewhat dashed.

I shall always have the very greatest admiration for those French pilots and mechanics on account of the really wonderful work that they got out of their machines.

In 1915 these machines were identical with those designed, I believe, in 1912, being the ordinary Nieuport monoplanes less the wheels, and with the addition of outer struts to the undercarriage. They could, however, be quickly transformed into land machines, by the removal of the floats and these extra struts, and by fitting the leaf spring and wheels through a socket provided in the central skid.

The system of control was unusual, as the stick controlled the elevator and rudder, and the wings were warped by an upward and downward motion of what is usually the rudder-bar. I understand that this system was altered to the more usual one in the machines supplied to the R.N.A.S. and used at Calshot.

A revolution counter and altimeter were the only instruments fitted.

Of Unusual Design.

The floats themselves were of unusual design, having a stepped keel, and a metal plane on each side of the nose to prevent the float from "ducking." They were not provided with bulkheads, but were canvas-covered, and filled with inflated pigs' bladders. In the case of a crashed float, which occasionally occurred, the whole sea for hundreds of yards around was covered with these bladders, which emitted a most offensive odour.

Most of our work was done along the coasts of Palestine, Syria, and Asia Minor, which was out of the reach of the R.F.C., and for that purpose two seaplane-carriers were attached to the base, each capable of carrying two seaplanes under canvas awnings on the after well-deck.

These ships had each two English officers and Greek crews, and in them we went to sea, armed with two Lewis or Colt machine-guns on the bridge, and flying the blue ensign.

In the early part of 1915 submarine warfare had not yet begun seriously, in the Eastern Levant anyhow, and so we often lay with all lights showing two or three miles from the enemy coast waiting for favourable weather.

A Panic among the Crew.

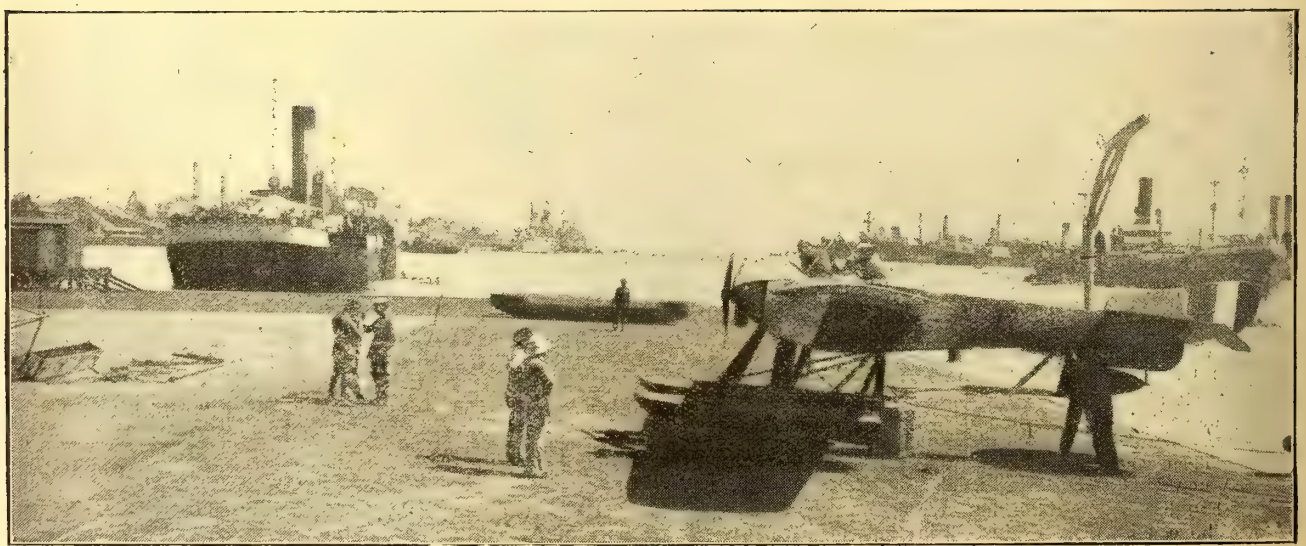
In March, 1915, during the first bombardment of Smyrna, one of these seaplane-carriers—the "Aenne Rickmers"—was torpedoed by a Turkish destroyer while at anchor under a flag of truce, but we never managed to discover whether the destroyer really meant to hit us, or whether it was a bad shot for H.M.S. "Euryalus," which was lying near by. This took place at 2 a.m., and a panic immediately took place amongst the Greek crew. The captain and chief engineer were English, whilst the other officers and crew were Greek, but we luckily also had a steamboat's crew of naval ratings, and a detachment of Royal Marines as a guard. The Greeks deserted, and took all the boats, and the Marines turned out just too late to stop them; but as they went over the side, one of the Marines gave a Greek sailor a nice jab in the pit of the stomach with his bayonet, to discover that in his haste in turning out, he had, unfortunately, forgotten to remove the scabbard. The only Greek who did not desert was the second engineer, who was on watch at the time, and who was locked, howling and shrieking, in the engine-room, by the chief engineer, and ordered to keep the pumps going.

Considered Himself a Hero.

Luckily for us the bulkheads held, and although we had a hole 26 ft. by 16 ft. in the starboard side near the bow, the ship did not sink, and, on the next day, this gentleman had quite recovered from his fright, and looked on himself as a hero, so much so that a month or two later, when the Greek crew were paid off, and replaced by Navy men, he asked for a testimonial to show that he had bravely stuck to his ship when all the others had deserted.

The "Aenne Rickmers," or H.M.S. "Anne," as she was afterwards christened, belonged before the war to the "Rickmers" line, and in the wardroom hung a large photograph of Fraulein Rickmers, after whom the ship had been named. Every officer who served in the ship wrote his name on this photograph, and it was proposed to send this to the lady at the end of the war; but whether this has been carried out, or whether it has been "pinched" by some souvenir-hunter, I do not know, as the "Anne" is no longer a seaplane-carrier.

The machines had by no means a good performance even in those days. Speed about 52 m.p.h. at sea level, with a ceiling of about 5,000 ft., and the climb to 1,000 metres (about



The Seaplane Station at Port Said in 1915.

3,300 ft.), with three hours' fuel, pilot, observer, a rifle, and forty rounds of ammunition, and one 10 kg. bomb, or a camera, took 30-35 minutes.

We were not allowed to fly inland under 1,000 metres, and so our radius of action was a good deal handicapped by this slow climb.

A Nieuport Sea-Monoplane (80 h.p. Clerget Engine).

Primitive Bomb-Dropping.

We did a little bombing, but not very much, as we could only carry one 10 kg. bomb, and in that case could not carry a camera as well.

The bomb-dropping apparatus was very primitive indeed.

In the first place, as the observer was placed in front of the pilot, a tube had to be arranged through the floor of the observer's cockpit to carry the bomb clear of the undercarriage and floats.

The bomb itself—a 20-lb. H.E. shell, with a tinplate fin attached—was carried strapped to the top of the port wing.

The bomb-sight was a prehistoric edition of the equal distance sight, and consisted of a piece of three-ply wood attached to the starboard side of the machine, into which three nails had been driven in the form of a triangle. A sand-glass was used in conjunction with the sight, in place of the reversible watch at present used.

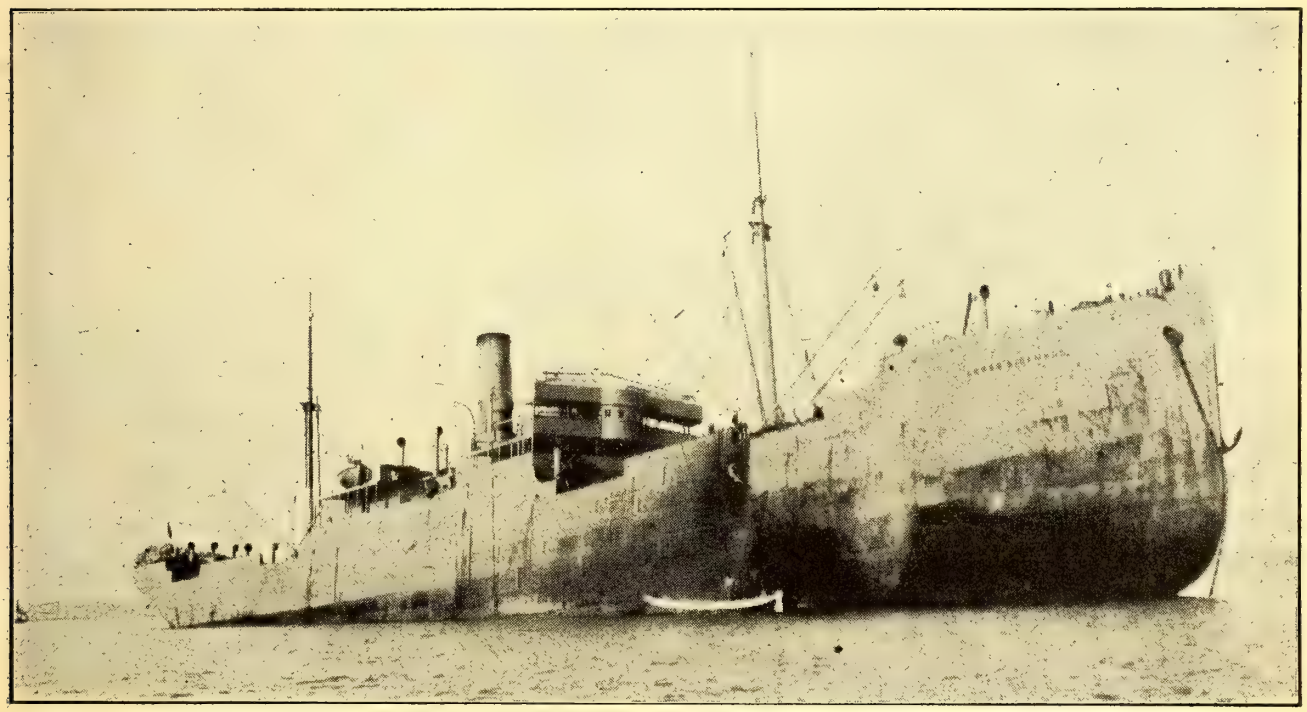
Before starting off on a bombing stunt the observer was supplied with the sand-glass, on which the height in metres was marked on the stem—the striker of the bomb—a piece of string—and a knife.

Before dropping, the bomb had to be prepared—quite a long and complicated business. First of all, the bomb had to be unstrapped from the wing, and placed on the observer's knees. A cork was then drawn from the nose, and the striker screwed in in its place. One end of the string was then attached to a ring at the tail of the bomb, and the other end to a cross strut in the fuselage. One had then to remove the safety-pin from the striker and manœuvre the bomb into the bomb-tube, a dangerous proceeding, as the bomb with the striker in it was almost the same width as the fuselage.

O.Ks. not Common.

Presuming that all this has been safely accomplished, and that we are now approaching our target, we stand up, and, holding the sand-glass in one hand, and the knife in the other, we take our sights. The sand-glass is started when the top and forward pins come in line with the target, and is reversed when the top and rear pins are in line with it. We can now leave our sight, and trusting to our pilot to keep on the line, which, incidentally, he cannot see from his seat at this point, we note our height on the altimeter. When the sand has risen to the correct height in the stem of the sand-glass we cut the string, and the bomb falls. O.Ks. by this method are not very common!

In the early part of 1915 we were not equipped with wireless apparatus, and so for co-operation with artillery the squadron was provided with an infernal type of firework, called a "smoke-bomb." These were issued in four forms—"Trainit," which made a long trail of smoke, and three other kinds forming one, two, and three balls of smoke respectively. All these four types were bottle-shaped, fitted with a ring at the top, and in order to ignite them, this ring, and about a yard of string attached to it, had to be pulled slowly out. The time between the beginning of the pull and the burst being only four seconds, one had to be pretty quick getting them down the bomb-tube.



The S.S. "Aenne Rickmers" (later H.M.S. "Anne") after her encounter with a Torpedo.

Later on in the year the squadron received several sets of W/T apparatus, but the earlier forms were dangerous, and on account of an open spark had a nasty habit of igniting any petrol vapour about the machine.

FIRED ONCE AND BACKFIRED TWICE.

When at sea, after the machine had been hoisted out of the ship, itself a slow and difficult job with the rough winches, booms and tackle used for cargo-shifting, began the business of getting the engine started. The starting-handle was carried in the observer's cockpit, which, being very small, made it very difficult for anybody larger than a small boy to swing it from anywhere inside the machine. One usually wound violently for about five minutes, at the end of which the engine would fire once, backfire twice, and catch fire, which meant hurling oneself out of the machine on to the undercarriage, and plugging the air intake pipe with the nearest thing at hand, usually one's own flying cap.

Having at last got the engine started, we commenced a game of ping-pong with the ocean, and on each bump the observer's head came in contact with the forward part of the cabane. An 80 h.p. machine has not much power with which to get "unstuck," and so, if there were no waves, we sometimes got off, but usually did not, and if there were any waves, we certainly never did, but buzzed about like a million infuriated bees, covered in spray

Not a few forced landings were made on the desert in enemy country, and in no case did the crew get off unscathed in the crash. In December, 1915, a machine returning from a reconnaissance of Beer Sheba, had its petrol-pipe severed by a bullet, and a landing had to be made on the desert near Gaza. Unfortunately, there happened to be some Bedouins near by, and the observer, Lieut. H. M. C. Ledger, I.A.R.O., met his death trying to keep these Bedouins off with his rifle, while his pilot set light to the machine. Lieut. Ledger was awarded a posthumous Légion d'Honneur for his act.

AN UNPLEASANT FLIGHT.

One of the first jobs given to the squadron after its arrival in Egypt was a reconnaissance of Maan, a station on the Hedjaz railway, some 40 miles from the Gulf of Akaba. This flight meant crossing a range of mountains some 6,000 ft. high behind Akaba, which was more than the ceiling of the machines with full load. Several attempts to find a pass were made, but after butting into the various valleys, and finding no way over, the flight had to be abandoned. On one attempt a forced landing was made some 8-10 miles up the Wadi Akaba, and the pilot and observer walked back to the shore through Turks with dogs, and were picked up by a boat from the ship.

Only one of the machines that landed in enemy territory was rebuilt by the Turks, as far as we know.

The Bedouins cut the first two that landed to pieces with their swords, as they had never seen an aeroplane before, and believed them to be alive. However, the Turks did rebuild one of them, and it crashed on its first flight, and both pilot and passenger were killed. This rather amused us when we heard of it, as the machine was one of a batch which had been built for the Turkish Navy, but had not been delivered on account of the war.

At the base at Port Said were two very ancient three-seaters with 100 h.p. 14-cylinder Gnômes, one of which dated back to a Paris Show some time before the Flood, and on these machines the observers obtained permission to learn to fly. Unfortunately, this permission was withdrawn a little later, as one of the observers, who had been strictly told not to try to take off, but to learn to taxi, managed to get his machine off tail to wind, stalled, and crashed her to splinters, fortunately, without more than a ducking to himself.

On being rescued by a boat, and brought back to the hangars, he left a note to the C.O., who was not there at the time, explaining that he had, unfortunately, broken a float. The C.O., on receipt of this, was heard to remark that he was glad that both floats had not been smashed, as, in that case, he might not even have got the engine back!

During the Naval attack on the Dardanelles two of the machines were attached to Commander Samson's squadron at Tenedos, but being so far from the base, and there being very few spare parts, and practically no facilities for engine overhaul, they soon became very soggy. The floats and extra struts were then removed, and they were used for some time as land machines.

Towards the end of 1915 a welcome addition to the squadron came in the form of some new machines with 100 h.p. Clerget engines. The 100 h.p. Clerget being practically the same as the present 130 h.p. motor, the performance of these machines was a good deal better than that of the old 80 h.p. machines, but the comfort from the observer's point of view was completely spoiled by the fact that his seat was placed sideways, and he faced the port side of the machine —not a very comfortable position in a machine with a gliding angle comparable with that of a brick, and it also meant a standing position to get any view at all.

The politeness of the Frenchman is proverbial, but, on one occasion, when a machine side-slipped and crashed into Port Said harbour in trying to avoid a ship in the fairway, the English observer was not to be outdone, and it was quite five minutes before it could be decided as to which was to be rescued first by the boat that dashed up to the scene of the accident.

On looking back one regrets the old 'buses and the fun that we used to get out of them; but when one remembers the frequent occasions on which the engine tried to cut out 20 or 30 miles inland, I think that we should have preferred the modern machine and engine, if we had had our choice.

AN AERODROME FOR SALE.

The Bembridge Seaplane Station, Isle of Wight, with a frontage on the Solent, and the Redcar Aerodrome, which has an area of about 120 acres, are to be sold by the Disposal Board of the Ministry of Munitions, to whom inquiries should be addressed at Charing Cross Buildings, London, W.C.2.

IS IT THE TRUTH ?

A writer in "Truth" says :—

"The up-to-date 'Baby' Handley Page aeroplane, which flew to India to lend a hand in the Afghan war, was wrecked at Risalpur by one of the storms which prevail on the Indian frontier during the summer months. I am told that on arrival at Risalpur the machine was picketed out in the open with its wings extended, whereas it ought to have been picketed between two sheds with its wings folded. As it was, when the storm burst, for want of protection the machine was blown over like a piece of paper and become a complete wreck. What were those in authority doing to allow a valuable machine to be destroyed when a little trouble would have given it adequate protection?

"From other sources of information I gather that since the termination of the war there has been a wane of supervising activity at R.A.F. headquarters at Simla, members of the Air Staff being chiefly occupied in organising a polo club. Polo is a good thing in its way, but work comes before play, and, judging from letters which reach me, the Air Staff at Simla do not realise this as completely as they should do. Among other things, I am informed that the G.O.C. pays flying visits to the squadrons in different areas, but never stays long enough for the purpose of effective inspection and for hearing complaints. The latter duty is one of the most important of a general's functions, and if they would bear this in mind my correspondence would be greatly reduced."

AN INTERESTING PUBLICATION.

Mr. G. Holt Thomas, one of the great pioneers of British Aviation, who established the first express air service between London and Paris a month ago, has been asked many times to produce a book on the subject. The result is the forthcoming issue, by Messrs. Hodder and Stoughton, of "Aerial Transport," by Mr. Holt Thomas, with an introduction written by Lord Northcliffe.

"What I desire particularly," says Mr. Holt Thomas, in describing his aim in this book, "is not to appear a fanatic. I have studied flying for thirteen years. Long before the war I urged the development of aircraft as weapons; and I can say without boasting that, when war came, my predictions were more than fulfilled. To-day I am just as keen an advocate of the aeroplane in commerce, and just as certain—even, in fact, more so—that my contentions are right. But I am quite as aware of the limitations of a commercial aircraft as I am of its powers. What I seek, in this book, is to show the actual place of the aeroplane in our general scheme of transport; the precise work it can do usefully, with its speed of 100 miles an hour, and the sort of thing it would be foolish to ask it to do. Specially, too, I emphasise the point, which is fundamental, that the aeroplane does not compete with existing forms of transport. It does something they cannot do; it supplements, not supplants, them."

A feature of Mr. Holt Thomas's book will be nearly a hundred full-page reproductions of specially selected photographs, each illustrating some phase of aerial transport.

BOOKS REVIEWED.

AERONAUTICS MADE EASY.

We were needing a pendant to "The Aeroplane Speaks," something that would explain in detail *how* an aeroplane flies, the *why* of it having been covered by Captain Barber's well-known volume. And "Aeronautics Made Easy," by Captain W. G. Aston (a one-time colleague of Mr. C. G. Grey's on the "Aero") (Iliffe and Sons, Ltd.; 4s. 6d. net), is the very thing that was wanted—a book of exceeding amplitude, considering its handy size—thorough in its treatment, and with it all readable and clear.

The author has attained a happy mean between the ineffable boredom of the primer method of inculcating aeronautics on the one hand, and over-complexity on the other. He presupposes in his reader a considerable interest in and a slight knowledge of mechanics, a smattering of physics, and no more mathematical knowledge than is required to count one's change correctly after two shots. In short, a public-school educational equipment!

If the clear, easy exposition did not attract the casual buyer, he would certainly be wooed by the alluring little illustrations with which the book is dotted. These cannot fail to make all plain to the veriest of muffs. There is no more of science to be encountered within its covers than may be discovered in the average fifth-form physics class, yet the reasonably careful reader cannot fail to glean from it a really useful working knowledge of the application in practice of the knowledge of theoreticians. Accessible as a popular newspaper in its form (though written in infinitely better English), it imparts its information with an artful insidiousness. It might have been called "Aviation Without Tears."

Beginning *piano*, the writer works up from the motion of bodies in the air to a pellucidly clear exposition of the streamline form, with notes on power and resistance. For a while he discourses on planes moving in fluids, discants on the parallelogram of forces, lift and drag, the centre of pressure, and before you know where you are you are studying wing sections with an intelligence gratifying to yourself.

His examples are very pat, and the point of view often refreshingly original. As an instance of this let me quote a paragraph which exemplifies both qualities:—

"It is almost obvious that if a plane section be set at a small angle of incidence at which the normally continuous flow is present, and if this angle is gradually increased, there will come a point at which continuous flow ceases, and discontinuous flow sets in. This, in practice, is found to be so, but careful investigations have shown that a rather strange state of affairs occurs. Let us suppose, for the sake of argument, that at an angle of incidence of 20 degrees the flow over a certain plane section 'goes all to pieces,' but that at 15 degrees it is quite continuous, provided that this angle has been attained very gradually by slowly increasing the setting of the plane from a very small angle at the start.

"One would be inclined to conclude from this that the flow at a 15-degree angle would always be continuous, but such is not the case; for if, say, the plane be suddenly turned from 5 degrees to 15 degrees, it will at the latter angle be found to be suffering from discontinuous flow (and this may occur at 12 degrees or earlier, according to the type of section employed).

"In short, by careful coaxing the air can be made to take a course that it would refuse if such were demanded of it with more abruptness. The plane has, as it were, to be courteous to the air with which it comes in contact, and provided it ingratiates itself sufficiently can take considerable liberties with what is otherwise a very uncompromising medium.

"An experiment which is often performed in physics lecture theatres consists in cooling a test-tube full of water below freezing point by the simple expedient of keeping it perfectly still and undisturbed whilst in the freezing mixture. In this way the water can be kept in a liquid state although its temperature is much below 32 degrees. The moment, however, a single particle of ice is dropped into the water it instantly solidifies into a congealed mass, as though it had simply been waiting for something to set it off."

To tear matter from its text is always to do violence to a writer, but I think that the above constitutes a better testimony to the special attributes of this book than I could convey by description or analysis. The shape and loading of planes and subsidiary surfaces, the position and functions of elevator, rudder, and ailerons, and such matters as directional stability, are given appropriate place. The chapter on the airscrew is brief, but quite sufficiently informative for the type of reader for whom the book is intended. Even a lethargic layman, I think, would not have time to get bored with any of these succinct little expositions.

Following a chapter on the general arrangement of forces, the author treats in detail of the construction and control of the accepted types of planes, and nowhere are his excellent illustrations more commendable than in this particular section. They could give the Rag-Books of the amiable Mister Dean points for clearness. In treating of stability the writer is on slippery ground, but he escorts his reader patiently and slowly, setting his metaphorical steps on one solid boulder of fact after another. Occasionally he has recourse to easily comprehended tables.

The chapter on aero-engines is perhaps a little scant; I should have liked to have seen Captain Aston's felicitous methods of elucidation applied at greater length herein.

Towards his conclusion he deals with aeronautical manœuvres and "stunts," passing on to a *resumé* covering atmospheric density, wing resistance, body resistance, density of air at different levels, and its effects upon engine efficiency and carburation; variable airscrew pitch, and high altitude work.

A few notes on models are inserted, the author has evidently given some consideration to this subject in his time, and he also touches on varying types of seaplanes and the flying boat.

There is a useful glossary, and a practicable index; and alike for its clarity, its concision, and its adequacy, the book is what we should have expected from the writer—the best in its field. —R. H. B.

"V.Cs. OF THE AIR."

If you happen to win the V.C. with your two feet planted firmly on the ground, the worst that can happen to you is that you may be haled on to a platform in front of an assortment of huzzaing locals. The mayor of those parts, complete with chain of office as fitted, will emit a few rasping platitudes in your direction, and the M.P. for the district, with an expression of unnatural benevolence upon his face, will invest you with a life ticket of admission to the local picture palace, with a can of Keating's thoughtfully included.

If, on the other hand, you happen to be one of our "intrepid, etc.," a worse thing may befall you. You may find yourself perpetuated past all undoing in some such horrific publication as "V.Cs. of the Air," by Lt. Gilbert Barnett (Messrs. E. J. Burrow and Co., Ltd., 5s.). And if the deed for which you were awarded that little bit of bronze is portrayed by Mister Dudley Tennant in one of his unique paintings, you will assuredly never live it down.

The textual matter is bald, soldierly, and sufficient; but the illustrations are decidedly *impasto* in treatment, the colour in the originals evidently having been thumped on in generous gobs. As reproduced, all atmosphere is lacking, and the amazing tattered aeroplanes depicted are one and all "as idle as a painted ship upon a painted ocean."

Those aeroplanes compel my admiration. So torn are they that they resemble fourpenny umbrellas at a railway lost property auction sale, and yet they serenely defy the elements and hover blandly, like so many helicopters. In some cases there is that about them which suggests that they were fabricated by the gentlemen who were responsible for those charming Noah's arks which delighted our childhood. Their ruggedness, and a certain *je-ne-sais-quoi* about their under-carriages, heightens this impression.

As for the Zeppelins, you expect to see them footed by a highly ornate inscription to the effect that this is entirely the artist's own work, done with common chalk, and his only means of subsistence. You fumble for a penny as you look at them. The one which Warneford is destroying approximates most closely to the 1908 type. The publisher has not erred in describing these as "Dudley Tennant's wonderful drawings!"

The descriptions of the epic scraps depicted are studded here and there with such expressions as "death grapple in the heavens," "murk of the battlefield," "hungry tongues of flame," "ghastly chariot of fire," etc., etc., and, moreover, the writer will persist in describing fighting pilots as "airmen," a term which necessarily implies an enlisted man, and not an officer, from which it follows that nearly all his subjects are incorrectly described.

Have I said enough? I think so.—REX. H. BRITTAIN.

SCRAPS FROM LIFE.

None knows my weaknesses better than my bookseller. "I've got something here that, I think, will please you, sir," said he, and led me to two plump tomes of Molière, sumptuously bound in red morocco, tooled as to the edges, opening and closing perfectly; also a tiny set of six Oliver Wendell Holmes (charming, gentle pedant), less than ten shillings the lot. The man who would not have delved in his pocket for them would have been less than human.

And my new acquisitions have provided me with a comment which is wondrously apposite to a queer little volume, "Scraps from Life," by Charles Menten, R.A.F. (McAra and Whiteman, Ltd.; price—I know not what). This is what the Poet at the Breakfast Table says:—

"Oh, little man, that has published a little book full of little poems or other sputtering tokens of an uneasy condition, how I love you for . . . the one phosphorescent particle in your unilluminated intelligence! But if you don't leave your spun-sugar

confectionery business once in a while, and come out among lusty men—the bristly, pachydermatous fellows, . . . the out-of-door men that fight for the great prizes of life—you will come to think that the spun-sugar business is the chief end of man, and begin to feel and look as if you believed yourself as much above common people as that personage of whom Tourgueneff says that 'he had the air of his own statue erected by national subscription.'"

This book consists of jejune essays and trite maxims, quaint introspections, and such absurd little cynicisms as this:—

"No man's life is wholly devoid of good; except in the eyes of his wife." That is cheap and silly, and I expect Mr. Menten knows it.

The book really is nothing more than a semi-articulate expression of the keen emotions that come to one-and-twenty on the threshold of things, before we "see life steadily, and see it whole." It is boy's work, having the awful seriousness of youth, its defects are calculated to surprise the most case-hardened reviewer; but if it betrays young follies, to be sloughed off later—there is also to be detected running through it a thread of something fine—a kind of clamant idealism. The writer is discovering the world, the old truths of Socrates and Epictetus are fire-new to him, and as such he shows them proudly to us, expressed in smoking-room phrasing.

There was no need to write:

"A true friend is one who should know all about you, but who loves you in spite of this."

It is an eternal verity, and therefore a platitude. Has not Mr. Menten read "The Thousandth Man," that he must give us this Claudius Clear version? And he must not tell fibs: "in life . . . false feelings and hypocrisy are the ruling factors." And Mr. Menten is by profession, I believe, an "observer"! Moreover, such phrases as "What is Superstition? Surely it is a survival of the olden days," would indicate that this author would be better employed in reading books than writing them. Throughout the little volume he is asking, "Why, why?" Let him be still, and life will teach him. There is nothing new in his growing pains, that he should describe them, they are common to all of us. Let him read nothing but the best stuff, shun all writing, and take plenteous exercise.

The morbidly introspective farrago he has produced is but the product of a painful phase of his development. He is struggling to find his soul. May the best of luck attend him.—R. H. B.

THE KINGDOM OF THE AIR.

[By EDGAR C. MIDDLETON. (Simpkin, Marshall, Hamilton, Kent and Co., Ltd. Price 6s.)]

One has in the past read many books dealing with aviation and aircraft, and one has been struck by the similarity between them all. Here and there one book, such as "Contact's" "Airmen's Outings," or "Spin's" "Short Flights," or McCudden's great autobiography, has undoubtedly achieved a real success. But, speaking broadly, the majority of them have been, to say the least of it, unnecessary.

When once a thing has been said moderately well, and explained moderately clearly, what need to say or explain it badly all over again?

One still awaits the Kipling of aeronautical literature. What a relief it would be to read a well-informed, well-written story which concerns itself with aviation. For when one wants such an article one naturally turns to the aeronautical Press, or to the few—and remarkably few— reliable standard works, knowing that such matter published in book form is utterly unreliable and generally unreadable.

Enclosed in a pretty slip-cover designed by Mr. Dudley Tennant, one has Mr. Edgar Middleton's latest attempt. The introduction is a poem written by the Lord Montagu of Beaulieu in the dark ages of aviation, and it is far too good for the rest of the book. The book itself contains 252 pages, and some illustrations. Its one great advantage is that the type is large and therefore quickly read.

Mr. Middleton begins by telling one that as the sailor is a different being from other men, the "Airman" must needs be also. One was quite aware that this was the case, as the war and R.A.F. have proved, but one must congratulate the Royal Navy on producing quite a different specimen of mankind from that produced by the R.A.F. The Navy is civilised, at any rate.

One of his obiter dicta is: "The flying man, even at this early stage of his career, has learnt the golden muteness that the R.A.F. already has borrowed from the 'Silent Service' (p. 24). Would that Mr. Middleton had learned as much during his brief Service career.

On page 39 occurs the following: "But still these 'feather-brained' young men persisted. Numbered amongst that splendid band were such names as Cody, Sykes, Hawker, Maitland, Roils, Henderson, and Hamel." Mr. Cody was fifty years of age and Major Sykes was over thirty, General Henderson was somewhere about fifty—but let that pass.

As to matters of fact, without referring back to the communiqués of the period one cannot be certain, naturally, but one was under the impression that on Dec. 25th, 1914, "Engadine" was accompanied to the neighbourhood of Cuxhaven by two other seaplane-carriers, and one certainly recollects the fact that the escort included other ships beside "Arethusa." Mr. Middleton would lead one to think differently.

Surely, in the light of recent events, Chapter 12 is in rather bad taste, consisting, as it does, of the story of Lieut. E. C. Chamberlain, U.S., M.C., and a portion of his report.

There is nothing more to write concerning this book, except that, throughout, it is written in the best journalese.—S. F. B.

FOR W.R.A.Fs.

HANDBOOK FOR THE WOMEN'S ROYAL AIR FORCE. (Gale and Polden, Ltd. Price 2s. 6d.)

This book, which has recently been published, is printed on very good thick paper. There are 152 pages, 12 chapters, and an index. The book follows the good old conventional rules for handbooks, beginning with a chapter dealing with the formation and organisation of the R.A.F. and ending with a glossary of technical terms.

Doubtless W.R.A.Fs. will find it very useful, particularly the chapters on discipline and official correspondence.

One is perfectly certain that all domestically inclined W.R.A.Fs. will be glad of the recipes contained in chapter 9; but one quite fails to see the reason for the songs contained in chapter 11.—S.F.B.

"AIRCRAFT IDENTIFICATION."

Mr. R. Borlase Matthews has produced a very useful little book called "The Aircraft Identification Book," which is published by Crosby, Lockwood and Son, at the price of 3s. 6d. There was a time when anybody with any experience of aeroplanes could tell at a glance the make of an aeroplane in the air even at a distance of some miles, but in these days aeroplanes of different makes so closely resemble one another that only the very experienced eye can identify the particular make.

Mr. Matthews has, therefore, produced this book so that even the fairly experienced person can have in handy pocket form a reference book which will help him to identify the various makes almost at a glance. Something like 200 aeroplanes are shown, each in three-line drawings, one giving the machine in side view, one dead-on, and one showing the tail in plan view, these being the particular views from which one is best able to identify any specific machine. Alongside each machine is a brief paragraph pointing out the noticeable points in the outline of the machine.

Some of these notes might have been a shade more explicit, but, on the whole, the work is very well done.

Possibly the reader might have been saved some confusion, or, at any rate, unnecessary effort of memorising, if certain utterly obsolete machines, such as the Russian "Sikorski," the original "Wright," and a few others had been omitted.

The only section of the book which appears to be really defective is that dealing with flying-boats, of which only two examples are shown, though there are many other types in use.

A useful idea is the leaving of a space at the end of each section for notes by the owner of the book so that he can bring the pages up-to-date as new types develop.

The book can be obtained, post free, 3s. 9d., from The Aeroplane and General Publishing Co., Ltd., 61, Carey Street, W.C.2.

CLASS NAMES FOR MACHINES.

The following letter has been received:—

Sir,—In a recent number of your paper a letter from "Penguin" appeared, asking if a simple scheme could be formulated for the nomenclature of present-day aircraft, which will allow for future types.

In the "Aircraft Identification Book," by R. Borlase Matthews and C. T. Clarkson (Crosby Lockwood and Son), the Brussels Decimal Classification has been developed and extended by the first author and myself to the classification of aircraft, for the future as well as for the present. This classification, which is an analytical one, is numerical and therefore international. It expresses in numbers in the shortest manner possible the most compiete analytical description.

Thus P.21.034.53 indicates a biplane, with single airscrew, tractor type, having a single pair of struts on each side of the fuselage; the planes with forward stagger set with a dihedral angle, and the engine of the vertical type.

As it is a decimal classification, it automatically sorts out and collects together aircraft with the same features, and is in consequence invaluable to the orderly arrangement of bibliographical information.

If it is desired that names instead of figures should be used, it is a simple matter to translate the figures into words by means of the figure alphabet, universally known to all students of memory training, and its use for this purpose is fully explained in the little book referred to.

It is highly desirable that this classification should be adopted, as it is part of the great Brussels International Decimal Classification of all human knowledge, used at the Institut de Bibliographie, the Bureau Bibliographique of Paris, the Concilium Bibliographicum of Zurich, and many other institutions. It can be applied with great simplicity, in an analytical manner, to the classification of anything, and gives to that thing a rigid and definite position in the number complex representing the whole of human knowledge.—ALAN POLLARD, Captain, R.A.F.

EXTRACTS FROM "THE LONDON GAZETTE."

GREAT BRITAIN.

NAVAL.

ADMIRALTY, Sept. 4th

Payr. Lt. to be Payr. Lt.-Comdr. :—C. R. F. Noyes, D.S.O., May 25th, 1917.

ADMIRALTY, Sept. 17th.

The following decoration has been conferred by the King of the Belgians for distinguished service rendered during the war :—

ORDER OF LEOPOLD.—CHEVALIER.

Maj (temp. Brig.-Gen.) E. L. Gerrard, R.M. (late Sqdn Commdr., R.N.A.S.).

The King has given unrestricted permission to the officer concerned to wear the decoration in question.

MILITARY.

WAR OFFICE, September 15th.

REGULAR FORCES.—ESTABLISHMENTS.—R F.C.—Mil. Wing.—Adjt.—Lt. H. Tilley (Durh. L.I.), and to be temp. Capt. (without pay or allowances of that rank) whilst so empld., and to be secd., Jan. 17th, 1918.

WAR OFFICE, Sept. 16th.

REGULAR FORCES.—INFANTRY—SERVICE BATTS.—YORKS AND LANCS R.—Temp. Lt. C. H. Scadden resigns his commission on appointment to R.A.F., Nov. 15th, 1918.

MEMORANDUM.—Sec. Lt. J. D. Payne, M.C., Gen List (attd. R.A.F.), retires, receiving a gratuity, Sept. 17th.

OVERSEAS FORCES.—CANADA.—NOVA SCOTIA R.—Temp. Lt.-Col. G. C St. P. de Dombasle, O.B.E., relinquishes his commn. on the O.M.F. of C. on appointment to a commission in the R.A.F., Aug. 31st.

QUEBEC R.—The following officer retires in the British Isles :—Temp. Lt. H. H. Heal ceases to be secd. for duty with the R.A.F., Sept. 1st.

EASTERN ONTARIO R.—Temp. Lt. A. C. Lobley relinquishes his commission in the O.M.F. of C. on appointment to a commission in the R.A.F., Aug. 1st.

1ST CENTRAL ONTARIO R.—Temp. Lt.-Col. R. Leckie, D.S.O., D.S.C., D.F.C., relinquishes his commission in O.M.F. of C. on appointment to a commission in R.A.F., Aug. 31st.

SASKATCHEWAN R.—Temp. Lt. W. L. Rutledge, A.F.C., M.M., relinquishes his commission in O.M.F. of C. on appointment to a commission in R.A.F., Aug. 15th

BRITISH COLUMBIA R.—Temp. Capt. D. R. MacLaren, D.S.O., M.C., D.F.C., relinquishes his commission and acting rank of Maj. in O.M.F. of C. on appointment to a commission in R.A.F., Aug. 31st.

AIR FORCE.

AIR MINISTRY, Sept. 16th.

R.A.F.—The following officers have been granted short-service commns. in the ranks stated, with effect from September 16th. They will retain their seniority in the substantive rank last held by them prior to the grant of the short-service commn :—

Sqdn. Ldrs.—J. S. T. Bradley, O.B.E. (S.O.); H. E. J. Hewitt (Ad.).

Flt. Lts.—C. W. Bailey (A. and S.); L. P. F. Bawn (T.); A. M. Blake, A.F.C. (A.); L. O. Brown, D.S.C., A.F.C. (A. and S.); J. M. Burke (T.); D. K. Cameron (T.); B. E. Catchpole, M.C., D.F.C. (A.); H. L. Crichton, M.B.E. (S.O.); F. R. P. Dexter (Ad.); W. M. Fry, M.C. (A.); H. H. James (A.); C. W. McCann (T.); P. H. Mackworth, D.F.C. (A. and S.); D. O. Mulholland, A.F.C. (A.); G. C. Rhodes (T.); P. D. Robertson (T.); W. G. Stephenson-Peach (T.); G. Stevens, O.B.E. (T.); C. A. Taylor (A.); B. C. Tooke (S.); C. J. Truran, A.F.C. (A.); S. R. Watkins, A.F.C. (A.); D. W. Wilson (S.O.); P. Worthington, M.C. (T.); T. K. Young (T.).

Flying Offrs.—C. D. Adams (A.), J. M. Adams (Ad.), H. C. Atkin (T.), H. Auliff (Ad.), V. G. Austen (A.), H. B. S. Ballantyne (Ad.), J. F. T. Barrett (A.), H. F. V. Battle (A.), L. N. J. Bennett-Baggs (A.), W. Best (T.), A. T. Cooper (S.O.), E. D. H. Davies (S.), P. H. Davy (A.), D. W. Dean (S.O.), T. H. Evans (S.O.), A. L. Fiddament (A.), W. C. Green, M.C. (T.), J. D. Hewett (A.), R. V. J. S. Hogan (S.O.), A. Holmes (S.O.), W. E. Lunnon (A.), C. H. Masters (S.O.), J. V. Medcalf (A.), W. D. Miller (S.O.), F. J. Moule (A.), H. W. Prockter (T.), C. Rapley, M.S.M. (T.), D. B. Robertson (A.), W. A. Rochelle (A.), L. T. Sanderson, D.S.M. (S.O.), P. L. Sant (A.), J. T. Vernon (S.O.), W. W. Whitehead (T.), R. F. Wilson (T.), W. K. Yarnold (T.), R. W. G. West (A.).

Observer Offrs.—R. B. Gordon, D.F.C., R. B. Hunter.

It is intended that officers employed as Stores Officers or on "Q" duties shall belong to the new Stores Branch when formed. Officers appearing in this "Gazette" who are at present so employed will be transferred to this Branch on its formation, and will accept these short-service commissions on that condition. They will then come onto the rates of pay of that Branch, but will meantime be permitted to draw the higher rates laid down in the new scheme for officers on the General List. Any officer posted to the Stores Branch on its formation will then have the option of declining his short-service commission.

ROYAL AIR FORCE.—PERMANENT COMMISSIONS.—The notification appearing in the "London Gazette," Aug. 1st, appointing the following officers to permanent commissions is cancelled :—Lt.-Col. R. A. Bradley (A.), C.M.G., Maj. F. B. Binney (A.), Maj A. Cleghorn (T.), Maj. E. J. Roberts (A.), Capt. L. I. Barker (A.), Capt. T. G. Bowler (Ad.), Capt. C. H. Dixon (A.) (D.F.C.), Capt. G. Donald (D.F.C.) (A. and S.), Capt. J. R. Howett (A.), Capt. H. L. H. Owen (A.) (A.F.C.), Capt. G. W. Robarts (A.) (M.C.), Lt. C. R. Robins (A.) (M.C.) (D.F.C.), Lt. F. N. S. Creek (O.) (M.C.), Lt. W. H. Date (S.O.), Lt. H. G. W. Debenham (A.), Lt. F. H. Eberli (A.), Lt. C. F. Falkenberg (A.) (D.F.C.), Lt. W. W. Glenn (Ad.) (M.C.), Lt. C. Harrison (A.) (deceased), Lt. S. Jones (A.) (D.F.C.), Lt. C. S. T. Lavers (A.) (D.F.C.), Lt. D. F. Lawson (A.), Lt. H. B. Maund (A.), Lt. P. N. Melitus (O.), Lt. F. G. Prince (A.) (deceased), Lt. C. F. Smith (A.), Lt. R. H. Somerset (A.), Lt. C. A. Spence (A.), Lt. A. G. Stradling (S.O.), Lt. E. B. Wilson (A.), Lt. D. Wood (A.).

The notification in "Gazette," Aug. 5th, concerning Capt. H. W. G. Jones is cancelled. The notification in "Gazette," Aug. 1st, is to stand.

The surname of Capt. R. T. Nevill (T.) is as now described, and not Neville as in "Gazette," Aug. 1st.

The surname of Lt. D. N. Thomson (M.C.) (S.O.) is as now described, and not Thompson as in "Gazette," Aug. 1st.

The following temp. appts. are made at the Air Ministry :—Director of Operations and Intelligence.—Air Commodore J. M. Steel, C.M.G., C.B.E., Sept. 8th, vice Air Commodore R. M. Groves, C.B., D.S.O., A.F.C.

Staff Officer, 3rd Class.—Air.—Flt. Lt. G. W. Robarts, M.C., Sept. 3rd, vice Sqdn. Ldr. A. J. Currie.

Staff.—Lt.-Col. A. E. Borton, C.M.G., D.S.O., A.F.C., is graded for purposes of pay and allowances as Brig.-Gen., Staff, May 1st to July 31st.

The following temp. appointments are made :—Staff Officers, 2nd Class.—Air.—Sqdn. Ldr. D. L. Allen, A.F.C., from S.O.1 (Air), Sept. 15th. Q.—Capt. F. P. Don, July 18th, vice Maj. A. E. Loder.

FLYING BRANCH.—Maj. (Hon. Lt.-Col.) A. W. H. James, M.C., to be actg. Lt.-Col. whilst empld. as Lt.-Col. (A.), July 19th, 1918, to March 20th.

Maj. W. B. Hargrave, O.B.E., is graded for purposes of pay and allowances as Lt.-Col. whilst empld. as Lt.-Col. (A.), May 1st to June 30th.

Capts. to be actg. Majs. whilst empld. as Majs. (A.) :—C. M. Leman, M.C., D.F.C., June 10th; R. M. Drummond, D.S.O., M.C., from May 1st to July 31st.

The following Capts. are graded for purposes of pay and allowances as Majs. whilst empld. as Majs. (A.) :—C. J. Q. Brand, D.S.O., M.C., A.F.C., to June 30th; H. S. Lees-Smith, L. G. S. Payne, M.C., A.F.C., to May 30th; G. A. Ridley, D.S.O., M.C., to June 30th; E. Selby, O.B.E., to June 30th; G. A. Turton, to May 28th, May 1st

Lts. to be actg. Capts. whilst empld. as Capts. (A.) :—J. A. Craig, D.F.C., D. F. Lapraik, D.F.C., M. M. Freehill, D.F.C., (June 10th to July 31st), May 1st.

The following Lts. are graded for purposes of pay and allowances as Capts. whilst empld. as Capts. (A.) :—F. J. Cunninghame, A. F. Horden, H. J. Hunter, A. W. Vigers, M.C., D.F.C., to May 11th; (Hon. Capt.) L. W. Jarvis, to July 31st; K. B. Lloyd, A.F.C., to July 31st; J. J. Williamson, A.F.C., to July 31st; May 1st.

Lt. P. L. Stephens to be Lt. (A.) from (Ad.), April 19th, 1918.

Lt. (Hon. Capt.) G. M. Smyth to be Lt. (Hon. Capt.) (A.) from (S.O.), May 18th (substituted for the notification in the "Gazette" of July 15th).

Sec. Lts. to be Lts. :—I. B. Hislop, July 18th, 1918; R. Clark, March 26th; E. Colvill, May 1st; A. Russell, July 10th; L. F. Homer, July 30th.

P.F.O. J. B. Lynch (late R.N.A.S.) is granted a temp. commn. as Sec. Lt. (A.), June 10th, 1918.

D. J. Lewis is granted a temp. commn. as Sec. Lt. (A.), June 27th, 1918.

P.F.O. L. H. Kemp (late R.N.A.S.) is granted a temp. commn. as Sec. Lt. (O.), Sept. 14th, 1918.

Sec. Lt. W. D. F. Liston (Lt., I.A.R.O.) relinquishes his commn. on reversion to I.A.R.O., Sept. 9th.

The following relinquish their commns. on ceasing to be empld. :—Lt. G. C. Stemp (Lt., E. Kent R.), May 30th; Lt. H. L. H. Bousted (Lt., Essex R.), June 11th; Lt. F. H. Prichard (Capt., R.G.A.), July 7th; Lt. C. T. Travers, A.F.C. (Sec. Lt., Wilts R.), July 11th; Lt. (Hon. Capt.) E. R. Williams (Capt., Manitoba R.), Sept. 8th.

Transferred to the unempld. list :—Lt. A. B. Hopper, Jan. 31st; Sec. Lt. J. W. Aikenhead, Sec. Lt. G. F. Anderson, Sec. Lt. R. G. Bessey, Sec. Lt. S. H. Bremner, Sec. Lt. W. N. Cunningham, Feb. 1st; Sec. Lt. (Hon. Lt.) R. P. Sorge, March 3rd; Sec. Lt. W. Davies, March 6th; Capt. C. J. Campbell, March 25th; Sec. Lt. J. Ditchfield, March 26th (substituted for the notification in the "Gazette" of April 25th, wherein this officer's rank was shown as "Lt."); Lt. T. F. X. Smallwood, April 11th; Sec. Lt. W. A. Scott, April 13th; Capt. R. H. Cronyn, Sec. Lt. F. Donnelly, Lt. D. M. MacDonald, April 19th; Sec. Lt. H. S. Hatton, Sec. Lt. C. H. Stephens, April 25th; Lt. A. B. Ferguson, May 4th; Sec. Lt. E. J. Stevenson, May 17th; Lt. C. G. Durham, May 23rd; Lt. W. E. C. Coombs, May 27th; Lt. H. N. Jennings, May 31st; Sec. Lt. A. T. Jeffrey, June 3rd; Sec. Lt. W. E. McDermott, June 26th; Lt. A. McD. Dunlop, July 2nd; Lt. C. E. Forman, Lt. V. S. Rowbotham, July 10th; Sec. Lt. J. A. O. Fenton, July 12th; Sec. Lt. J. Craig, July 14th; Lt. K. J. Gould, Lt. R. O. Smart, Sec. Lt. A. J. Stewart, July 17th; Lt. D'A. F. Hilton, M.C., A.F.C., July 23rd (substituted for the notification in the "Gazette" of Aug. 5th); Lt. A. E. N. Ashford (substituted for the notification in the "Gazette" of Aug. 12th); Lt. F. W. Day, July 24th; Sec. Lt. T. G. C. De Vall, July 25th; Lt. D. G. Cooke, M.C., July 26th; Lt. G. Davis, D.F.C., July 27th; Lt. V. H. Collins, July 28th; Lt. H. A. D. Currie, July 29th; Sec. Lt. (Hon. Lt.) J. D. McEwen, Lt. J. H. Mitchell, July 31st; Flying Officer O. W. A. Manning, Aug. 3rd; Flying Officer R. G. Dobeson, Aug. 5th; Flying Officer W. F. Hanna, Aug. 14th; Flying Officer D. C. Rowlett, Flying Officer J. McF. Stewart, Aug. 16th; Pilot Officer A. Laver, Pilot Officer A. E. Mercer, Pilot Officer E. H. J. Miller, Aug. 18th; Pilot Officer L. A. Green, Flying Officer H. F. Lambert, Flying Officer D. F. Murray, D.F.C., Pilot Officer G. H. Pittam, Aug. 22nd; Pilot Officer C. O. Lockey, Aug. 23rd; Pilot Officer J. H. Jones, Pilot Officer W. N. A. Roberts, Aug. 27th; Flying Officer L. J. Collier, D.F.C., Pilot Officer T. N. Leithead, Pilot Officer T. W. Lewis, Flying Officer K. E. Wright, Aug. 28th; Pilot Officer S. A. Forberger, Pilot Officer W. J. Heyland, Flying Officer A. H. Munday, Pilot Officer G. C. Page, Aug. 29th; Pilot Officer J. D. Allen, Pilot Officer A. J. M. Medcalf, Sept. 3rd; Pilot Officer J. McRobert, Sept. 6th; Pilot Officer S. F. Dudley-Smith, Flying Officer T. C. Moore, Sept. 9th; Flying Officer A. K. Lomax, Sept. 10th; Flying Officer H. J. Gibson, Sept. 11th; Flying Officer O. P. S. W. Green, M.C., Sept. 12th; Flying Officer A. R. Carbis, Sept. 13th.

Maj. L. F. Richard (Capt., R.G.A.) relinquishes his commn. on account of ill-health caused by wounds, Sept. 30th.

Capt. C. P. O. Bartlett, D.S.C., relinquishes his commn. on account of ill-health, and is permitted to retain his rank, Sept. 3rd.

Capt. J. D. Payne, M.C. (Sec. Lt., Extra Regimentally Empld. List), resigns his commn., Sept. 17th.

Lt. G. P. Blake relinquishes his commn. on account of ill-health caused by wounds, and is permitted to retain his rank, Aug. 16th.

Lt. P. Goodbehere (Man. R., T.F.) relinquishes his commn. on account of ill-health contracted on active service, Aug. 22nd.

Sec. Lt. D. F. Demoster relinquishes his commn. on account of ill-health, and is permitted to retain his rank, Sept. 4th.

Sec. Lt. (Hon. Lt.) W. J. Bethune (Lt., Cameron Highrs.) relinquishes his commn. on account of ill-health contracted on active service, Aug. 18th.

Sec. Lt. W. G. Edwards resigns his commn., Sept. 17th.

Sec. Lt. H. T. Kempton is antedated in his appointment as Sec. Lt. (A. and S.), May 10th, 1918.

The initials of Sec. Lt. L. G. Crossley are as now described, and not "J. G.," as stated in the "Gazette" of July 15th.

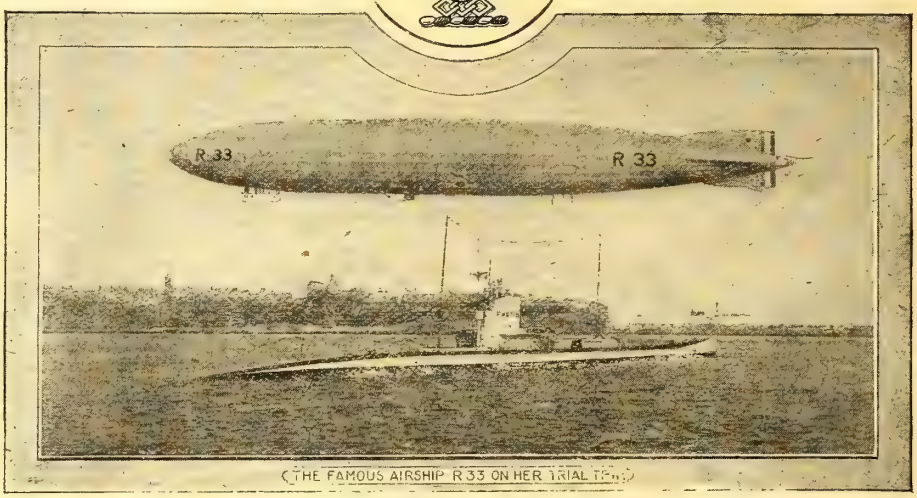
The initials of Sec. Lt. C. A. Farquharson are as now described, and not "C. D.," as stated in the "Gazette" of July 20th.

The initials of Lt. G. H. Windsor are as now described, and not "G. J.," as stated in the "Gazette" of July 29th.

The surname of Lt. J. Tomkins is as now described, and not "Tompkins," as stated in the "Gazette" of July 20th.

The surname of Lt. T. M. Johns is as now described, and not "Jones," as stated in the "Gazette" of Aug. 8th.

TRADE MARK



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KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

The notification in the "Gazette" of June 17th concerning Sec. Lt. (Hon. Lt.) S. J. R. Simmons is cancelled.

The notification in the "Gazette" of July 4th concerning Capt. A. E. Godfrey, M.C., A.F.C., is cancelled.

The notification in the "Gazette" of July 22nd concerning Lt. C. Gilham is cancelled.

The notification in the "Gazette" of July 29th concerning Lt. J. Coates is cancelled.

ADMINISTRATIVE BRANCH.—The following Majs. are graded for purposes of pay and allowances as Lt.-Cols. while empld. as Lt.-Cols.:—A. C. E. S. Bowlby, A. R. Woodland, May 1st.

Capt. P. Gadsby, O.B.E., is graded for purposes of pay and allowances as Lt.-Col. while empld. as Lt.-Col., May 1st.

Capt. H. C. Jones to be actg. Maj. while empld. as Maj., from Sept. 28th, 1918, to Dec. 5th, 1918.

Lt. (actg. Capt.) J. P. L. Biggs, M.B.E., to be actg. Maj. while empld. as Maj., from Oct. 6th, 1918, to April 30th.

The following Capts. are graded for purposes of pay and allowances as Majs. while empld. as Majs.:—G. B. Chainey, O.B.E., M. B. O'Brien, May 1st; C. P. Cowper, to May 9th; (Hon. Maj.) A. F. Morris, to May 31st; T. L. Stevens, to July 31st.

The following Lts. are graded for purposes of pay and allowances as Majs. while empld. as Majs.:—(Actg. Capt.) J. P. P. L. Biggs, M.B.E., A. E. Worrall, M.C., to Aug. 6th, May 1st.

Capt. F. P. Don to be Capt., from (S.O.), May 31st.

Lt. S. Saunders, M.C., to be actg. Capt. whilst empld. as Capt., from Dec. 14th, 1918, to April 30th.

Sec. Lt. G. L. Grey to be actg. Capt. while empld. as Capt., May 1st.

The following Lts. are graded for purposes of pay and allowances as Capts. while empld. as Capts.:—H. Gwynne-Smith, C. A. Howe, (Hon. Capt.) A. E. Miller, M.C., J. R. Nicholls, S. G. K. Rapley, A. W. Turner, to May 31st; J. G. C. Williams, to June 30th; (Hon. Capt.) A. D. F. Mackenzie, to Aug. 9th, J. Mitchell, to Aug. 9th; W. Pilkington, M.C., to Aug. 9th; R. H. Rook, M.C., to Aug. 9th; D. G. Sharp, to Aug. 9th, May 1st; W. Clay, July 1st.

Lt. H. H. Harman is graded for purposes of pay and allowances as Capt. while empld. as Capt., from (O.), from May 1st to June 30th.

Sec. Lt. S. Tew is graded for purposes of pay and allowances as Capt. while empld. as Capt., May 1st.

Lt. L. J. N. Mackay relinquishes the grading for purposes of pay and allowances as Capt. on ceasing to be empld. as Capt., June 26th.

Sec. Lts. to be Lts.:—(Hon. Lt.) H. S. Gargett, Aug. 23rd; R. Craig, March 1st.

Sec. Lt. E. V. Evans to be actg. Lt. while empld. as Lt., from March 21st to April 30th.

Sec. Lt. E. G. Stott (late Gen. List, R.F.C.), on prob., is confirmed in rank of Sec. Lt., May 7th, 1918 (substituted for the notification in "Gazette" of Aug. 20th, 1918).

The following relinquish their commns. on ceasing to be empld.:—Sec. Lt. J. W. Shaw (Lt., Oxf. and Bucks L.I.), July 23rd; Lt. H. E. R. Twamley (Lt., Notts and Derby R.), Aug. 12th.

Transferred to the unempld. list:—Sec. Lt. R. W. Davis, April 17th (substituted for notification in "Gazette" of June 20th, wherein this officer was described as R. D. Davis); Lt. H. W. Denton, May 10th; Sec. Lt. J. Mellor, July 10th; Lt. R. C. St. J. Dix, M.C., July 22nd; Sec. Lt. (Hon. Lt.) S. U. Dent, July 29th; Sec. Lt. C. Stelfox, July 31st; Flt. Lt. J. B. Cussen, Aug. 1st; Flying Officer W. G. Dunn, Aug. 6th; Flt. Lt. W. S. Newton-Clare, M.B.E., Aug. 26th; Pilot Officer T. N. Drake, Aug. 18th; Flying Officer S. H. H. Heaver, Aug. 20th; Pilot Officer N. A. Meintzes, Aug. 23rd; Pilot Officer W. J. McCleland, Sept. 9th; Pilot Officer S. C. Leith, Pilot Officer (Hon. Flying Officer) G. R. A. Syfret, Sept. 10th.

The following Sec. Lts. relinquish their commns. on account of ill-health, and are permitted to retain their rank:—C. McI. French, July 12th (substituted for the notification in the "Gazette" of Jan. 21st); A. F. G. Ovenden (contracted on active service), Aug. 10th.

Sec. Lt. R. Parker (Sec. Lt., K.R.R.C.) is removed the Service, Sept. 15th.

The notification in the "Gazette" of May 23rd concerning Sec. Lt. (Hon. Lt.) J. W. Gardner is cancelled.

TECHNICAL BRANCH.—Maj. W. J. D. Pryce is graded for purposes of pay and allowances as Lt.-Col. whilst empld. as Lt.-Col., Grade (B), May 1st.

Capt. W. J. Waddington, O.B.E., is graded for purposes of pay and allowances as Maj. whilst empld as Maj., Grade (A), May 1st.

Lt. H. G. Gibbs is graded for purposes of pay and allowances as Maj. whilst empld. as Maj., Grade (A), May 1st.

The following appointments are graded for purposes of pay and allowances—as Majs. whilst emplo. as Majs., Grade (B):—R. G. L. Candy, W. Millett, W. Wade, O.B.E., H. E. F. Wyncoll, O.B.E., M.C., to June 30th, May 1st.

The following Lts. are graded for purposes of pay and allowances as Capts. whilst emplo. as Capts., Grade (A):—B. C. Adamson, T. G. S. Babb, E. McR. Cockell, S. S. Dixon, A. R. Langton, F. D. Lugard, F. A. Omerod, E. Plimley, L. H. Straker, R. G. Whitcombe, W. Scott, to July 31st, May 1st; S. Empsall, June 1st.

The following Lts. are graded for purposes of pay and allowances as Capts. whilst emplo. as Capts., Grade (B):—T. Bell, M.M., G. Bowen, F. Briggs, L. E. Carter, R. J. Copley, T. D. Jones, W. R. Lewis, F. G. Murray, (Hon. Capt.) J. Ramsay, M.C., H. J. Skingle, V. F. Sourgeon, to June 30th, May 1st.

The following Lts. are graded for purposes of pay and allowances as Capts. whilst emplo. as Capts., Grade (B), from (Ad.):—J. W. Gardner (substituted for notification in the "Gazette" of Aug. 5th), H. L. Woolveridge, to June 30th, May 1st.

Lts. to be Lts., from (Ad.):—C. D. Daly, Grade (A), July 12th; C. R. Pilcher, Grade (B), Nov. 28th, 1918.

Lt. W. W. Bull is graded for purposes of pay and allowances as Lt. while emplo. as Lt., Grade (A), May 1st.

Sec. Lt. H. P. Brown to be Lt., without the pay and allowances of that rank, Nov. 24th, 1918 (substituted for "Gazette" of Sept. 5th).

Sec. Lt. (Hon. Capt.) J. R. Cassidy to be actg. Lt. while emplo. as Lt., Grade (A), from Aug. 22nd, 1918, to Jan. 10th.

The following Sec. Lts. are graded for purposes of pay and allowances as Lts. while emplo. as Lts., Grade (A):—A. Bolton, F. C. North, R. L. Hartley, May 1st.

The following relinquish their commns. on ceasing to be emplo.:—Sec. Lt. R. Burn (Lt., N.Z. A.S.C.), June 2nd; Sec. Lt. (Hon. Capt.) G. E. Allen (Capt., Manch. R., T.F.), Aug. 25th; Lt.-Col. G. B. Stopford (Maj., R.H. and R.F.A.), Sept. 1st.

Transferred to the unemplo. list:—Lt. H. W. Sharman, March 17th; Capt. H. S. V. Thompson, June 3rd (substituted for notification in "Gazette," July 15th); Sec. Lt. A. J. Morris, June 17th (substituted for notification in "Gazette," Aug. 22nd, wherein this officer was described as A. I. Morris); Lt. C. F. Soans, June 23rd; Sec. Lt. A. B. Dove, July 18th; Capt. B. C. Clayton, A.F.C., July 10th; Lt. (actg. Capt.) E. Brown (substituted for notification in "Gazette," Aug. 22nd, wherein this officer's rank was stated to be "Capt."), Sec. Lt. E. J. Cook, July 22nd (substituted for notification in "Gazette," Aug. 22nd, wherein this officer was described as E. J. Coor), July 22nd; Lt. A. S. White, July 23rd; Capt. C. A. Cuthbert, July 24th; Lt. A. M. Cott, July 26th; Flying Officer W. T. H. Hocking, Aug. 8th; Flt. Lt. (actg. Wing Commodore) O. Lindquist, O.B.E., Flying Officer A. H. S. Synge, Aug. 22nd; Pilot Officer D. A. A. Christie, Aug. 29th; Flt. Lt. F. N. N. Roberts, Aug. 30th; Flying Officer C. Liver, Flying Officer J. B. Mendham, Sept. 2nd.

The following relinquish their commns. on account of ill-health, and are permitted to retain their rank:—Capt. H. G. Thomas (contracted on active service), Aug. 31st; Lt. P. H. S. Gwilliam, Sept. 5th, Sec. Lt. I. G. Bethwaite, Sept. 3rd; Sec. Lt. A. W. Clare, Sept. 8th.

The notification in "Gazette" of May 23rd concerning Sec. Lt. R. Donald is cancelled.

MEDICAL BRANCH.—Flying Officers to be Flt. Lts.:—J. Ferguson, Aug. 26th; T. M. Davies, Sept. 9th.

Capt. W. H. H. H. Bennett, M.B. (Capt., R.A.M.C., T.F.), relinquishes his commn. on ceasing to be emplo., Dec. 10th, 1918.

Transferred to the unemplo. list:—Lt. O. P. Turner, Feb. 22nd; Capt. J. Duffin, July 4th; Capt. G. W. Clark, July 9th; Flt. Lt. J. E. Cox, Aug. 2nd; Flying Officer P. A. Dormer, Aug. 11th; Flying Officer C. Lambrinudi, Aug. 21st; Flt. Lt. P. T. J. O'Farrell, Aug. 27th; Flt. Lt. I. de B. Daly, Sept. 2nd.

DENTAL BRANCH.—Flying Officers to be Flt. Lts.:—S. C. Turner, Aug. 26th; A. Williams, Sept. 2nd.

MEMORANDA.—Lt. S. E. Mailer, A.F.C., to be Hon. Capt., April 1st, 1918.

Sec. Lt. S. J. Dodson to be Lt., Jan. 30th.

The following Cadets are granted non commns. as Sec. Lts.:—463046 J. B. Watt, Jan. 4th; 181410 T. P. G. E. Chasemore, 175841 G. L. B. Wilkinson, Jan. 6th; 179991 H. V. Waite, Jan. 10th; 128001 A. C. Doyle, Jan. 15th, 179622 W. Gilbertson, Jan. 19th; 29777 S. G. Wallis, Jan. 23rd; 545275 W. J. E. Bates, 184752 J. R. Harper, Jan. 25th; 183154 C. R. Elgie, Jan. 27th; 180838 W. J. C. Murray, Jan. 28th; 97257 E. J. Appleby, 180078 R. T. Williams, Feb. 4th; 128085 R. Page, Feb. 8th; 176828 J. R. Stonier, Feb. 19th; 179343 C. W. Howie, March 2nd; 37692 W. R. B. Ball, March 12th; 137056 B. L. Wells, March 21st; 235072 C. I. H. Davies, March 28th; 70699 T. D. Jenkins, April 5th; 175812 J. D. Fenton, April 6th; 327378 J. Goulding, April 9th; 113357 G. H. Laking, April 10th; 205453 D. A. West, April 28th; 30425 H. S. Senior, May 25th.

The following relinquish their commns. on ceasing to be emplo.:—Temp. Hon. Lt. H. S. Porter, Aug. 26th; Maj.-Gen. E. B. Ashmore, C.B., C.M.G., M.V.O. (Brevet Col., R.A.), Sept. 1st; Temp. Hon. Capt. A. B. Rogers, Sept. 13th; Temp. Hon. Capt. E. W. Birch, Temp. Hon. Lt. C. E. Marshall, Temp. Hon. Capt. R. S. Owen, Temp. Hon. Lt. T. G. Rawson, Temp. Hon. Lt. F. E. Woodward, Temp. Hon. Lt. E. A. York, Sept. 16th.

Transferred to unemplo. list:—Lt. H. D. A. Dart, from (S.O.), June 11th; Flying Officer (actg. Flt. Lt.) A. Egyar, from (S.O.), Sept. 11th.

Lt.-Col. C. F. de S. Murphy, D.S.O., M.C. (Maj., R. Berks R.), resigns his commn., Sept. 17th.

AIR MINISTRY, Sept. 19th.

R.A.F.—The following temp. appointment is made:—Staff Officer, 3rd Class.—(Tng.) Flight Lt. L. G. S. Payne, M.C., A.F.C., Sept. 15th.

FLYING BRANCH.—Sec. Lts. to be Lts.:—I. Douglas, April 23rd, 1918; J. H. W. Goodall, Sept. 28th, 1918; W. W. Smith, May 9th; L. H. Ridley, June 20th; J. M. Dandy, June 24th.

The following Sec. Lts. (late Gen. List, R.F.C., on prob.) are confirmed in their rank as Sec. Lts.:—D. P. Fulton (A.), July 26th, 1918; T. L. J. Jackson (A.), April 22nd; T. G. Brooke (A. and S.), Aug. 23rd, 1918.

The following relinquish their commns. on ceasing to be emplo.:—Sec. Lt. A. C. Gill, Jan. 13th (substituted for the notification in the "Gazette" of Jan. 28th); Capt. D. B. M. Hume, Jan. 15th (substituted for the notification in the "Gazette" of Feb. 25th); Sec. Lt. S. W. Gee (Lt., Can. Supply Col.), Feb. 15th; Lt. L. de S. Duke (Lt., actg. Capt., Brit. Col. R.), June 21st; Sec. Lt. (Hon. Lt.) H. H. Heal (Lt., Quebec R.), Sept. 1st; Sec. Lt. J. S. Blanford, D.F.C. (Sec. Lt., E. Kent R.), Sept. 4th; Lt. D. A. A. Shepperson (Lt., Som. L.I.), Sept. 10th.

Transferred to the unemplo. list:—Sec. Lt. I. T. Atwood, Sec. Lt. R. E. Brown, Sec. Lt. O. H. Clearwater, Sec. Lt. A. B. Cleveland, Sec. Lt. F. V. Collins, Sec. Lt. J. C. Dandurand, Sec. Lt. J. P. Davey, Sec. Lt. C. E. Delaney, Sec. Lt. A. J. Doiron, Sec. Lt. L. Driscoll, Sec. Lt. J. S. Finch, Sec. Lt. H. G. Hanneman, Sec. Lt. D. D. How, Sec. Lt. H. B. Hunter, Sec. Lt. A. G. McLerie, Sec. Lt. C. A. Pieper, Feb. 1st; Lt. J. F. Ambler, Lt. E. G. C. Quilter, Feb. 14th; Lt. A. H. P. Pehrson, March 9th; Lt. (Hon. Capt.) A. J. Lazarus-Barlow, March 14th; Lt. W. J. Garrity, March 15th; Capt. O. Hughes, March 25th; Lt. G. H. Olney, April 1st; Sec. Lt. F. P. Hodgson, April 11th; Lt. (actg. Capt.) A. Beck, D.F.C., April 19th, Lt. F. S. Smith, April 20th (substituted for the "Gazette" of July 11th, in which this officer was described as Sec. Lt. F. S. Smith); Sec. Lt. D. H. P. Johnson, April 22nd; Lt. W. C. O'Venden, April 23rd; Lt. J. T. G. Murison, April 26th; Sec. Lt. R. W. Hopper, May 10th; Lt. C. C. Paul, May 18th; Sec. Lt. S. G. Neal, May 23rd; Sec. Lt. T. Sydenham, June 3rd; Capt. W. B. Foster, June 10th; Sec. Lt. R. J. M. Jeffrey, June 13th; Lt. R. Fitton, M.C., July 24th (substituted for the notification in the "Gazette" of July 18th); Sec. Lt. J. Nicole, July 30th; Flying Officer R. Nisbet, Aug. 1st; Pilot Officer J. Murphy, Aug. 9th; Pilot Officer W. J. Large, Aug. 26th; Flight Lt. K. Ogden, Aug. 28th; Pilot Officer R. E. Norrish, Aug. 29th; Pilot Officer L. C. Atkins, Pilot Officer A. Champ, Pilot Officer J. W. Gardner, Flying Officer C. J. Kennedy, Sept. 1st; Flying Officer P. B. Clews, Sept. 6th; Flying Officer J. W. Jones, Pilot Officer W. C. Staunard, Sept. 7th; Pilot Officer N. V. Moreton, Pilot Officer J. S. Newman, Pilot Officer T. Rennie, Pilot Officer T. A. Thomas, Sept. 9th; Flying Officer O. W. Frayne, Pilot Officer J. C. Ivens, Pilot Officer L. G. Warren, Flying Officer F. C. B. Wedgwood, Sept. 10th; Flying Officer C. Hallawell, Sept. 11th; Flying Officer F. N. S. Creek, M.C., Sept. 12th; Sqdrn. Ldr. H. A. Petre, D.S.O., M.C., Sept. 15th, Pilot Officer H. Lovelady, Sept. 16th; Flying Officer G. V. Stewart, Sept. 18th.

The following relinquish their commns. on account of ill-health, and are permitted to retain their rank:—Capt. J. A. Hutchinson, May 20th (substituted for notifications in "Gazettes" of Jan. 24th and Aug. 8th); Sec. Lt. T. R. Adair (caused by wounds), July 10th; Sec. Lt. E. L. Goold, Sept. 5th.

Sec. Lt. J. A. Griffin relinquishes his commn., being physically unsuited for the duties of Pilot or Observer, Feb. 14th (substituted for notification in "Gazette" of Dec. 3rd, 1918).

Sec. Lt. O. F. G. Crosby is antedated in his appt. as Sec. Lt. (A.), May 10th, 1918.

The surname of Sec. Lt. A. E. Amey is as now described, and not "A. E. Amy," as stated in "Gazette" of Sept. 3rd, 1918.

The notification in the "Gazette" of April 1st concerning Lt. B. N. Wills is cancelled.

The notification in the "Gazette" of April 4th concerning Lt. C. M. Shilcock is cancelled.

G. R.

MINISTRY OF MUNITIONS.

By Direction of the Disposal Board.

(Lands and Factories Section).

Bembridge Seaplane Station

ISLE OF WIGHT.

Area : About 3¾ Acres.

FOR DISPOSAL AS A WHOLE.

The Buildings are mainly Brick and Corrugated Iron with Timber Frames.

There is a Water Supply and Electric Light Plant. Drainage. Railway Station adjoining. Frontage to the Solent. In addition to its use as a

SEAPLANE STATION

the buildings are suitable for

MOTOR BOAT OR BOAT BUILDING,
SANATORIUM,
TRAINING INSTITUTION,

and many other purposes.

The site is occupied by the Government under the Defence of the Realm Regulations and can (if necessary) be purchased under and subject to the provisions of the Defence of the Realm (Acquisition of Land) Act, 1916.

For further particulars, apply to the **Disposal Board, Room 135, Charing Cross Buildings, Villiers Street, London, W.C.2.**

NOTE.—"SURPLUS," Price 3d. the official list of Government property for sale. Published twice monthly. On sale everywhere

G. R.

MINISTRY OF MUNITIONS.

By Direction of the Disposal Board.

(Lands and Factories Section).

Redcar Aerodrome, Yorks

Area : About 120 Acres.

For Disposal as a whole, or the Buildings and Land on which they stand, without the Aerodrome itself.

The Buildings are of Steel, Corrugated Iron, Brick and Timber. There is a Water Supply and Electric Light Plant. Drainage. Permanent Roads.

In addition to its use as an

AERODROME

the buildings are suitable for

FACTORY,
STORAGE,
SANATORIUM,
TRAINING INSTITUTION,

and many other suitable purposes.

The site is occupied by the Government under the Defence of the Realm Regulations and can (if necessary) be purchased under and subject to the provisions of the Defence of the Realm (Acquisition of Land) Act, 1916.

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The outrig worn by Sir John Alcock and Sir Whitten Brown on their Trans-atlantic flight
A thoroughly practical one-piece overall suit that protects the airman from head to heel.

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will not rust or corrode. It has the properties of a high-grade alloy steel with corresponding strength and consequent opportunity for weight-saving.

Firth's Stainless Steel resists wear.

THOS FIRTH & SONS, LTD., SHEFFIELD.

The notification in the "Gazette" of July 15th concerning Sec. Lt. J. A. Tomson is cancelled.

The notification in the "Gazette" of July 29th concerning Sec. Lt. J P. Jones is cancelled.

ADMINISTRATIVE BRANCH.—Lt. E. L. Ridley to be Lt., from (A. and S.), Dec. 12th, 1918 (substituted for notification in "Gazette" of March 7th).

Sec. Lts. to be Lts.:—H. V. Hall, Aug. 27th, 1918 (substituted for notifications in "Gazettes" of March 7th and Aug. 15th); D. J. Fryer, March 13th; H C. Bird, April 19th.

Sec. Lt. H. J. Payne to be actg. Lt. whilst empld. as Lt., from Nov. 23rd, 1918, to April 30th.

Sec. Lt. H. J. Payne is graded for purposes of pay and allowances of Lt. whilst empld. as Lt., May 1st.

Transferred to unempld. list:—Lt. B. N. Wills, Jan. 17th; Lt. C. M. Shilcock, Feb. 27th; Sec. Lt. J. A. Tomson, March 7th; Lt. D. W. Orr, March 30th; Sec. Lt. C. H. S. Pain, May 3rd; Sec. Lt. W. Paterson, May 5th; Lt. J M. Johnson, May 9th; Lt C. I Fletcher, July 8th; Lt. H. C. House, July 25th; Flt Lt. M. Lewis, Aug. 13th; Pilot Officer S McK. Pullen, Aug. 21st; Pilot Officer W R. Taylor, Aug. 27th; Pilot Officer M. A. Jordan, Flying Officer C. T. H. Page, Aug. 29th; Pilot Officer E. H. Bacon, Sept. 1st; Pilot Officer B. Ninness, Sept. 6th; Pilot Officer C. Jackson, Pilot Officer R. H. Owen, Sept. 9th; Pilot Officer A. H. Bradley, Flying Officer F. A. Payne, Flying Officer W. R. Wood, Sept. 11th

Sec. Lt. G. B. Blake relinquishes his commn. on account of ill-health, and is permitted to retain his rank, Aug. 14th.

TECHNICAL BRANCH.—Lt. A. C. Blackmore is graded for purposes of pay and allowances as Capt. whilst empld. as Capt., Grade (A.), from May 1st to July 2nd.

Lt. J. D. Robinson to be Lt., Grade (B.), from (A.), Nov. 21st, 1918.

Sec. Lts. to be Lts.:—(Hon. Lt.) J. E. Spickernell, April 2nd, 1918 (without pay and allowances of that rank prior to Sept. 14th, 1918); (Hon. Lt.) G. A. Tilly, April 2nd, 1918 ((without pay and allowances of that rank prior to Feb. 9th).

Sec. Lts. to be Lts., without pay and allowances of that rank:—F Denham, March 13th; A. R. Conder, April 19th.

Lt. W. Barber (R.N.) relinquishes his commn. on ceasing to be empld., Aug. 21st.

Transferred to unempld list:—Lt. H. T. Thompson, April 11th; Sec. Lt. J. W. Smith, May 12th (subtsituted for notification in the "Gazette," July 18th); Lt. L. B. Jones, M.C., July 31st; Pilot Officer C. C. A. Poole, Aug. 2nd; Pilot Officer (Hon. Flying Officer) E. F. Boultbee, Aug. 23rd; Flying Officer J. R. Coulthard, Flt. Lt. R. Neilson, Aug. 30th; Pilot Officer G. Bowden, Flt. Lt. L P. Hoult, Flt. Lt. E. Whitwell, Sept. 1st; Flying Officer C. H. Boyle, Flt. Lt. C. E. Shackle, Sept. 7th; Pilot Officer S. C. Addison, Pilot Officer W. E. Burden, Pilot Officer A. J. Gregson, Sept. 8th; Pilot Officer (Hon. Flying Officer) C. B. Harris, Flying Officer C. H. Higson, Pilot Officer R. Lyne, Pilot Officer W. M. Sercombe, Pilot Officer (Hon. Flying Officer) L. Stockton-Smith, Sept. 10th; Flt. Lt. D. Thomson, M.B.E., Sept. 12th

Lt. B. A. Hill relinquishes his commn. on account of ill-health, and is permitted to retain his rank, Sept. 11th.

Sec. Lt. T. E. Lomas relinquishes his commn on account of ill-health, and is permitted to retain his rank, Sept. 8th.

The notification in the "Gazette" of July 22nd concerning Capt. F. Reynolds is cancelled.

MEDICAL BRANCH.—Wing. Comdr. (actg Group Capt.) T. D. C. Barry is transferred to unempld. list, Aug. 31st.

The following temp. appts., "Women's Royal Air Force," are made at the Air Ministry:—To be Actg. Assist. Comdrs., 2nd Class:—Administrator P. E. Stapleton-Cotton, Administrator Mrs. W M. Corbett (graded for pay as dep asst. commandant), July 15th.

ADMINISTRATIVE BRANCH.—To be Actg. Administrators:—Dep. Administrators M. A. Mackay, July 1st; M. E. Clarke, July 13th; E. I. David, July 15th.

To be Actg. Dep. Administrators:—Asst. Administrators E. A. Burbridge, May 6th; K. Hargreaves, June 15th; D. G. James, I. Huleatt (graded for pay as Asst. Administrator), July 1st; K. J. Wright, V. M. Orrock, July 6th; Mrs. M. M. Shields, July 10th; M. C. Whidborne, July 12th; N. Campbell, July 15th.

The date of relinquishment of appt. as Administrator of Mrs. N. C. Habrow (née Pasmore) is July 14th, and not as stated in "Gazette," July 22nd.

The following officer relinquishes her appt. on account of ill-health: Dep. Administrator Mrs. M. K. Unwin, July 25th.

The following officers relinquish their appts at their own request:—Asst. Comdt., 2nd Class, Mrs. C. S. French, July 9th. Administrators.—R V. Spinks, May 6th; Mrs. O. E. Tibbits (D.A.C.), July 18th; Mrs. K. Avison, July 22nd; O. Cayley, Aug. 1st; H. B. Womack, Aug. 5th. Dep. Administrators:—G. M. Glubb, July 1st; G. Tighe, July 2nd; D. G. James, July 12th, Mrs. M. Savage, Aug. 13th; L. M. Mackay, Aug. 23rd; Mrs. F. F. Pelly, M. C. Ralston, Aug. 31st; M. Hallowell-Carew, Sept. 1st. Asst. Administrators.—B. W. Gilbert, June 10th; E. Watt, June 12th; Mrs. B. E. Thompson, June 27th; Mrs. K. A. D. Rolfe-Rogers, July 3rd; M. Wade, K. R. Bear, July 9th; M. L. Cumming, July 12th, M. C. Blackwell, July 16th; D. M. M. Allen, July 24th; M. C. Green, July 25th; M. Woodward, G. C. Gibson, July 26th; Mrs. P. M. C. Tyacke, July 30th; G. Green, Mrs. L. Swafield, July 31st; Mrs. M. Hessler, Aug. 1st; Mrs. J. I. Stubbs, Aug. 12th; E. E. Sharp, Aug. 16th; Mrs. M. B. Sersale, Aug. 19th; Mrs. I. M. Banks, Aug. 23rd; E. Middleton, Aug. 30th; Mrs. C. S. Swann, Sept. 1st.

The following officers relinquish their appts. on completion of service:—Asst. Comdts., 1st Class.—Mrs. W. M. Powell, Aug. 26th; E. M. Hamilton, Sept. 5th. Asst Comdt., 2nd Class.—E. O'Sullivan, Aug. 26th. Administrators.—S. A. Grady, Aug. 11th; V. Thurstan (D.A.C.), Sept. 2nd. Dep. Administrator.—K. McDermott, June 30th. Asst. Administrators.—D. B Gordon, Aug. 22nd; M. M. Hugh-Smith, Aug. 26th.

MEMORANDA.—90084 Cdt. H. T. Collins is granted an hon. commn. as Sec. Lt., April 2nd.

The following temp. Hon. Lts. relinquish their commns. on ceasing to be empld.:—T. Leopard, June 16th; H. S. Burdett, Sept. 16th.

Transferred to unempld. list:—Flying Officer R. H. H. Watson, from (S.O.), Aug. 1st; Pilot Officer S. G. Nash, Sept. 9th.

The notification in "Gazette," Sept. 5th, concerning Sec. Lt. T. A. Bayly is cancelled.

The notifications in "Gazette," Sept. 5th, concerning the following Pilot Officers are cancelled:—J. A. S. Cooke, J. M. Fraser, T. E. Fisher, E. Fortin, E. Hanley, T. S. Laird.

WAR OFFICE, September 20th.

REGULAR FORCES.—ESTABLISHMENTS.—R.F.C.—Mil. Wing.—The following appointment is made:—Equipment Officer, 3rd Class.—Temp. Sec. Lt. (on prob.) D. J. Fryer, Gen. List, and to be confirmed in his rank, Feb. 20th, 1918.

PERSONAL NOTICES.

NAVAL.

ENGAGEMENT.

SPARLING—THORN-DRURY.—An engagement is announced between Wing Cmdr. Evelyn Hayley Sparling, R.A.F. (Lt.-Cmdr., R.N.), younger son of William Sparling, of 10, Upper Maze Hill, St. Leonards, late Bogawantalawa, Ceylon, and Silvia Maud, only daughter of G. Thorn-Drury, K.C., of 42, Roland Gardens, S.W.7.

BIRTH.

NORTON.—On Sept. 9th, at Nocton Heath, Lincoln, the wife of Major E. W. Norton, D.S.C., R.A.F., of a daughter.

MILITARY.

DEATHS.

MOCATTA.—Captain Frederick E. Mocatta, A.M.I.C.E., B.Sc., R.A.F., died on Aug. 26th after an operation for septic meningitis. Born in 1890, he served with the Royal Artillery in the 29th Division in the Gallipoli Expedition and took part in the first landing on April 25th, 1915. After the evacuation he saw service in Egypt and France, whence he was invalided home. He was then seconded to the R.A.F. and did excellent work in the Aircraft Production Department at York House.

WALTHEW.—Sec. Lt. John Syers Walthew, R.F.C., the second son of Mr. and Mrs. Walthew, of Harpenden, who was previously reported missing on Sept. 19th, 1917, is now officially presumed to have been killed on that date.

ENGAGEMENT.

BEALE—BROCK.—The engagement is announced between Norman Sydney Beale, M.C., Légion d'Honneur, late Lt., East Surrey Reg. and R.A.F., eldest son of Mr. and Mrs. S. B. Beale, of Sutton House, Sutton, and Margaret Eleanor St. Hill (Nora), youngest daughter of Mr. and Mrs. Arthur Brock, of Haredon, North Cheam.

MARRIAGE.

HAMBLY—STRANGE.—On Sept. 3rd, at St. Matthew's Church, Ealing, Capt. Arthur Francis Hambly, late 2nd Essex and R.A.F., of Bodmin, Cornwall, was married to Vera Mary, eldest daughter of Mrs. John Strange, 5, Tring Avenue, Ealing, by the Rev. Sadler Phillips.

BIRTH.

RUSSELL.—On Sept. 19th, 1919, at 17, Park Lane, to the wife of Wing Commander R. E. M. Russell, C.B.E., D.S.O., R.A.F. (late Lt.-Col., R.E.)—a daughter.

AIR FORCE.

DEATH.

RUDGE.—Lieut. Arthur E. Rudge, 203rd Squadron, R.A.F., who was reported missing after an aerial combat on July 22nd, 1918, is now presumed to have been killed on that date. He was the younger son of J. E. and Julia Rudge, of Paris, and 9, Belsize Park, N.W., and was 19 years of age.

ENGAGEMENT.

FOSTER-STENNING.—The engagement is announced of Capt. William Barham Foster, late R.A.F., son of Mr. and Mrs. Frank Foster, of Buenos Aires, and Alice Margaret, daughter of the late Oswald Francis Stenning and Mrs. Stenning and granddaughter of Sir Alexander Stenning, of West Hoathly, Sussex.

MARRIAGE.

ALBROW—SMALL.—On Sept. 17th, at St. Columba's Church of Scotland, London, W., Lieut. Herbert Victor Albrow, R.A.F., eldest son of Mr. Albrow, Epsom, was married to Margaret Maxwell, younger daughter of the late Mr. John Small, of Wentworth, Jamaica, and Broughty Ferry, and sister of the late Lieut. John Small, B.W., M.A., LL.B., Advocate, Edinburgh, by the Rev. Archibald Fleming, D.D.

AIRCRAFT CONTRACTS.

It is stated that the committee of business men engaged in liquidating contracts for aircraft outstanding at the date of the armistice has cut liabilities of £150,000,000 in half and left the Ministry of Munitions with about 12,000 engines and 3,000 machines for disposal after the R.A.F. has provided for its own needs.

A WORKS CLOSING DOWN.

Owing to the Government cancelling orders for aeroplane construction, the works of the Cambrian Aircraft Constructors (Limited), Cardiff, employing 500 hands, are closing down next week. A proposal to utilise the works for making windows and doors for housing was not adopted.

SOUVENIRS

By "Vestersyl."

"Is Snooks about?"

The Technical Serjeant-Major turned round smartly and faced the young Flight Lieutenant.

"He is in the repair shop, sir."

"Tell him I want him, please."

"Very good, sir," and the Technical Serjeant-Major, after looking very knowingly at the "prop" tip in the hand of the young officer, trotted off towards the repair shop.

Presently Snooks came out of the shop, approached the officer, and saluted.

"You sent for me, sir."

"Yes, Snooks, I want you to make me a brevet of this," and he proffered the propeller tip to the expert wood worker. "When can I have it?"

"To-morrow, sir," replied Snooks.

"To-morrow?" said the officer. "But I want it to-day. It is a souvenir."

"Very good, sir; you shall have it in two hours," and Snooks went away with a smile upon his face, produced in all probability by the thought of the half-crown tip he was sure to get.

Snooks no doubt was the "brevet" expert. Others in the same squadron, however, had their own specialities so far as the production of souvenirs was concerned. For instance, Snooks, although the "brevet" expert, could not hold the candle to Jones, who guaranteed to produce a perfect biscuit barrel from the "prop boss" of any propeller. And so the souvenir game went merrily on.

Petrol Lighters.

There are very few persons in the Royal Air Force who have not made or procured, at some time or other, a souvenir of the great war. The writer, for instance, has in his possession a neat little petrol cigarette lighter made from the oil pressure regulating cap of a B.H.P. engine. This cap, in addition to an aluminium plug, surmounted by a fantastic copper stud, pronged to receive the steel wheel, makes a very nice little job. A certain amount of curiosity as to how I obtained the material may be aroused. To allay this, I may say that they were "scrap" and were given to me in a quite honest and legitimate manner. If you inquire of anyone who possesses a souvenir, you will be told the same tale.

Regarding the types of souvenirs I have seen, I can truly say that these are varied. As a matter of fact, "varied" is not the word to use; there are hardly two alike. I have seen souvenirs discarded merely because their owner has seen another "something like it."

Cigarette lighters I have seen have taken various shapes and sizes. Some are really works of art. Some are of aluminium, others of copper, a few of brass, and some a combination of the three materials. As a matter of fact, they are excellent articles, such as could have been made on a "night shift" where the craftsman has had quite an abundance of "his own time."

One of them in particular that I can remember is a massive article capable of holding quite half a pint of petrol. It is made of copper, topped with a brass fuse cap from a 3in. shell. Its owner is very proud of it, and he delights to place it on the table with the remark, "Help yourself to a light," when he has visitors for the proverbial hand at cards.

I once saw a unique souvenir made by someone in a certain squadron. It was a pair of connecting rods from a Gnôme engine, crossed, and surmounted by a piston. A small clock in the centre of the piston indicated the purpose for which the souvenir was made. The whole was mounted upon a mahogany board, and it made quite a good job.

It is true that the souvenir has something of the "death's head" look about it, and that it cost its owner 28s. to have it electro-plated. But what matters that so long as he can point with pride to it in years to come and say, "That is part of a Gnôme, you know—one of those engines we used in the Great War."

A Piston as a Rose Bowl.

I was talking to my old friend "Mac" one day in the machine shop where he supervised the manufacture of certain component parts of aero-engines, when he was approached by a lady employee. She had a piston in her hand.

"Will you please have a hole drilled in the centre of this?" she inquired, indicating the crown of the piston. The job was accordingly done.

I had the pleasure of seeing this souvenir some little time afterwards. It was mounted upon an inlet valve stem, and with specially cut pieces of streamline, made, I must confess, an excellent rose bowl. It is a little bit weighty perhaps, but, then, one will not object to lifting a little extra weight when exhibiting a souvenir to a host of admiring, and a little bit jealous, friends in the year 1930.

Cylinder liners are, or were, a favourite souvenir among the workers of one firm which manufactured aeroplanes and aero engines. This was, no doubt, due to the fact that the firm referred to was prepared to sell scrap liners to employees for the small sum of one shilling each.

These liners, mounted upon a wooden base, made excellent flower-pot stands. In some cases they were enamelled and artistically painted. I had the pleasure of seeing a pair beautifully decorated with landscape oil paintings. The owner proudly points to them and refers to them as the liners of the engine that did a lot of bombing in the Great War.

I have heard it said that there are more copper rings fitted on the wrists of R.A.F. airmen and their sweethearts than were ever fitted in the engines. I do not believe this, although I do know that many of them do act as an adornment for the wrist. I have one in my possession. It was sent to me after being made from a scrap ring. They really look like gold, and, neatly engraved, are regarded as excellent souvenirs.

The Connecting-rod Clock.

An excellent souvenir is the connecting-rod clock. This takes the form of a connecting-rod with a round clock securely fitted in the large end. The end is hung upon the wall by placing the small end over a nail. Nicely electro-plated, this makes a neat job.

In an office the other day I came across a very interesting souvenir. This was nothing more or less than a gudgeon-pin bush taken from a captured German Mercédès engine. This bush is made of phosphor bronze, and has a number of ¼ in. holes drilled in it. The function of these holes, when fitted in the small end of the connecting-rod, is to allow a free passage for oil between the gudgeon pin and the small end of the connecting rod. As a souvenir, its function is a pen rack. Two aluminium knobs were turned and fitted in each end of the bush, these being mounted upon two brass pillars. It meets its requirements adequately, and, owing to its curious appearance, it seldom fails to give its owner an opportunity of explaining its origin to his visitors when he is asked, "What have you got there?"

One young woman I know was married in a dress made from some of the fabric with which the wings of aeroplanes are covered. She takes a great pride in this, and no doubt it will be placed in the proverbial "glass case" pending the arrival of the next generations, who, no doubt, will look upon grandma's dress as the finest of all souvenirs of the war.

The most interesting souvenir I have seen is in the house of a friend of mine at Leicester. This is nothing more or less than a complete Gnôme engine. It is suspended from the centre of the drawing-room ceiling by its shaft and a strong chain. The sparking plugs have been removed and electric light holders are fitted in the sparking-plug holes. With opalescent shades this engine not only forms one of the most remarkable souvenirs of the war, but it is extremely useful as an electrolier. Quite a contrast to my humble cigarette lighter, isn't it?

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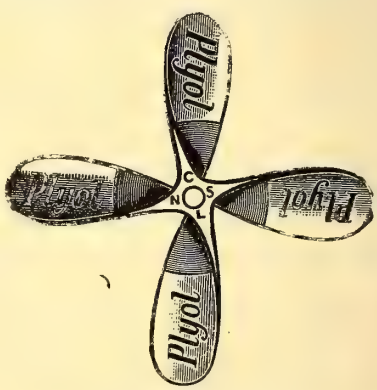

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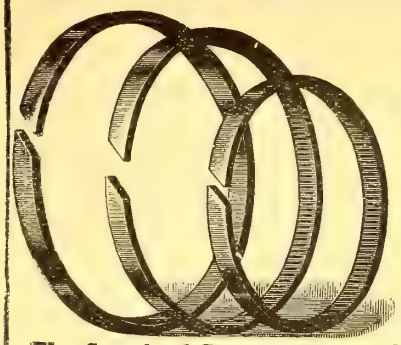

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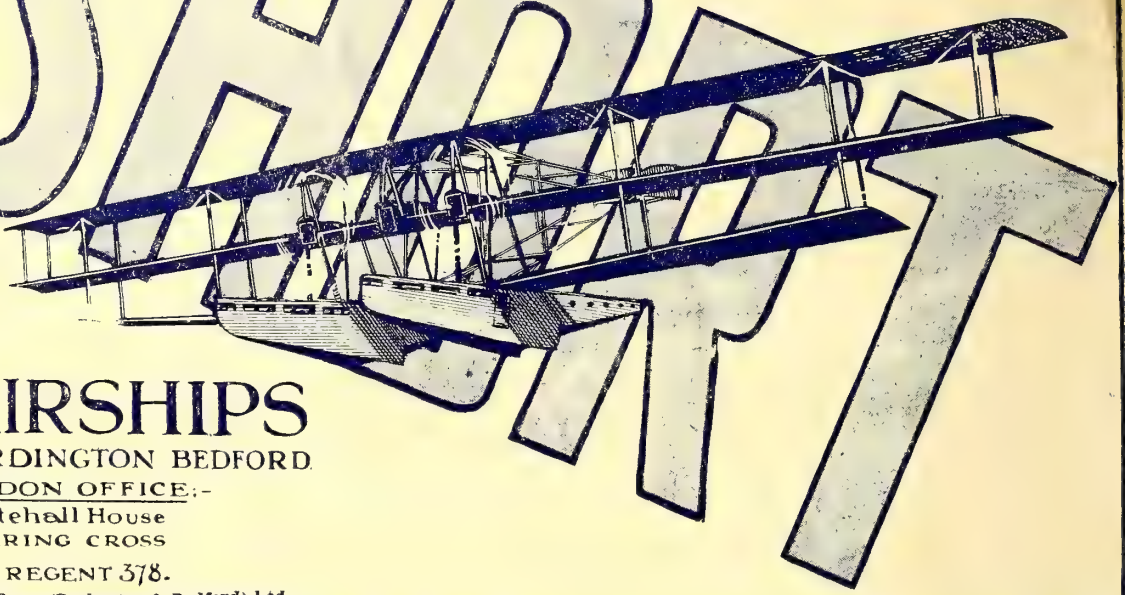

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